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Managing Foreign Exchange Rate Risk: Capacity Development for Public Debt Managers in Emerging Market and Low-Income Countries

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Managing Foreign Exchange Rate Risk: Capacity Development for Public Debt Managers in Emerging Market and Low-Income Countries

Prepared by Thordur Jonasson, Sheheryar Malik, Kay Chung, and Michael G. Papaioannou*
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ABSTRACT: This paper presents some sound practices for foreign-currency risk management in developing countries and outlines instruments for managing sovereign debt portfolio currency exposures. Adoption of a debt management strategy with well-defined targets for foreign exchange risk is a critical element of public debt risk management. To this end, public debt managers often need to face with complex strategic and operational matters related to public debt hedging practices, including the use of derivatives. In this context, we highlight the main institutional challenges in the management of foreign exchange risk in sovereign debt portfolios and discuss the overall implementation of a foreign exchange risk-management strategy.

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WORKING PAPERS

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AE	Advanced Economies
AFR	Africa
APD	Asia and Pacific
ATM	Average Time to Maturity
CaR	Cost-at-Risk
CSA	Credit Support Annex
DFIs	Development Finance Institutions
DMO	Debt Management Office
EM	Emerging Markets
EMDE	Emerging Markets and Developing Economies
ESA	European System of Accounts
EUR	Euro
FX	Foreign Exchange
JPY	Japanese Yen
IBRD	International Bank for Reconstruction and Development
IDA	International Development Association
ISDA	International Swaps and Derivative Association
IT	Information Technology
LIC	Low-Income Countries
LMIC	Low- and Middle-Income Countries
MDB	Multilateral Development Bank
MoF	Ministry of Finance
MSME	Micro, Small, and Medium Enterprises
OTC	Over-the-Counter
TCX	Currency Exchange Fund
USD	US Dollar

Executive Summary

From a debt management perspective, foreign currency risk derives from foreign currency-denominated debt and unhedged debt servicing costs. Exchange rates are typically among the most volatile financial variables, where their movements can significantly increase the value of outstanding debt and debt-servicing costs (in local currency). In turn, volatile debt-servicing costs increase the volatility of the budget outcome, which can add to economic uncertainty and undermine an economy's resilience to encountered risks. This erodes financial stability and can lead to further shocks in debt service costs and higher overall debt levels. To mitigate such adverse consequences, public debt management offices (DMOs) need to actively assess foreign currency risk in sovereign debt portfolios and devise (i) strategies that envision appropriate hedging of existing sovereign debt exposures and (ii) borrowing plans that rely less on foreign-currency denominated instruments. These strategies should be aided by comprehensive measures to develop the local-currency government bond market (LCBM).

Capacity Development (CD) experience has shown that significant gaps exist in the risk management capacities of DMOs of emerging markets (EM) and developing economies, including low-income countries (LICs) – referred to here as EMDEs, with significant breaches on foreign currency and interest rate risk management practices. We present results of a novel survey of debt management offices in emerging market and low-income countries. Approximately 80 percent of respondents were low-income countries, while 20 percent of respondents represent emerging markets. The survey found that LIC and EM DMOs had limited institutional capacity to engage in sophisticated foreign currency risk management, with only 45 percent of those surveyed indicating that they prepare a foreign currency risk management strategy. It also found that DMOs faced unstable macroeconomic conditions, shallow and concentrated investor bases, weak financial infrastructures and often lacked legal authority to contract financial derivatives. However, most respondents indicated their wish to develop capacity in order to quantify risk and improve local-currency debt markets to broaden financing options, which could help make their DMOs more effective in managing foreign currency risk.

Based on (i) these survey results and (ii) country experiences in foreign currency risk management derived from CD engagement, we devise steps to guide capacity development efforts for foreign currency risk management in developing countries. From the perspective of public debt managers, various strategies and instruments can be used to manage sovereign-debt foreign currency risk of EMDEs. The selection of a hedging program and decision on available instruments depend on an individual EMDE's particular economic and financial conditions. This paper provides an overview of the main strategic and operational issues related to public debt hedging practices, including the use of swaps and other derivatives. Further, we discuss the main institutional and capacity development challenges in the management of foreign exchange risk in sovereign debt portfolios and the overall implementation of a foreign exchange risk-management strategy. In this context, the need for good governance and control over derivative transactions is emphasized.

Adoption of a debt management strategy with well-defined targets for foreign currency risk is a critical element of public debt risk management. Such a strategy should be based on a debt management system that allows the authorities to monitor sovereign risk exposures in an integrated manner. In principle, this system would allow mismatches in assets and liabilities' maturities and in foreign currency and interest rate risks to be identified, measured and managed systematically and efficiently (Amante et al., 2019).

I. Introduction

Poorly structured debt portfolios, in terms of maturity, currency, or interest rate composition, and large contingent liabilities, have been important factors in inducing or propagating sovereign debt crises in many countries since the 1950s. For example, irrespective of the exchange rate regime, crises have often arisen because of persistent large fiscal imbalances and an excessive focus by governments on possible cost savings associated with short-term, floating-rate or foreign currency-denominated debt. Issuance of large volumes of such debt instruments puts government budgets at risk if refinancing is required during periods of slow economic growth or unstable financial market conditions. This can also impact a country's creditworthiness.

An important component of many EMDEs' sovereign debt portfolio is foreign currency debt. From the perspective of public debt management, foreign currency risk is associated with exchange rate volatility and its impact on interest and exchange rate costs of the foreign currency debt. This is one of the principal market risks in a government debt portfolio that must be managed appropriately. Historically, depreciations of currencies have increased the domestic-currency equivalent of foreign-denominated debt and consequently the debt-servicing costs of affected countries, as illustrated by the 1994 Mexican "Tequila" crisis. As exchange rates are typically among the most volatile financial variables, their movements can significantly increase the value of the outstanding debt and debt-servicing costs. The volatile debt-servicing costs, in turn, increase the volatility of government expenditures, which can lead to economic uncertainty.

Public debt managers pay considerable attention to the measurement and management of the public debt's currency exposure as they try to estimate the risk level and, in particular, the cost of servicing the external debt in domestic currency terms. Accordingly, precise knowledge of this exposure helps them to (1) assess the potential volatility in debt servicing costs due to exchange rate fluctuations, (2) appropriately budget contingent liability funds for debt servicing and, thus, contribute to tax smoothing, and (3) engage in liability management operations, including derivative transactions, to mitigate foreign exchange-related risks and possibly reduce debt servicing costs (IMF and World Bank 2014; Papaioannou 2009).

In general, developing economies are relatively more exposed to external shocks than developed economies. Such shocks are relevant to debt management. These include terms-of-trade shocks, such as those arising from changes in the prices to which the economy has a material exposure, whether on the revenue side or on the expenditure side; shocks to capital flows, in particular when risk perception in international financial markets deteriorates and exposure to potential contagion risk sets in; and natural disasters, which can rapidly and dramatically upset the government's medium-term macroeconomic framework. It has been well documented that exchange rates are inherently volatile on account of asymmetric supply and demand shocks, poor and variable macroeconomic policies, and uncertainty around the political situation and institutional changes (Clark et al., 2004; Bartolini and Bodnar, 1996). In this context, many EMDEs have tried to measure the FX risk and to eliminate it to the extent possible through foreign currency risk management (Papaioannou, 2006).

Foreign currency risk management is a key element of the overall risk management framework for public debt management. Debt managers assess various debt management strategies. After selecting the preferred strategy, they traditionally analyze various sets of issuance strategies (e.g., foreign-currency versus domestic-currency debt, fixed-rate versus floating-rate debt, short-term versus long-term maturities) that allow financing of a given fiscal deficit and/or undertaking liability management operations provided that a country's debt risk indicators remain within prespecified limits (IMF and World Bank 2014).

Each debt issuance strategy and/or liability management operation is assessed on the basis of its implied debt service costs and its impact on relevant risk indicators. Stress (scenario) tests determine further the impact of changes in various debt risk factors (e.g., exchange rates, interest rates) and the underlying macroeconomic conditions, including

extreme events (e.g., excess movements in risk factors that resemble historical episodes), on relative debt costs and risk indicators. Based on the robustness of these strategies to risk shocks, the debt manager ranks the strategies under consideration. To effectively rank strategies, this approach should be supported by incorporating probabilities of occurrence of changes in the various risk factors.

Additionally, developing economies in general have lower capacity in foreign-currency risk management. For most developing economies, the balancing of cost and risk often remains a challenging objective. Many developing economies have limited access to capital markets, both domestic and external, and debt managers do not always have the opportunity to choose from an array of options. Instead, they may be faced with limited and sometimes risky sources of financing. Also, it is not unusual for a debt manager in a developing economy to be constrained by the lack of appropriately-skilled staff and technical apparatus in managing debt portfolio risks, including foreign currency risk.

