

INTERNATIONAL MONETARY FUND AND  
THE WORLD BANK

**Developing a Medium-Term Debt Management Strategy (MTDS)—  
Guidance Note for Country Authorities**

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## I. INTRODUCTION

1. Drawing on experience, the International Monetary Fund and World Bank have developed a systematic and comprehensive framework to help countries develop an effective medium-term debt management strategy (MTDS). The development of this framework has benefited from consultation with a number of regional and international bodies engaged in capacity building in public debt management, and collaboration and input from debt management officials in a number of developing countries. This note describes a framework for developing a comprehensive MTDS, and provides a template for a public debt management strategy document.<sup>1</sup> The Guidance Note is accompanied by an analytical tool that can be used to undertake basic cost and risk analysis, providing a key input into the debt management strategy decision-making process.

2. The financial crises of the 1990s illustrated very clearly why the composition of the public debt portfolio is an important factor in the degree of resilience to external shocks. Figure 1a highlights how, in some countries (e.g., Argentina, Brazil, Indonesia and Russia) the currency exposure was a key determinant of the increase in debt levels. In other cases, the realization of an implicit contingent liability related to the banking sector (e.g., Turkey, Korea or Thailand), or the cost of assuming other private sector liabilities, aggravated existing vulnerabilities in the debt portfolio with a similarly negative impact on the overall debt level and the government's budget. In the specific case of low-income countries (LICs), developments in real effective exchange rates, often driven by unfavorable commodity price trends, contributed significantly to debt sustainability problems, also underscoring the importance of following a sound debt management strategy (see Figure 1b). Such experience highlights the importance of developing effective debt management strategies to help mitigate risk.

3. The recent financial crisis has also helped highlight the benefits of developing and implementing a sound debt management strategy, with some middle-income countries better placed to meet the related financing and fiscal challenges as a consequence of sustained efforts to reduce vulnerabilities in their debt portfolios.<sup>2</sup>

4. The Multilateral Debt Relief Initiative (MDRI) has significantly reduced the debt burden in many LICs, freeing resources to help finance governments' growth programs. It has also opened new opportunities to access non-concessional sources of financing, including access to the international capital markets. While the recent financial crisis may have temporarily closed some of those financing avenues, nevertheless they are likely to become a

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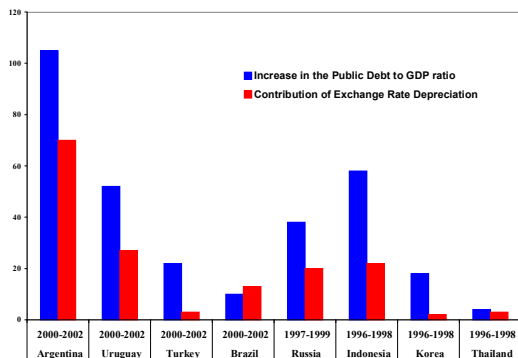
<sup>1</sup> Consequently it complements and augments the discussion on debt management strategy development in the IMF-World Bank (2003) *Guidelines for Public Debt Management* (the *Guidelines*). The note has been prepared under the auspices of a joint IMF-World Bank working group comprising from within the IMF, Bernardin Akitoby, Myrvin Anthony, Allison Holland, Peter Kunzel, Christian Mumssen, Christian Mulder, Perry Perone, and Abdourahmane Sarr, and from within the World Bank, Karina Garcia-Casalderrey, Lars Jessen, Shyamalendu Pal, Angelique de Plaa, Abha Prasad, Francis Rowe, Tihomir Stucka, Mark Thomas, Eriko Togo, and Antonio Velandia-Rubiano.

<sup>2</sup> See discussion in *Managing Public Debt: Formulating Strategies and Strengthening Institutional Capacity* (forthcoming), a joint IMF-World Bank board paper.