In practice, debt managers in developing economies generally follow a set of objectives that are aimed at expanding their financing choices and thereby limit foreign currency risk in their debt portfolios. These include (i) building a local-currency yield curve for the proper pricing of risk for the official and private sectors; (ii) extending maturities; (iii) creating benchmark issuances and building liquidity in the secondary market; (iv) diversifying the country's investor base by attracting foreign investors or a new class of investors, or by developing new financial products for existing markets (e.g., inflation-linked bonds, zero coupon bonds), or developing currency-risk markets; and (v) supporting the development of the financial sector and promoting financial stability. They also work in consultation with monetary authorities to build sufficient foreign exchange reserves to weather potential financing difficulties during a crisis (either from within or abroad). In parallel, developing-economy debt managers also try to increase the efficiency of their institutional and professional capacity aiming to enhance the effectiveness of debt portfolio risk management. This, however, requires a sustained effort over a longer time-period (Jonasson and Papaioannou, 2018).

This paper is organized as follows: Section II presents the definition and types of currency risk from the debt manager's and macro-fiscal perspectives; Section III discusses the management of foreign currency risk, including the pre-requisites for the use of derivatives; Section IV outlines the survey results of DMO risk management practices; and Section V concludes with some remarks on the contributions of the paper and on further advancements in foreign exchange derivatives practices for foreign currency risk management.

II. Definition and Characteristics of EMDE Foreign-Currency Public Debt

Determination of a Measure of Foreign Currency Risk

From a debt managers' perspective, a foreign currency risk factor is represented by the volatility of the exchange rate, and the extent of the exchange rate exposure of the sovereign debt portfolio, which depends on the magnitude of the changes in exchange rates. The debt manager can affect the exposure by varying the composition of his debt portfolio, but he cannot affect the risk factor: the exchange rate. From this relationship, it is easy to observe that the more the risk factor is transferred into foreign currency risk, the greater the exposure to foreign currency risk. The following indicator provides a measure of the exposure to this risk:

$$\mathrm{d}_{\mathrm{t}}^{\mathrm{fx}} = \frac{\mathrm{D}_{\mathrm{t}}^{\mathrm{FX}}}{\mathrm{D}_{\mathrm{t}}} = \frac{\mathrm{D}_{\mathrm{t}}^{\mathrm{FX}}}{\mathrm{D}_{\mathrm{t}}^{\mathrm{DX}}+\mathrm{D}_{\mathrm{t}}^{\mathrm{FX}}} = \frac{\sum_{\mathrm{j}=1}^{\mathrm{m}} \mathrm{e}_{\mathrm{t,j}} \mathrm{D}_{\mathrm{t,j}}^{\mathrm{FX}}}{\mathrm{D}_{\mathrm{t}}^{\mathrm{DX}}+\sum_{\mathrm{j}=1}^{\mathrm{m}} \mathrm{e}_{\mathrm{t,j}} \mathrm{D}_{\mathrm{t,j}}^{\mathrm{FX}}},$$

where $\mathrm{d}_{\mathrm{t}}^{\mathrm{fx}}$ is share of foreign currency debt in the debt portfolio; D_t^{FX} is foreign currency debt; $D_t$is total debt; D_t^{DX} is domestic currency debt; t, j, m, and n are time intervals; and $e_{t,j}$ is exchange rates.

An analysis of the mismatch in terms of level and currency composition of foreign currency liabilities in relation to foreign currency reserves can also be used to assess the extent of the government's debt portfolio exposure to foreign currency risk:

$$d_t^{fxr} = \frac{D_t^{fx}}{R_t} = \frac{FX_t}{R_t} = \frac{\sum_{j=1}^{m} e_{t,j} FX_{t,j}}{\sum_{h=1}^{n} e_{t,h} R_{t,h}},$$

where $d_t^{fxr} = \frac{D_t^{fx}}{R_t}$ is the ratio of foreign currency debt to foreign currency reserves and R_t is foreign currency reserves. Note that the composition of the foreign currency reserves may differ from that of the foreign currency debt when $e_{t,j} \neq e_{t,h}$ for any *h* and *j*.

Because sovereigns with a substantial share of their debt portfolios denominated in foreign currencies assume commensurate debt-portfolio exchange risk exposures, they often consider hedging part or all of such positions.[2] However, comprehensively measuring the exchange rate exposure is often not an easy task, given the co-movements between exchange rates and interest rates and the prevailing high correlations among bond markets. In addition to the above indicator, exchange rate risk is also measured by combining the sensitivity of the debt portfolio to exchange rate changes and the probability of realization of a given exchange rate change.[3]

EMDEs that have issued sovereign international bonds may also need to focus on the maturity structure, especially if they have only limited (if any) access to foreign capital markets and relatively undeveloped domestic debt markets. Consequently, they may need to assign a higher priority to refinancing risk, i.e., risks associated with much higher interest rates or difficulties accessing the market when it is time to refinance a bond. Where appropriate, policies to promote the development of the domestic debt market should also be included as a prominent government objective, and many countries have done so. This objective is particularly relevant for countries where market constraints are such that short-term debt, floating rate debt, and foreign currency debt may, in the short run at least, be the only viable alternatives to monetary financing.

It should be stressed that it is not advocated or recommended that providers of concessional loans structure their loans in a particular manner (i.e., that they include derivative hedging in their loans, or issue in the domestic currency). This is clearly the prerogative of the provider, with the borrower determining whether to assume or not assume the associated foreign exchange exposure.[4] Like other foreign-exchange loans, concessional loans create foreign exchange exposures for borrowing countries. Authorities, therefore, need to decide (i) if and what part of foreign exchange obligations to hedge, and (ii) what instruments to use, including derivatives, for hedging such exposures.[5]

Further, a government should determine whether to use internal resources (knowledgeable and well-trained DMO staff) or external advisors (expert foreign exchange managers) for deciding on options (i) and (ii) above. Thus, if the government decides to depend on its own DMO capabilities, it should make sure that it has adequate personnel and institutional capacity to undertake hedging activities. In particular, before deciding to use derivatives, the authorities should carefully assess whether they are fully equipped to establish a hedging program and to control the risks borne out by using derivatives to hedge currency risk, including counterparty, legal, liquidity and operational risks.[6] If a DMO does not possess such capabilities, international financial institutions and private sector entities can provide relevant technical assistance. However, based on past experience, development of such expertise, especially in LICs, takes a

[2] If the goal of a government issuing foreign exchange-denominated debt is to ease pressure on domestic debt markets, then hedging may not work as intended if laying off the exposure results in a counterparty residing in the same markets.

[3] This points to the need to apply a multivariable approach, such as a simulation exercise.

[4] It should be noted that the World Bank has embedded derivatives offered as part of its loan instruments.

[5] It should be pointed out that in currency-risk hedging decisions, central-bank foreign exchange reserve considerations are an important factor, as hedging could reduce potential claims on reserves.

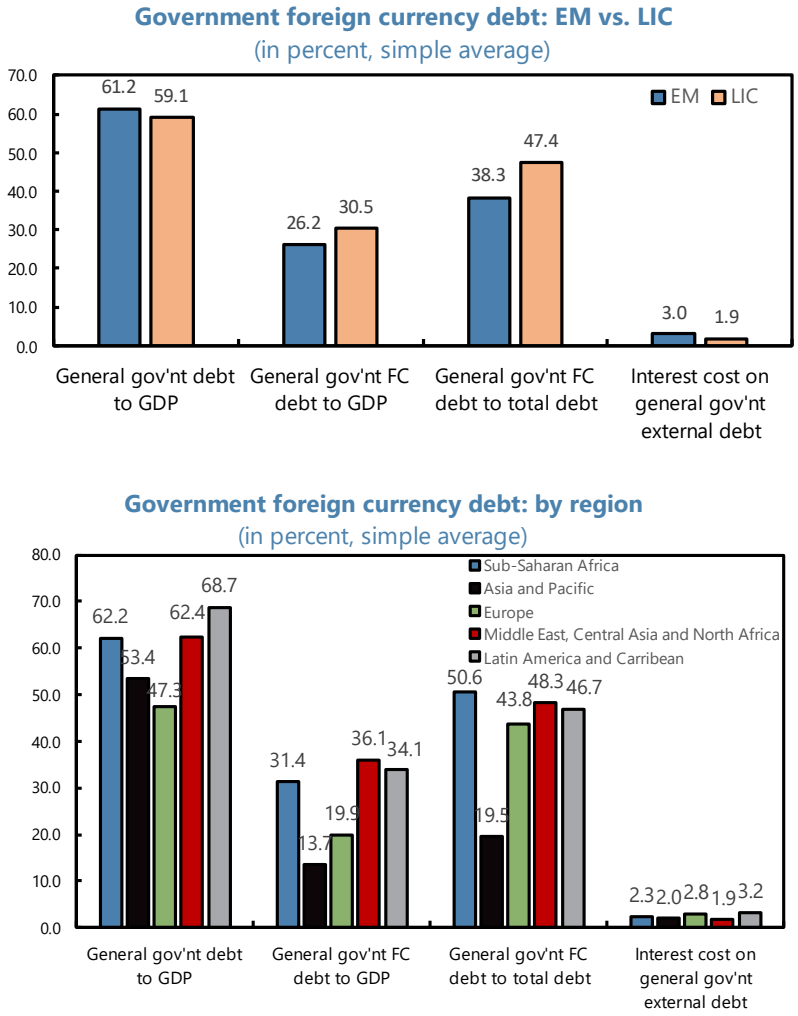
[6] In a decision to establish a hedging program via derivatives, the two main approaches used are (a) the portfolio approach (macro hedge) and (b) a hedge on a debt obligation-by-debt obligation basis (micro hedge).

long time. On the other hand, if the government proceeds with external advisors for deciding on (i) and (ii), then transparent criteria and terms of reference on the selection process of such foreign exchange advisors should be in place.

Public Debt Foreign Currency Risk in EMDEs

From a macro-fiscal perspective, a broadly-used proxy for public debt foreign currency risk is the share of the outstanding stock of sovereign debt issued or guaranteed in foreign currency to total public debt or GDP. Figure 1 depicts several general government foreign currency debt indicators for EMDEs at end-2021. LICs' share of foreign currency debt is larger than that of EM countries By region, Sub-Saharan African and Middle East and North African regions are shown to have larger shares of foreign currency debt in their debt portfolios. Annex 4 presents detailed characteristics of several EMDE's foreign currency debt stock, along with their sovereign credit ratings, and the respective GDPs.

Figure 1. General Government Foreign Currency Debt Indicators of EM and LIC Countries, end-2021



Sources: IMF World Economic Outlook database; World Bank International Debt Statistics.
Note: EM = emerging market; LICs = low-income country.

Cross-country comparisons of debt composition show that portfolio structures are not uniform and developing country debt portfolios are dominated by official sector external debt. This is reflected in a relatively higher level of foreign exchange rate risk. However, from a macro-fiscal perspective, the generally long tenors and amortizing structures of multilateral and bilateral loans mitigate this risk, while their maturity and interest rate structure also help contain refinancing and re-fixing risks (Box 1). For LICs, in which most debt is contracted on concessional terms, the lower interest costs than in EM countries also help mitigate macro-fiscal risks.

Box 1. Aspects of Debt Composition and Debt Management Practices Across Select Developing Economies

A key goal of an effective debt management strategy is to help manage portfolio costs and risks by identifying the mix of debt instruments (maturities, currencies, and interest rate structures) that is consistent with the authorities' medium-term debt management objectives. Long tenors and amortizing structure help mitigate exchange rate risk in external debt portfolios, while vulnerabilities may exist in domestic debt portfolios where the relatively short maturity of available debt instruments typically results in higher refinancing and re-fixing risks. Overall, the low cost of concessional and some semi-concessional borrowing also helps offset the generally higher cost of commercial and market-based borrowing.

In a sample of developing countries analyzed by the IMF and the World Bank, weak performance in debt management strategies has generally been related to its quality and governance. While many countries have some form of strategy, it is often unpublished, does not have the approval of senior policy makers, and is not supported by an institutional decision-making process that ensures its regular production, implementation, and updating. Moreover, most strategies are not underpinned by robust cost-risk analysis of the debt portfolio.

	Average	Max	Min
Level of debt			
Outstanding debt/GDP (%)	39%	73%	13%
Exchange rate risk			
Foreign exchange debt/Total debt (%)	71%	94%	50%
Refinancing risk			
Average time to maturity (years)	11.0	17.5	6.0
Average time to maturity (domestic debt)	3.6	9.1	0.5
Average time to maturity (external debt)	13.5	20.0	6.6
Debt maturing in next 12 months (% of total debt)	15%	34%	2%
Interest rate risk			
Average time to re-fixing total debt (years)	10.3	15.3	4.0
Debt re-fixing in next 12 months (% of total debt)	23%	56%	3%

1/ Covers central government debt in countries that received joint Bank-Fund MTDS TA missions, including Armenia, Cape Verde, Côte d'Ivoire, Ethiopia, the Gambia, Ghana, Guatemala, Kenya, Kyrgyz Republic, Malawi, Moldova, Mongolia, Mozambique, Paraguay, Rwanda, Senegal and Tanzania. Data refer to the respective date of the last MTDS mission.
Source: IMF-WB MTDS TA reports.

In general, while performance in the areas of legal framework, debt recording, and coordination with monetary policy remain, challenging deficiencies in key analytical functions have also been identified: robust debt management strategies need to be identified, cost effective and beneficial terms for external borrowing need to be assessed, and cash flow forecasting and cash management need to improve. These weaknesses could become more acute, with often a more adverse impact, when the characteristics of the debt portfolio are more complex.

Weaknesses associated with policies and procedures related to external borrowing are of particular concern, given the likely shift in countries' borrowing choices. Further, less than one-third of the countries in the sample met ad hoc minimum requirements set on assessing external borrowing policies and procedures. Scores on used indicators show that: (i) little consideration is given to the most beneficial/cost-effective borrowing terms and conditions; and (ii) there is a general absence of documented procedures for borrowing in foreign markets.

Also, weaknesses in operational and institutional factors further aggravate deficiencies in countries' analytical capacity. Deficiencies in operational controls, business continuity planning, and staff responsibilities significantly increase overall risk as the range of borrowing instruments increases. The absence of effective and independent auditing of debt management policies, functions, and performance undermines accountability and becomes an increasingly problematic as decisions about borrowing choices become more complicated.

For details, see "Helping Developing Countries Address Public Debt Management Challenges—An IMF-World Bank Capacity Building Partnership," available at http://www.imf.org/external/np/pp/eng/2013/030513.pdf

III. Management of Foreign Currency Risk in Sovereign Debt Portfolios

Management of foreign exchange risk of public debt involves a sustained and significant effort by the authorities. Several pre-requisites are needed to operationalize the overall debt portfolio risk management framework. This section summarizes those steps, which include: building the debt management policy framework and defining the debt manager's responsibilities; strengthening capacity to analyze the costs and risks associated with the debt portfolio given its diverse characteristics; ensuring consistency with the medium term macro-fiscal framework; and defining the hedging strategy and risk management framework. The final stage is to prepare a robust risk management framework for derivatives. Regular stress tests are recommended to evaluate the portfolio's resilience to potential economic and financial shocks.

Building the Debt Management Policy Framework and Defining the Responsibilities of the Debt Manager

Determining the functions and responsibilities of the public debt management entity is essential. These may involve (i) preparation of medium-term debt management strategies, including local-currency bond market development; (ii) preparation of annual borrowing plans based on the determined strategy; (iii) handling of all borrowings, credit arrangements, and other debt management activities to achieve the strategy goals; (iv) debt data recording and other debt administration activities; (v) preparation of reports and statistical bulletins on government debt and debt management; and (vi) assistance in the annual budget preparations.[7]

Strengthening the capacity to analyze the costs and risks of the debt portfolio under different scenarios.

Domestic and external debts have various characteristics, including differing currency denominations, interest rates, investor base, and repayment profiles, exposing the public debt to different future risks and liabilities. The risks inherent in the debt structure should be carefully evaluated and mitigated.

Upon building analytical prowess, a well-articulated and formal debt management strategy based on articulated and measurable debt management objectives can be established (Annex 1). A formal debt management strategy would include a rigorous analysis of cost and risk and how the debt portfolio is likely to evolve through time. For example, if a projected increase in gross financing needs remains high over the medium term, interest rate and rollover risks could be raised, along with possible financing constraints due to the small size of the domestic financial sector. Therefore, the debt management strategy should clearly spell out the sources of financing, which may be external or domestic (Annexes 2 and 3). Furthermore, stress tests should be conducted regularly on the debt portfolio to assess its resilience to the economic and financial shocks to which the country might be exposed.

[7] The central bank can continue administering T-bill and bond auctions as an agent and advisor of the government, but it must be clarified that the MoF is the final decision maker when it comes to the auction calendar, amounts to be issued, tenors, and price. In this regard, a Memorandum of Understanding between the MoF and the central bank with regards to the issuance and management of domestic public debt should reflect this order.

Consistency with the Medium-term Fiscal Framework

The debt management strategy should be an integral part of the overall macroeconomic framework as it has implications for both fiscal and monetary policies. In addition to establishing guidelines for implementation of the debt management strategy, it is necessary to secure support from senior policy makers. To ensure debt sustainability, prudent fiscal policy, together with debt management and local currency bond market development strategies, need to be closely coordinated (IMF and World Bank 2021; Bossu, Hillier, and Bergthaler 2020).

Defining the Hedging Strategy

At this stage further analysis of market constraints is needed to assess hedging costs and costs and estimate an optimal hedging ratio. If the government/DMO decides to proceed with (i) hedging part or the entire sovereign foreign exchange exposure, and/or (ii) using specific hedging instruments, the DMO needs to make another decision regarding the financial entities that will undertake these activities, especially, concerning domestic vs external institutions and markets. These decisions also necessitate appropriate criteria and terms of reference for each process.

Setting the Risk Management Framework for Derivatives

Where derivatives will be used to manage foreign exchange risk, the risk management framework for derivatives should be articulated. This includes the following characteristic: (i) a strong legal basis, (ii) adequate information systems to properly report the transactions and connect to relevant payment systems, (iii) robust cash management processes to handle the posting/collection of collaterals; and (iv) detailed counterparty risk frameworks (e.g., for selection of the banks with whom ISDAs will be signed).[8] For a more extensive coverage of operational issues relating to the risk management framework that uses derivatives in sovereign debt portfolios, see Annex IV.