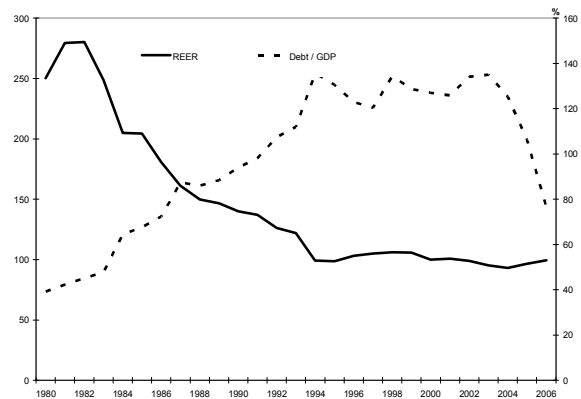
more general feature of LICs' financing options going forward. These opportunities, while welcome, raise new risks and challenges. Countries are frequently faced with new and conflicting proposals from the market on possible financing options, while in many cases lacking a coherent framework to fully assess the related costs and risks. For example, how should the appropriate mix of concessional and quasi-concessional debt be determined? Should a country tap the international capital markets? What are the cost-risk implications of extending the maturity of domestic borrowing? As many emerging market countries have experienced, poor financial choices, including on the terms and structure of new debt, can contribute to the re-emergence of significant debt vulnerabilities, putting debt sustainability at risk, and jeopardizing the achievement of macroeconomic policy targets.

5. The framework seeks to help countries develop an MTDS that explicitly recognizes the relative costs and risks involved, takes account of the linkages with other key macroeconomic policies, is consistent with maintaining debt sustainability, and can facilitate domestic debt market development.<sup>3</sup> In that way, risks to the sovereign balance sheet can be contained, while minimizing the potential debt-related burden on tax payers and maximizing the resources available for other expenditures.

**Figure 1a. Examples of the Impact of Exchange Rate Depreciation on the Ratio of Public Debt to GDP (percentage points of GDP)**



**Figure 1b: REER and Debt in Sub-Saharan African LICs**



<sup>3</sup> While this framework was specifically developed taking into account the LIC context, it is more general in its application and could be equally useful in other developing and emerging market economies.

### ***What is an MTDS?***

6. When determining how best to meet the government’s financing requirement, the debt manager (DM)<sup>4</sup> is faced with many potentially difficult trade-offs between alternative instruments. For instance, if foreign interest rates are lower than domestic interest rates, foreign currency debt may seem attractive. However, the tradeoff becomes less clear once the exchange rate risk, which will determine the *ex-post* cost of foreign currency debt, and / or other considerations regarding government objectives with respect to domestic government debt market development, are taken into account. The debt management strategy should identify and explain these trade-offs.

7. An MTDS is a *plan* that the government intends to implement over the medium-term<sup>5</sup> in order to achieve a *desired composition of the government debt portfolio*, which captures the government’s preferences with regard to the *cost-risk tradeoff*. It operationalizes country authorities’ debt management objectives—e.g., ensuring the government’s financing needs and payment obligations are met at the lowest possible cost consistent with a prudent degree of risk. An MTDS has a strong focus on managing the *risk exposure* embedded in the debt portfolio—specifically, potential variations in the cost of debt servicing and its impact on the budget. In particular, an MTDS identifies how cost and risk vary with the composition of the debt. While a sound MTDS can be developed without the use of a quantitative tool, especially where countries are severely constrained in their choices, the use of scenario analysis provides useful information, enabling the DM to quantify the potential risks to the budget of alternative debt management strategies.

8. In principle, the MTDS covers total non-financial public sector debt. This comprises the debt of the central government (budgetary, extra-budgetary and social security funds), the state and local governments, and the debt of non-financial public corporations. In practice, however, it is often useful to initially focus on central government debt, where generally data are more readily available and the authority exists to implement the strategy. The scope of the MTDS can be extended as information becomes available and where the institutional arrangements allow for a broader and more comprehensive strategy to be implemented. For example, to effectively extend the MTDS to cover the totality of non-financial public sector debt would require some element of central government control on borrowing decisions of state and local governments, and non-financial public corporations.

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<sup>4</sup> The term “debt manager” is used here to generically describe those authorities responsible for developing the MTDS. While primary responsibility will lie, along with the decision-making authority, with the Minister of Finance, this term encompasses the debt management unit or office, who would typically take the lead in preparing the strategy proposal; however, it could also cover a macroeconomic unit in the Ministry of Finance if involved in determining policies affecting the choice of debt composition.