IV. Survey Results on DMO Risk Management Practices

A survey identified gaps in risk management capacities in EMDE DMOs, with a special focus on foreign currency and interest rate risk management practices. The survey was answered by the debt management authorities (and monetary authorities for certain money market aspects) of 30 countries—14 in sub-Saharan Africa, 8 in Latin America, 3 in Europe and Central Asia, and 3 in Asia and Pacific region.[9] This section presents the survey results. About 80 percent of respondents are LICs, while 20 percent represent EMs.

An additional survey of LIC debt management offices examined current debt management challenges found that the development and implementation of debt management strategies, as well as domestic market development, were highlighted. The survey, conducted in May 2022, was sent to 69 LICs and had a response rate of forty percent.[10]

[8] This step will represent a challenge for many LICs, even if they rely on concessional foreign-exchange financing (with typically long-term maturity and low short-term foreign-exchange exposure). In particular, LICs' debt recording/accounting systems are often deficient in properly tracking derivative positions and market-valuing underlying collateral.

[9] The survey was prepared in cooperation with The Currency Exchange Fund (TCX) in December 2021. It included the following countries: Angola, Benin, Bosnia and Herzegovina, Cambodia, Chad, Chile, Republic of Congo, Costa Rica, Gabon, The Gambia, Grenada, Guatemala, Guinea, Hungary, Jamaica, Kyrgyzstan, Lebanon, Madagascar, Mali, Nepal, Niger, Papua New Guinea, Suriname, Swaziland, Togo, Trinidad and Tobago, Uganda, Ukraine, Uruguay, and Uzbekistan.

[10] IMF (International Monetary Fund). 2022. "Macroeconomic Developments and Prospects in Low-Income Countries—2022, International Monetary Fund, Washington, DC.

Overall, the surveys revealed limitations: With regards to the management of FX risk, the countries were found to lack an adequate institutional infrastructure, as well as having limited experience in the use of derivatives and overall, their foreign currency risk management techniques are limited. Issues include the lack of DMO's legal authorities to contract financial derivatives, unstable macroeconomic conditions, shallow and concentrated investor bases, and weak financial infrastructures. However, most countries (across different regions and income levels) consider developing capacity in risk quantification—and developing local currency debt markets—as very important elements to improving DMO foreign currency risk management effectiveness. Other notable areas of challenge were in the integration of cash and debt management, and in the implementation of annual borrowing plans. For further development, countries indicated their interest in deepening the investor base generally and to support the development of the local debt market.

The operational environment was also highlighted. This included insufficient resources and inadequate information flows undermine effective debt management as well as resourcing, both in terms of staffing and physical/IT equipment, and institutional arrangements surrounding data recording, monitoring, and receiving debt data (including from other parts of government). Resource constraints are more evident among fragile and conflict-affected states and small and developing states.

Current Risk Management Practices

The majority of responding DMOs indicated that their laws grant them legal authority to (i) issue debt securities (86 percent), (ii) conduct liability management operations (69 percent), and (iii) contract financial derivatives (55 percent). DMOs indicated that they prepare (i) a debt management strategy (93 percent), (ii) an analysis of risk profile (79 percent), and (iii) a currency risk management strategy (45 percent).

Foreign Currency Risk

The majority of DMOs indicated that they have explicit targets for foreign currency risk exposure (58 percent) and conduct stress tests over the short term (less than one year) or medium term (3-5 year) based on their exchange rate forecasts. Also, the majority of DMOs look at the local currency value of amortization and interest payments and the public debt stock when assessing the impact of exchange rate fluctuations. However, less than half of the surveyed DMOs prepare a Currency Risk Management Strategy.

Interest Rate Risk

In the survey, about 43 percent of DMOs indicated they assess the impact of interest rate fluctuations on the local currency value of interest payments, and that they conduct stress tests for a period of 1-3 years (42 percent) or 3-5 years (33 percent).

Liability Management Operations

About half of the responding DMOs had experiences of changing composition of domestic and external primary issuances. Only about 20 percent of respondents, however, indicated they undertook external or domestic debt buyback or debt exchanges. This exercise was not frequent (1–3 times over three years) and two-thirds of them hired legal and financial advisors for debt buyback operations.

Use of Derivatives

There is limited experience with financial derivatives transactions among these countries. Only a couple had contracted currency or interest-rate swaps and only one had contracted futures or options. A limited number of countries have an International Swaps and Derivative Association (ISDA) Agreement, a collateral agreement, or a policy related to the use of financial derivatives of risk hedging in place.

Development of the Local Currency Government Bond Market

About one-third of the respondents indicated they have a strategy to assess and improve their local currency government bond market, and need further training in the following areas:

- Enabling macroeconomic conditions: creating sound conditions for steady reduction in interest rates and inflation.
- Money market: increasing trading of short-term instruments and developing repo markets.
- Primary market: developing deep and liquid markets, developing predictable and stable sources of financing, extending maturities and building benchmark yield curves, increasing participation of long-term investors, and developing a primary dealer system.
- Secondary market: increasing liquidity and transactions.
- Investor base: further diversifying the investor base from insurance companies, pension funds, and retail investors; attracting more foreign investors in local currency securities; and easing access to international capital markets.
- Financial market infrastructure: establishing modern trading platforms and improving coordination among central bank, regulators, and supervisors.
- Legal framework: establishing a legal framework that encompasses debt operations, public finance management, and debt policy.

Debt Management Strategy

In formulating a debt management strategy and implementing borrowing plans, the integration of cash and debt management was highlighted as key challenges by more than 70 percent of the respondents. Closely related is the formulation of and implementation of annual borrowing plans and communicating the debt management strategy.

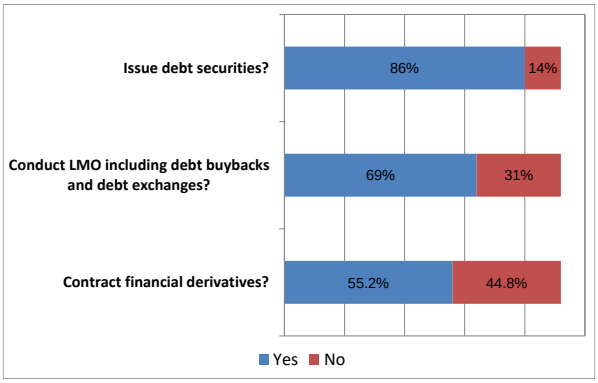
DMO Professional Profile and Resources

About one-third of respondents reported that DMOs have senior staff dedicated to risk management or legal issues (1 to 3 staff), but capacities were generally seen as limited. In terms of the operating environment for debt management the lack of resources and inadequate information flows were also highlighted. Resources encompass both staff but also physical/IT equipment and institutional arrangement surrounding data recording, monitoring, and receiving debt data (including from other parts of the government) are among the key impediments to effective debt management. Resource constraints are more evident among fragile and conflict-affected states and small and developing states.

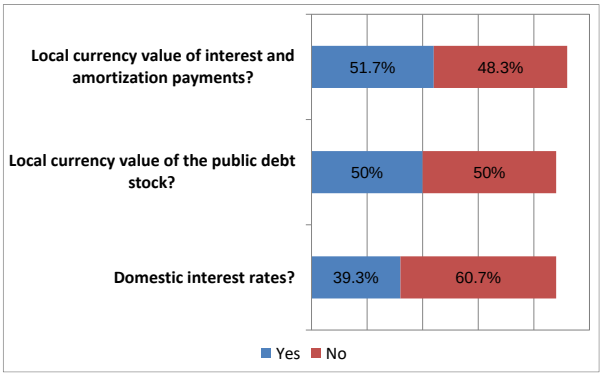
Figure 2 and Figure 3 provide the detailed survey results of sovereign DMO’s with regards to risk management practices.

Figure 2. Survey Results: Sovereign DMO's Risk Management Practices

Debt management law grants standard provision to issue debt securities but a large number of countries report the laws do not allow financial derivatives and LMOs.

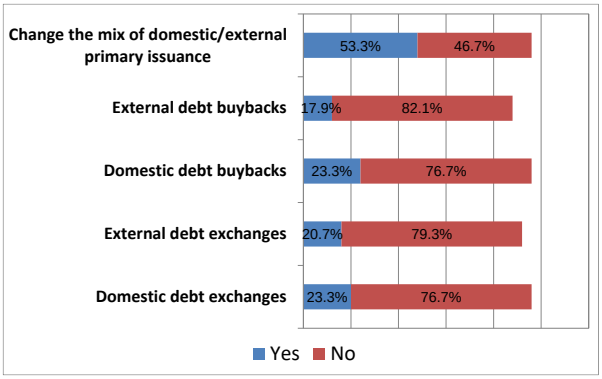


Risk identification is at an early stage since many countries do not conduct stress tests, and are not fully aware of debt portfolio risk related to domestic interest rates or the foreign currency debt.

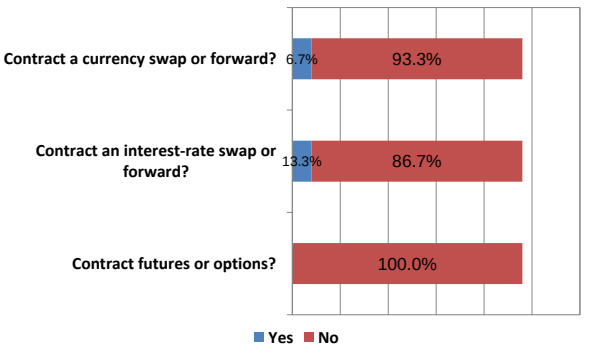


Source: Survey results (December 2021).

Debt management is passive with little use of transactions that can manage foreign currency risk and upcoming maturities as few countries implemented such transactions …

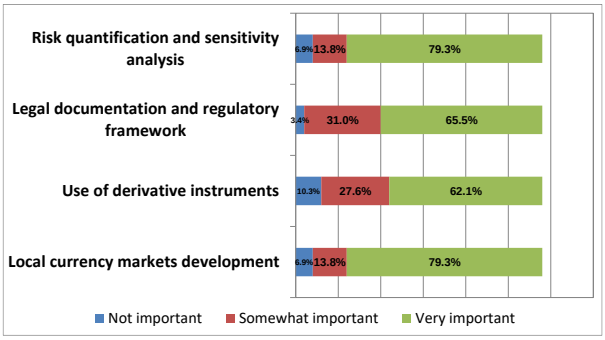


..and even fewer countries used derivatives such as swaps, forwards, interest rate swaps, futures and options during 2019-2021.

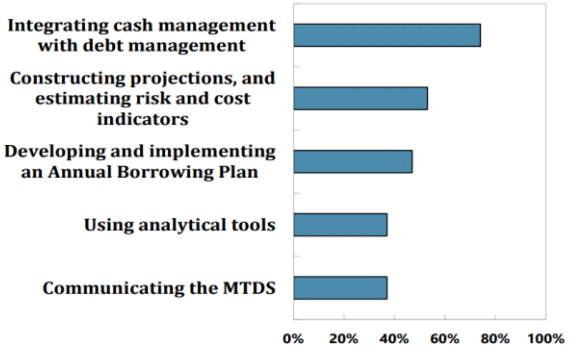


Source: Survey results (December 2021).

Countries express a strong need for additional capacity development across the board, particularly for risk quantification, sensitivity analysis and local currency bond market development…

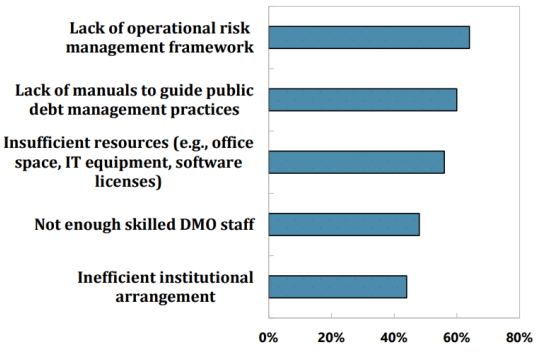


…however, there appear to be fundamental gaps in formulating and implementing a debt management strategy that provides the basis for using risk management instruments, such as derivatives.

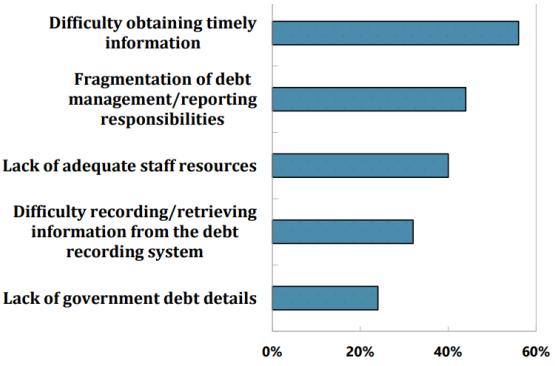


Source: Survey results (December 2021) and LIC Debt Management Survey results (May 2022) (right panel).

When asked about the obstacle's debt managers indicate an overall need to strengthen the institutional framework for debt management, risk frameworks, staffing and IT…



…manifesting across a range of areas that undermine effective debt management, including obtaining information on disbursement and new transactions, recording debt, and limited ability to operate the debt management system.



LIC Debt Management Survey results (May 2022)

Capacity Development Prioritization

Capacity development in public debt management can play an important role in helping LICs to mitigate debt vulnerabilities. Best practice suggests that the way to do this is by establishing and executing a debt management strategy, and identifying and monitoring debt-related fiscal risks, linked to the composition of debt (interest rate, currency, and rollover risks). Effective debt management is thus an important element of a LICs' toolkit of prudent macroeconomic policies aimed at safeguarding debt sustainability, by reducing economic and financial volatility, and supporting sustainable financial sector development and hence, supporting overall growth and development. Ineffective debt management can generate significant fiscal costs, unduly expose countries to changing market conditions, and weaken crisis preparedness. Debt management capacity development is designed to support LICs in their quest to design and implement an effective strategy for managing their debt portfolio and deliver effective debt management operations.

Effective public debt management relies on set of enabling conditions. For simplicity, these conditions can be grouped in four different, but mutually reinforcing, dimensions, which lay the foundation for developing and implementing effective debt management: governance, resources, information, and policy (box 2).

Box 2. Getting a GRIP on Public Debt Management

Main enabling conditions for an effective debt management:

Governance. Robust sovereign debt management starts with adequate legal and institutional arrangements and authority for debt management activities, consistent with best practice. A comprehensive public debt management law, which clearly delineates responsibilities, including reporting requirements, is essential to providing the legal and institutional architecture for a debt management office to operate effectively.

Resources. The debt management office needs to have adequate human and physical capital to undertake its role effectively. Resources allocated to public debt management should be commensurate with the nature and complexity of the current (and expected) debt portfolio.

Information. For a debt management office to fulfill its tasks effectively, it must have ongoing access to all relevant data and information. This may include data collection from multiple parts of government, making it critical that the debt manager has the authority to request this information. Likewise, it must have the necessary capacity to record and manage debt data effectively.

Policy. Debt policy should ensure consistency with the overall macroeconomic framework through appropriate coordination mechanisms with fiscal and monetary authorities. Moreover, debt management policy should be supported, and approved, by the highest levels of government and legislature.

Source: IMF (International Monetary Fund). 2022. "Macroeconomic Developments and Prospects in Low-Income Countries—2022, International Monetary Fund, Washington, DC.

Implementing debt management strategies is an area in which demand for CD has increased. In recent years Fund debt management CD has focused more heavily on translating a published debt strategy into an implementable plan through the use of a new joint Fund-Bank Annual Borrowing Plan Tool (APBT). The ABPT also allows for the integration of cash management considerations. A good cash management system provides the government with several benefits, including timely payments; reduction in short-term borrowing costs; and avoidance of expenditure arrears.

For currency risk management, countries ranked their technical assistance priorities in the following order: (1) risk quantification and stress testing, (2) local currency debt market development, (3) legal and regulatory framework, and (4) use of derivative instruments.

V. Epilogue

The paper shows that the foreign exchange risk of EMDEs and LICs is significant, with the associated foreign currency risk exposure of their sovereign debt portfolios needing to be measured and managed. The strategies used to manage the foreign currency debt portfolio risk are typically part of the sovereign's overall debt management strategy. In developing an effective foreign currency risk management, DMOs often face challenges relating to institutional, operational and analytical impediments. Recent survey results of EMDE DMOs' foreign currency management practices indicate that less than half of respondents, particularly LICs, were actively assessing and hedging their foreign currency risks. Under these circumstances, it is imperative that DMOs promptly address possible capacity development constraints, especially with regard to employing knowledgeable personnel, having in place a conducive institutional framework, acquiring appropriate data and conducting relevant analyses. Only then the DMO should feel confident that it is able to accurately assess the debt portfolio foreign currency risk over time and develop appropriate foreign currency risk management strategies. In particular, strategies involving the active use of foreign currency derivative instruments need to be undertaken by DMOs with demonstrated ability to understand and manage these instruments. Until adequate competency in dealing with foreign exchange derivatives is developed, DMOs should concentrate on conventional foreign currency risk management strategies and instruments (see also last paragraph of this section).

When appropriate DMO capacity has been built up, public debt managers in EMDEs can use foreign exchange derivative instruments to achieve an optimal debt portfolio composition (managing the foreign exchange risk) or for cheaper funding (reducing the cost of borrowing). For example, currency swaps could be used to convert the currency denomination of new debt to a target currency for attaining lower cost foreign currency funding, while the foreign exchange risk exposure of the servicing and repayment obligations of the contracted debt remain hedged. In particular, this may be the case when a country is able to raise funds in a foreign currency that is not closely correlated with the currencies of its foreign exchange receivables or the currency profile of its foreign exchange reserves.

Further, exchange rate derivatives may be used to alter the currency composition of an existing debt portfolio to attain a desired currency exposure at the lowest possible cost. This would entail engagement in derivatives transactions to cover the exchange rate risk of debt payments from potential adverse currency movements (e.g., based on DMO's tactical view on foreign exchange rates). Typically, foreign exchange derivative instruments could be used within approved limits. In addition, currency derivatives may be used to hedge interest rate risks when interest rate derivatives are illiquid or available only for short maturities (owing to the underdevelopment of the underlying treasury bill and bond markets).