<sup>5</sup> The medium-term is typically defined as 3–5 years. If the time horizon is too short, e.g., the budget cycle, there is a risk that short-term expediency will dominate, turning the focus on short-term costs and away from risks that could materialize later. The evaluation of the cost and risks underlying the strategy should aim to capture the full economic cycle, allowing potentially higher short-term interest rates and substantive movements in the exchange rate to emerge, both of which may significantly increase the cost of debt.

9. The focus of the MTDS is typically on actual direct liabilities of the government, rather than contingent liabilities.<sup>6</sup> Nevertheless, contingent liabilities may have an important bearing on the sustainability of debt and robustness of the MTDS. Consequently, it would be prudent to consider the potential risk that contingent liabilities could materialize under specific scenarios. It should be noted that this requires the DM to have good information on the nature of these liabilities.<sup>7</sup>

### ***Benefits***

10. An MTDS provides a framework within which the authorities can make informed choices on how the government's financing requirement should be met, while taking due account of constraints and potential risks. Such a systematic approach to decision-making can help strengthen the debt management function, enhance analytical capacity and help reduce operational risk even where capacity is constrained.

11. Adopting an explicit and formal MTDS enables the authorities to:

- **Evaluate the cost-risk trade-offs:** The MTDS allows informed decisions to be made, ensuring the costs and risks associated with alternative strategies are clearly recognized and identified. Setting clear medium-term strategic goals will help DMs avoid poor decisions made solely on the basis of cost, or for the sake of short-term expediency.
- **Identify and manage risk:** Even where financing choices are limited, the MTDS helps identify and monitor key financial risks, and establish strategies that ensure countries are well placed to take advantage of new borrowing opportunities, in a considered and risk conscious way. The MTDS also facilitates risk management by enabling the consideration of options for risk mitigation. This could include supporting the development of the domestic debt market, maintaining cash or reserves buffers, or establishing committed lines of credit.

12. In addition, an MTDS provides benefits with respect to:

- **Coordination:** The MTDS will facilitate coordination with fiscal and monetary management, helping to reconcile various objectives and constraints, including on market development and balance of payments issues. Along with enhancing coordination, it enables each agent to focus more clearly on its core objectives, helping to achieve greater clarity and accountability for debt management separate from fiscal and monetary policies.
- **Identification of constraints:** It helps identify the constraints that affect the DM's choices, allowing where possible, steps to be identified to ease those constraints.

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<sup>6</sup> Although some countries may include all the direct explicit exposures of the central government, including guarantees, in their definition of debt.

<sup>7</sup> In some instances, the lack of adequate monitoring and information on government guarantees has significantly aggravated debt vulnerabilities.

- **Cost:** An MTDS can potentially lower the cost of debt servicing, as an effective and transparent MTDS will support domestic debt market development, and facilitate the relationship with investors, creditors and rating agencies.
- **Transparency:** A formal and explicit MTDS can help build broad-based support for responsible financial stewardship, enhancing governance and accountability.

*How does the MTDS fit in the macroeconomic framework?*

13. In order to ensure consistency between the MTDS and the overall macroeconomic framework, it is important that the interlinkages and feedback effects are well understood and that coordination mechanisms are in place (see Box 1). Indeed, for LICs, these interlinkages are likely to be more significant, partly due to underdeveloped domestic debt markets, and partly due to capacity constraints and relatively weak institutional setting.<sup>8</sup> In this context, close coordination is vital to ensure that the overall policy mix is sustainable.