In pricing cross currency swaps employed in public debt management, collateral—often used to reduce credit risk—complicates their valuations. Also, the placement of relatively sizeable collateral affects adversely the cost effectiveness of using such derivatives instruments, especially for low-rated sovereigns. However, the transaction costs of currency swaps are typically lower than those of debt buybacks and debt swaps, although swap rates tend to increase with the level of indebtedness. Further, the mark-to-market valuation of derivatives used in the management of exchange rate risk of debt—international accounting standards require that all derivative transactions be marked to market (and be recorded as on-balance sheet items)—makes the assessment of the risk-management effectiveness of derivatives more difficult.

It should be stressed that many emerging markets and, in particular, developing economies may not be able to use foreign exchange derivatives instruments in the management of their public debt portfolios because (i) they lack DMO expertise in derivatives, (ii) these instruments may be relatively unavailable in their domestic markets, or (iii) costs to access global derivatives markets are high—mainly owing to insufficiently established or poor credit ratings. In this case, reaching the desired currency exposure should be done through debt buybacks or debt swaps, if feasible, or via contracting new debt in the target currency. Of course, this would take longer than using derivatives to attain the desired currency exposure of debt. Finally, for DMOs of developing economies to reach a better understanding of the benefits and risks involved in using derivatives to hedge their currency exposure of public debt and be able to handle derivative transactions, broad concerted efforts should be made to enhance their internal capabilities (i.e., personnel and institutional capacity), including through receiving specialized TA from international financial institutions and private entities.

Annex I. A Stylized Action Plan for Developing Capacity in Public Debt Management

This Action Plan summarizes the areas for reforms in debt management in the context of strengthening debt portfolio risk management frameworks. The broad guidelines for the reform plan are framed in a medium-term horizon but also include actions that authorities need to take in the short run.

In the medium term, the authorities should focus their efforts in three areas:

- Consolidating debt management functions with the ultimate objective of establishing a Debt Management Office—organized along functional lines—within or outside the MoF;
- Developing staff capacity and ensuring that necessary institutional capacity is maintained; and
- Developing a comprehensive strategy for debt management based on cost-risk analysis, taking into account the macroeconomic framework and ongoing efforts to develop domestic financial markets.

To achieve these medium-term targets, the following actions can be taken in the short term:

- Allocate sufficient office space and equipment as a first step toward developing staff capacity and the build-out of the debt management office;
- Establish a robust debt recording and risk management system for recording and analysis of public debt;
- Strengthen the back-office functions of the DMO by hiring additional staff to bolster capacity where it is required (e.g., debt recording capacity);
- Strengthen the middle-office function of the DMO by hiring additional staff to bolster financial analysis of the debt portfolio and the assessment of alternative borrowing strategies; and
- Formalize the debt management strategy—specifically with regard to refinancing, currency risk, and interest rate risk—as a first step toward formalizing the process of deciding among different funding options.

Annex II. Formulating a Debt Management Strategy

Developing a debt management strategy is a significant analytical exercise. It requires judgment and is not a mechanistic exercise, and it will have both quantitative and qualitative elements. Briefly, the practical steps involved are as follows:

- First, the debt portfolio to which the debt strategy applies is defined.
- Second, scenarios for market and macroeconomic variables are developed. This includes the outlook for interest rates and exchange rates, as well as anticipated growth in gross domestic product, government revenues, and expenditures—under both normal and stress situations. It is important that the modeling includes some severe, but plausible, economic shocks as it is the tails, not the means, of the distributions of key macroeconomic variables that potentially cause problems. The economy's resilience in the face of such shocks is arguably more important than fine-tuning decisions under the assumption of a stable fiscal environment.
- Third, projections of the primary deficit or surplus, incorporating likely capital expenditure, are developed. This determines the net new borrowing requirement.
- Fourth, the various debt management strategies to be analyzed are defined. They should be realistic but forward-looking. Ideally, there are feedback loops among the elements, but they can be difficult to specify and are not always necessary for useful analysis.
- Fifth, the performance of each alternative strategy is evaluated. This is a cost and risk analysis rather than an optimization exercise. The output of the analysis is an aid to the policy-making process and not a substitute for the need to make policy decisions. Likewise, it differs from, but complements, debt sustainability and reserve adequacy analyses, which are suited to evaluating the buffers embodied in the fiscal position and the level of reserves.
- The final step combines the cost and risk analysis with other constraints and objectives to arrive at a recommendation.

The strategy is usually expressed in terms of strategic benchmarks. They may be composition (stock) or issuance (flow) benchmarks. Benchmarks provide transparent guidance for new issuance and portfolio management activity going forward. They specify target levels and ranges for key numerical indicators. They may also describe the principles followed in issuing new debt and managing the stock of existing debt.

The government, and if appropriate, the parliament, should approve the debt strategy. The agreed upon strategy should then be communicated publicly, and future issuance plans should be consistent with it. The debt management unit would then report regularly on progress toward achieving the strategy. The strategy should be reviewed annually, but in general is unlikely to change much from year to year, unless prompted by significant market developments, improvements in internal capacity, or changes in underlying assumptions and constraints. It is also useful to consider how to incorporate other events, such as shocks to interest rates, exchange rates, or borrowing requirements, or the crystallization of contingent liabilities, into the strategy.

Annex III. Content of a Debt Management Strategy Document

The Debt Management Strategy Document should, at a minimum, include sections on:

Objectives and Scope

- Describes the objectives for debt management, the scope of the debt management strategy, and the types of risks being managed.

Existing Debt Portfolio

- Provides the historical context for the debt portfolio, describing changes in its size (including relative to GDP) and composition through time. Changes in relevant market variables should be included, along with commentary of significant events in the evolution of the debt.

The Environment for Debt Management Going Forward

- Describes the environment for debt management in the future. This should include fiscal and debt projections; assumptions about exchange and interest rates; and constraints on portfolio choice, including those relating to market development and the implementation of monetary policy.

The Debt Management Strategy

- Describes the analysis that has been undertaken to support the recommended debt management strategy. The assumptions used and limitations of the analysis should be clear.
- Sets out the recommended strategy and its rationale. It should describe the desired debt composition and the core arguments for such composition. This should include a discussion of the key risk factors that influenced the choice of strategy.
- Describes the progress to be made toward the desired composition over three- and five-year planning horizons. It should specify ranges for the key risk indicators of the portfolio and the financing program.
- Outlines any specific measures or projects that are planned to manage non-quantifiable risks and/or in support of debt market development, such as plans to introduce new debt recording systems, or a primary dealer framework.
- Outlines the periodic review process to ensure that key assumptions continue to hold, and that the debt management strategy remains appropriate. The document should also highlight the process that would be followed if circumstances were to change significantly outside that regular review cycle.

Annex IV. Risk Management Framework for Using Derivatives in Sovereign Debt Portfolios

While derivatives can reduce exchange or interest rate risks in sovereign debt portfolios, they may also introduce new risks—e.g., counterparty, liquidity, and operational risks. These risks are by no means trivial and make them an imperfect substitute for direct funding instruments. A solid risk management framework is required. For example, a positive swap spread, measured by the cost difference of a euro area borrower issuing a bond in U.S. dollars and swapping it into euros, compared to direct funding in euros, is not deemed sufficient justification. It has to be "sufficiently positive," i.e., to provide compensation for the additional risk of the swap transaction. A risk management framework, one of the prerequisites discussed above, is essential to evaluate these operations.

A key step for risk management is to establish a policy for counterparty risk. Derivatives are traded mostly "over-the-counter" (OTC), rather than through an exchange. Traditionally, the settlement is bilateral, with the result that both parties run a credit risk on each other. Originally, the swap might begin with no market value, but over the life of the swap, market rates will change. This will make the swap valuable, giving rise to credit exposure. The longer the swap, the greater the risk. This credit risk might be even larger when principals are exchanged, as in many currency swaps. Separate from currency regulation, a sovereign would trade with a bank, either domestic or international; a special case is the World Bank as a counterparty. Debt managers need to carefully select their counterparties for derivatives transactions. A key step for risk management is to establish a counterparty policy, such as minimal credit scoring or external rating. Even if a country has a lesser credit standing than the counterparty bank, over the life of the swap this might change. Other components of counterparty risk policy are demonstrated market share, assignment of credit lines to each counterparty, weights for individual transaction types, and accurate legal documentation. Finally, it is perceived as beneficial to rotate among counterparties, ensuring competitive service and pricing, in addition to counterparty diversification.

Counterparty risk is significantly reduced through the *market usance* of collateralization. At pre-agreed times during the life of the swap, the market value is settled between parties. It is a collateral transfer, i.e., the swap terms and value do not change, but the value is transferred to the counterparty that is in "in the money." In the CSA to an ISDA contract, parties agree on such matters as initial margins, frequency and thresholds for margin calls, and the type of collateral. CSAs are in principle two-way, but the stronger credit party is often able to negotiate better terms. Also, a valuation agent is assigned. This is typically the counterparty bank, but an independent agent might be negotiated.

Lower-rated sovereigns face additional complexity in that they themselves may have to supply guarantees, or pledge collateral, affecting the cost-effectiveness. In such cases, banks require some sort of guarantee in cross-country hedging operations. The central government would also likely require external guarantees and/or significant initial margins for doing derivatives. The premia and other costs of such requirements need to be taken into account in the overall cost of the hedge operation.

The newest development for reducing counterparty risk and systemic risk are central clearing systems, where settlement and margin calls go through a central counter party. While these systems are generally for professional financial parties, there are also implications for non-financial parties. The new European Market

Infrastructure Regulation introduced in the European Union pushes banks (including potential counterparts for EMDEs) towards central clearing, trade reporting, and an obligation for reconciliation of the market value at least once per year.

Exchange-traded derivatives can further reduce counterparty and operational risk, given increased transparency, liquidity, and accessibility to a broader range of market participants. OTC derivatives, which are easier to develop, grow organically and are more customized. This distinction, however, is becoming less clear, as electronic platforms are developing rapidly and can now provide a legal confirmation of the deals within minutes of execution. Similarly, there are now several models of exchanges offering clearing services to OTC participants.

Collateral calls add to the liquidity risk and the operational risk of a government's treasury. Few developing countries have the necessary internal organization, back office and risk management systems, and timely liquidity management procedures to flawlessly manage the entire process. With respect to IT systems, some countries (e.g., Morocco) have the advantage of an advanced system. There is generally a choice to reduce the frequency of margin calls, but that is a trade-off with the counterparty risk: with a lower frequency, the counterparty risk increases.

In terms of risk management and reporting, market information is needed for evaluating potential new transactions, resetting rates periodically, determining required collateral movements, and remunerating posted collateral. Independent calculation and bilateral confirmation of cash flows is essential. For debt managers, there are sometimes inconsistencies in the accounting treatment of derivatives (often mark-to-market) and underlying bonds (often nominal value). This complicates communication and evaluation of the risk reduction that derivatives were intended to help achieve.

The use of derivatives increases operational risk and requires more comprehensive risk management and integrated debt management systems. Operational risk has multiple sources and is not easily identified, measured, monitored, and reported. This will require a more comprehensive approach to risk management, in particular integrated debt management systems, that can process derivative transactions and maintain control of the debt portfolio structure.

Cross-currency swap transacted by countries with Multilateral Development Banks (MDBs), such as the World Bank, avoids all these additional risks. The counterparty risk is effectively one-sided, but the World Bank does not apply a credit charge in the swap. There are no collateral calls, making it operationally convenient. Companies like TCX, along with others in the financial sector, are also engaged in providing currency hedging solutions that address currency and interest risks in developing economies. These services broaden the options available for managing financial risks for countries who meet the preconditions for the use of derivatives and enable investors to lock in long-term finance.

Separately, experiences show that correct inclusion of derivatives in cash-based government accounts is a challenge. Full adoption of market-based indicators by debt managers might require an alternative way to present sovereign liabilities. This would apply an economic value on the outstanding debt portfolio and account for changes in valuation. However, sovereigns applying cash budgeting do not account for the economic value of their debt.[1] Accrual accounting principles, such as those recommended by the International Public Sector

[1] For example, ESA 95 does not permit the use of market values.

Accounting Standards and International Organization of Supreme Audit Institutions, do not capture market valuations but include accrued interest rates, in the case of accrual accounting standards. Further, accounting for derivatives on sovereign balance sheets has become more advanced with the application of market valuation on those positions. This has had spillover effects for bond debt because back-to-back swaps may trigger market valuation of the underlying debt position as well. Thus, the universe of accounting varies, and includes cash or accrual accounting, as well as national accounting standards, and harmonized standards such as the European rules set by European System of Accounts (ESA) 95. But none of the standards fully reflects market valuation of liabilities.

Annex V. Characteristics of EMDE Sovereign Foreign Currency Debt (end-2022)

	EM/LIC	Sovereign credit rating	GDP (US$ billion)	General gov'nt debt (% GDP)	General gov'nt FC debt (% GDP)	General gov'nt FC debt to total debt (%)	General gov'nt FC debt to total debt (%) five-year average	Interest cost on General gov'nt external debt (%)
African Dept. (AFR)								
Angola	EM	B-	122.8	66.7	48.9	73.4	70.9	5.2
Benin	LIC	B+	17.4	54.2	37.6	69.3	29.5	2.7
Botswana	EM	BBB+	20.4	18.0	7.4	40.9	8.0	1.2
Burkina Faso	LIC	CCC+	18.9	58.3	0.0	0.0	0.0	1.0
Burundi	LIC	…	3.9	68.4	19.9	29.2	18.7	1.0
Cameroon	LIC	CCC+	44.3	45.5	30.9	67.9	30.0	2.3
Cabo Verde	LIC	B-	2.3	127.3	88.9	69.8	91.7	1.0
Central African Republic	LIC	…	2.5	51.8	34.2	66.0	35.2	0.5
Chad	LIC	…	12.1	48.8	22.3	45.7	25.2	1.1
Comoros	LIC	…	1.2	27.9	27.1	97.2	22.2	0.2
Democratic Republic of the Congo	LIC	B-	65.8	14.5	14.2	98.0	15.2	1.3
Congo, Republic of	LIC	B-	14.0	92.5	43.1	46.5	52.8	2.4
Côte d'Ivoire	LIC	BB-	70.2	56.8	34.5	60.8	28.6	2.3
Equatorial Guinea	EM	…	11.8	34.6	10.0	28.9	12.8	…
Eritrea	LIC	…	0.0	…	…	…	…	0.3
Eswatini	EM	…	4.8	42.0	18.1	43.1	14.5	2.2
Ethiopia	LIC	CC	120.4	46.4	21.4	46.1	26.1	1.2
Gabon	EM	CCC+	21.1	57.7	34.2	59.3	39.5	3.1
Gambia, The	LIC	…	2.2	82.8	51.1	61.7	48.4	1.1
Ghana	LIC	SD	72.2	92.4	40.6	44.0	35.6	3.7
Guinea	LIC	…	20.3	33.1	21.1	63.9	22.7	1.3
Guinea-Bissau	LIC	…	1.7	80.3	39.2	48.8	38.4	3.4
Kenya	LIC	B	113.7	68.4	34.5	50.4	32.8	3.2
Lesotho	LIC	…	2.5	59.9	44.0	73.4	42.0	24.7
Liberia	LIC	…	4.0	53.9	0.0	0.0	0.0	1.1
Madagascar	LIC	…	15.1	55.1	0.0	0.0	0.0	0.9
Malawi	LIC	…	12.5	75.2	34.4	45.7	30.3	0.9
Mali	LIC	…	19.2	51.7	26.4	51.2	27.2	1.1
Mauritius	EM	BBB-	12.9	83.1	18.6	22.4	17.3	1.0
Mozambique	LIC	CCC+	19.2	95.5	71.1	74.4	83.2	1.3
Namibia	EM	B+	12.6	69.8	17.9	25.6	17.9	…
Niger	LIC	…	15.4	50.3	32.7	64.9	29.9	1.4
Nigeria	EM	B-	477.4	39.6	0.0	0.0	0.0	3.9
Rwanda	LIC	B+	13.3	61.1	46.7	76.5	45.3	1.3
São Tomé and Príncipe	LIC	…	0.5	77.7	0.0	0.0	0.0	0.7
Senegal	LIC	B+	27.7	76.6	56.4	73.7	54.1	2.7
Seychelles	EM	BB-	2.0	61.5	29.1	47.4	30.8	…
Sierra Leone	LIC	…	4.0	95.8	65.5	68.4	50.4	0.7
South Africa	EM	BB-	405.1	71.1	7.9	11.1	6.6	4.5
South Sudan	LIC	…	8.5	37.8	27.9	73.8	40.8	…
Tanzania	LIC	…	77.1	42.3	27.4	64.9	28.4	1.9
Togo	LIC	B	8.1	66.3	26.0	39.2	22.8	2.2
Uganda	LIC	B-	48.2	48.4	29.2	60.3	28.3	1.8
Zambia	LIC	SD	29.7	96.8	46.4	47.9	56.1	0.4
Zimbabwe	LIC	…	31.5	98.4	95.2	96.7	67.3	0.3
Asia & Pasific Dept. (APD)								
Bangladesh	LIC	BB-	460.2	37.9	0.0	0.0	0.0	0.9
Bhutan	LIC	…	2.7	127.3	115.2	90.5	114.3	1.5
Brunei Darussalam	EM	…	16.7	2.1	0.0	0.0	0.0	…
Cambodia	LIC	…	28.8	34.8	0.0	0.0	0.0	1.1
China	EM	A+	17,886.3	77.0	0.3	0.3	0.2	5.7
Fiji	EM	B+	5.0	91.0	0.0	0.0	0.0	3.8
India	EM	BBB-	3,389.7	81.0	3.4	4.2	3.2	0.9
Indonesia	EM	BBB	1,318.8	40.1	11.8	29.3	12.2	3.5
Kiribati	LIC	…	0.2	15.2	0.0	0.0	0.0	…
Lao P.D.R.	LIC	…	15.3	128.5	0.0	0.0	0.0	1.2
Malaysia	EM	A-	407.0	65.6	0.0	0.0	0.0	…
Maldives	LIC	B-	6.2	114.4	53.0	46.3	52.1	4.6
Marshall Islands	LIC	…	0.3	19.2	0.0	0.0	0.0	…
Micronesia, Fed. States of	LIC	…	0.4	14.0	0.0	0.0	0.0	…
Mongolia	EM	B	17.1	76.3	71.9	94.2	79.2	3.2
Myanmar	LIC	…	66.2	60.0	0.0	0.0	0.0	0.6
Nauru	EM	…	0.2	24.2	0.0	0.0	0.0	…
Nepal	LIC	…	40.8	43.1	20.7	48.1	18.8	0.8
Palau	EM	…	0.2	68.4	0.0	0.0	0.0	…
Papua New Guinea	LIC	B-	31.5	48.8	0.0	0.0	0.0	1.9
Philippines	EM	BBB	404.3	57.5	19.1	33.2	16.4	3.6
Samoa	LIC	…	0.8	43.7	0.0	0.0	0.0	1.6
Solomon Islands	LIC	…	1.6	16.9	0.0	0.0	0.0	0.8
Sri Lanka	EM	SD	74.8	115.5	60.9	52.7	48.3	1.4
Thailand	EM	BBB+	495.4	60.5	1.0	1.7	1.2	0.6
Timor-Leste, Dem. Rep. of	LIC	…	4.9	5.6	0.0	0.0	0.0	1.6
Tonga	LIC	…	0.5	45.3	0.0	0.0	0.0	1.6
Tuvalu	LIC	…	0.1	10.1	6.9	68.7	8.4	…
Vanuatu	LIC	…	1.1	42.7	34.1	79.8	38.6	1.4
Vietnam	EM	BB	406.5	35.3	12.3	34.9	15.9	1.3

Source: IMF World Economic Outlook database and World Bank International Debt Statistics.

Notes: Sovereign credit rating is as of end-2023 and represents the median of the three rating agencies (S&P, Fitch and Moody's). FC stands for foreign currency.

	EM/LIC	Sovereign credit rating	GDP (US$ billion)	General gov'nt debt (% GDP)	General gov'nt FC debt (% GDP)	General gov'nt FC debt to total debt (%)	General gov'nt FC debt to total debt (%) five-year average	Interest cost on General gov'nt external debt (%)
European Dept. (EUR)								
Albania	EM	B+	19.1	65.5	30.2	46.1	33.6	2.7
Belarus	EM	D	72.8	41.3	38.0	92.1	40.3	4.6
Bosnia and Herzegovina	EM	B+	24.5	29.7	21.7	72.9	23.9	1.6
Bulgaria	EM	BBB	89.1	21.8	15.2	69.6	15.8	1.9
Croatia	EM	BBB+	70.5	68.8	22.3	32.4	25.3	...
Hungary	EM	BBB	180.0	71.4	16.5	23.1	14.3	...
Kosovo	EM	…	9.4	19.9	1.1	5.4	2.7	...
Moldova	LIC	…	14.6	32.6	20.8	63.7	19.8	1.0
Montenegro, Rep. of	EM	…	6.1	72.1	0.0	0.0	0.0	2.5
North Macedonia	EM	BB	13.6	52.1	0.0	0.0	0.0	2.3
Poland	EM	A-	690.7	49.1	11.5	23.3	12.8	...
Romania	EM	BBB-	301.3	50.5	25.7	50.8	22.7	...
Russia	EM	…	2,244.2	18.9	3.6	18.9	3.4	6.1
Serbia	EM	BB+	63.5	53.5	41.2	76.9	39.8	2.0
Turkey	EM	B	905.8	31.7	18.5	58.5	19.1	4.8
Ukraine	EM	CC	160.5	78.5	52.5	66.9	39.5	1.9
Mid. East & Cent. Asia Dept. (MCD)								
Afghanistan	LIC	…	0.0	…	…	…	…	0.2
Algeria	EM	…	195.1	55.6	0.5	0.9	0.8	1.7
Armenia	EM	BB-	19.5	49.2	31.5	64.0	43.4	2.6
Azerbaijan	EM	BB+	78.7	17.3	8.5	49.0	15.1	3.1
Bahrain	EM	B+	44.4	117.6	84.7	72.0	76.8	...
Djibouti	LIC	…	3.7	40.4	40.4	99.8	42.3	1.2
Egypt	EM	B-	475.2	88.5	25.8	29.2	24.6	4.0
Georgia	EM	BB	24.6	39.8	29.8	75.0	36.2	1.2
Iran	EM	…	347.4	35.8	2.2	6.1	4.0	0.6
Iraq	EM	CCC+	261.1	44.9	24.0	53.5	32.2	3.3
Jordan	EM	B+	47.5	94.1	46.8	49.8	43.8	3.3
Kazakhstan	EM	BBB-	225.5	23.5	8.6	36.6	9.7	2.9
Kuwait	EM	A+	175.4	3.1	2.6	82.9	5.5	...
Kyrgyz Republic	LIC	…	11.7	49.2	39.5	80.3	45.7	1.4
Lebanon	EM	D	21.8	283.2	264.0	93.2	148.6	0.1
Mauritania	LIC	…	9.9	50.8	42.9	84.5	46.3	1.7
Morocco	EM	BB+	130.9	71.5	17.4	24.3	15.3	2.2
Oman	EM	BB+	114.7	40.0	30.2	75.5	39.9	...
Pakistan	EM	CCC+	374.7	76.2	29.5	38.8	27.9	2.8
Qatar	EM	AA-	236.4	42.4	24.4	57.4	32.2	...
Saudi Arabia	EM	A+	1,108.1	23.8	9.0	37.9	10.2	...
Somalia	LIC	…	10.4	…	0.0	…	0.0	0.0
Sudan	LIC	…	33.8	186.2	173.2	93.0	191.0	0.1
Tajikistan	LIC	B-	10.5	32.6	0.0	0.0	0.0	2.6
Tunisia	EM	…	46.4	79.8	48.0	60.1	50.9	2.4
Turkmenistan	EM	…	77.3	5.8	0.0	0.0	0.0	3.5
United Arab Emirates	EM	AA	507.1	31.1	0.0	0.0	0.0	...
Uzbekistan	LIC	BB-	80.4	34.9	0.0	0.0	0.0	1.7
Yemen	LIC	…	23.5	66.0	26.4	40.0	26.6	0.2
Western Hem. Dept (WHD)								
Antigua and Barbuda	EM	…	1.8	86.2	41.9	48.6	41.9	...
Argentina	EM	CC	630.6	84.7	56.5	66.7	65.1	1.8
Aruba	EM	BBB-	3.5	90.1	56.1	62.3	51.8	...
Bahamas, The	EM	B+	12.9	88.9	41.3	46.5	30.6	...
Barbados	EM	B-	5.7	122.5	46.1	37.7	41.9	...
Belize	EM	CCC+	3.0	63.4	41.3	65.2	55.0	2.3
Bolivia	EM	CCC+	44.3	80.0	0.0	0.0	0.0	2.9
Brazil	EM	BB	1,920.0	85.3	4.1	4.8	4.4	4.2
Chile	EM	A	300.7	38.0	13.5	35.5	8.9	...
Colombia	EM	BB+	343.6	60.4	22.0	36.5	23.2	3.6
Costa Rica	EM	BB-	68.4	63.8	25.3	39.6	25.0	4.5
Dominica	LIC	…	0.6	101.9	65.6	64.3	63.2	2.4
Dominican Republic	EM	BB-	113.9	59.5	34.0	57.0	33.0	5.2
Ecuador	EM	B-	115.0	57.7	0.0	0.0	0.0	3.4
El Salvador	EM	CCC	32.5	75.1	1.9	2.5	1.9	6.2
Grenada	LIC	…	1.2	63.6	50.7	79.7	50.5	2.7
Guatemala	EM	BB	95.0	29.2	11.9	40.6	12.3	4.4
Guyana	LIC	…	14.5	26.0	10.3	39.7	20.9	1.3
Haiti	LIC	…	20.5	23.9	11.8	49.4	13.0	0.2
Honduras	LIC	B+	31.5	49.1	28.4	57.8	31.1	2.9
Jamaica	EM	B+	17.0	77.1	47.2	61.3	54.8	6.5
Mexico	EM	BBB	1,463.3	54.2	14.6	27.0	16.7	3.1
Nicaragua	LIC	B	15.7	43.9	40.1	91.2	38.4	2.1
Panama	EM	BBB-	76.5	53.7	0.0	0.0	0.4	...
Paraguay	EM	BB+	41.7	40.8	36.4	89.3	28.1	3.7
Peru	EM	BBB	244.6	34.3	17.6	51.3	13.8	3.4
St. Kitts and Nevis	EM	…	1.0	61.1	0.0	0.0	0.0	...
St. Lucia	LIC	…	2.3	74.2	38.2	51.5	37.1	3.9
St. Vincent and the Grenadines	LIC	B-	0.9	87.9	64.2	73.0	56.6	1.5
Suriname	EM	CCC	3.5	120.1	106.8	88.9	82.2	1.1
Trinidad and Tobago	EM	BB+	30.1	51.0	16.6	32.6	18.2	...
Uruguay	EM	BBB	71.2	59.3	27.8	46.8	31.1	...
Venezuela	EM	D	92.1	159.5	151.9	95.3	211.3	...

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