14. In practice, the DM determines the MTDS taking into account constraints stemming mainly from the macroeconomic framework and the level of development of the domestic financial market. In turn, the analysis of the MTDS can provide input to the macroeconomic policy analysis. Similarly, given its medium-term perspective, the MTDS can support efforts to develop the domestic debt market by facilitating a transparent and predictable strategy for domestic borrowing, which will support the systematic introduction of new instruments, and by highlighting where impediments might exist, particularly in market infrastructure and institutions, that the DM and other authorities could work to remove.<sup>9</sup>

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<sup>8</sup> Developing and implementing an effective MTDS may require a significant strengthening of capacity in many developing countries, see Appendix I for a discussion of the enabling institutional framework. In addition, capacity may need to be strengthened in other complementary areas—such as government cash management and forecasting, medium-term fiscal and expenditure frameworks, monetary policy implementation—to maximize the benefits of an MTDS.

<sup>9</sup> For example, the DM can introduce a new point on the yield curve confident that it can be sustained with continued issuance in the medium-term; this commitment to continued issuance of this new instrument can then be communicated to market participants. See the International Monetary Fund and World Bank (2003a, revised), *Guidelines for Public Debt Management*, and the International Monetary Fund and World Bank (2001), *Developing Government Bond Markets: A Handbook* for a broader discussion of the benefits of regularity and predictability in issuance.

### Box 1. Key Interlinkages

Figure 2 outlines the key interlinkages between the MTDS and other key policy areas, also indicating how cost-risk analysis is used to pull this information together and inform the choice of MTDS:

- *MTDS, Fiscal Planning and Debt Sustainability*  
*Ex ante* the level of debt is mainly determined by fiscal policy, although *ex-post* the debt composition can play an important role (see Figure 1a). Given the medium-term perspective of the MTDS, to be most effective it should be formulated within a fully operational medium-term fiscal framework (MTFF). Debt sustainability analysis (DSA) will assess whether the fiscal policy implied by the MTFF, and the associated debt level, is sustainable over the long-term. The Bank-Fund Debt Sustainability Framework (DSF), a key tool to undertake that analysis, includes alternative scenarios to assess the realism of the outlook. This is undertaken by showing the development of debt ratios if (a) the primary balance does not change (improve) and (b) projections of GDP growth are closer to the historic outcome than the assumed outlook; and through bound tests to examine the impact on debt of shocks to key macro variables. The MTDS will add to this by allowing a detailed analysis of the cost and risk characteristics of different debt management strategies. The MTDS could also help country authorities move towards setting expenditure priorities independent of financing sources, by identifying strategies that generate a profile of interest costs consistent with debt sustainability, but which do not rely on the availability of specific project financing. More generally, the MTDS can strengthen fiscal planning by contributing an analysis of the likely, and possible, budget implications of implementing the MTDS.
- *MTDS and Monetary Policy*  
The monetary policy regime, the instruments used for monetary policy operations, the institutional setting, as well as the credibility of monetary policy, all have important implications for the MTDS. For example lack of a credible monetary policy may result in a high inflation risk premium and make longer-term domestic debt excessively costly. Another example arises where sterilization operations to mop up liquidity arising from capital inflows have led to large scale central bank issuance of securities in its own name.<sup>10</sup> The consequent increase in quasi-fiscal deficits, and potential replacement of central bank debt with central government debt, are also considerations that need to be taken into account when developing an MTDS.
- *MTDS, Exchange Rate Policy and Balance of Payments*  
The exchange rate policy, and expected evolution of the balance of payments and consequent developments in the real exchange rate may have consequences for the MTDS. For example, if the exchange rate is expected to be on a downward trend, that would increase the cost of external borrowing. Similarly, debt servicing may spike if the exchange rate is volatile. In general, borrowing in foreign currencies requires a good understanding of balance of payments trends and coordination with exchange rate policies. In addition, the exchange rate and capital control regime is pertinent for the MTDS. For example, under a fixed exchange rate regime, and in the absence of capital controls, capital flight can lead to problems rolling over domestic debt, and erode international reserves. In such cases, it may be appropriate to consider whether additional foreign currency reserve buffers are required to cover short-term domestic debt, or maturities need to be lengthened.
- *MTDS and the Development of Domestic Debt Markets*  
Often the trade-offs between borrowing domestically or externally will be capped by the level of development of the domestic debt market, and/or private sector crowding out considerations. The MTDS can help identify key challenges in this area, and in some instances the chosen strategy can help address those challenges.

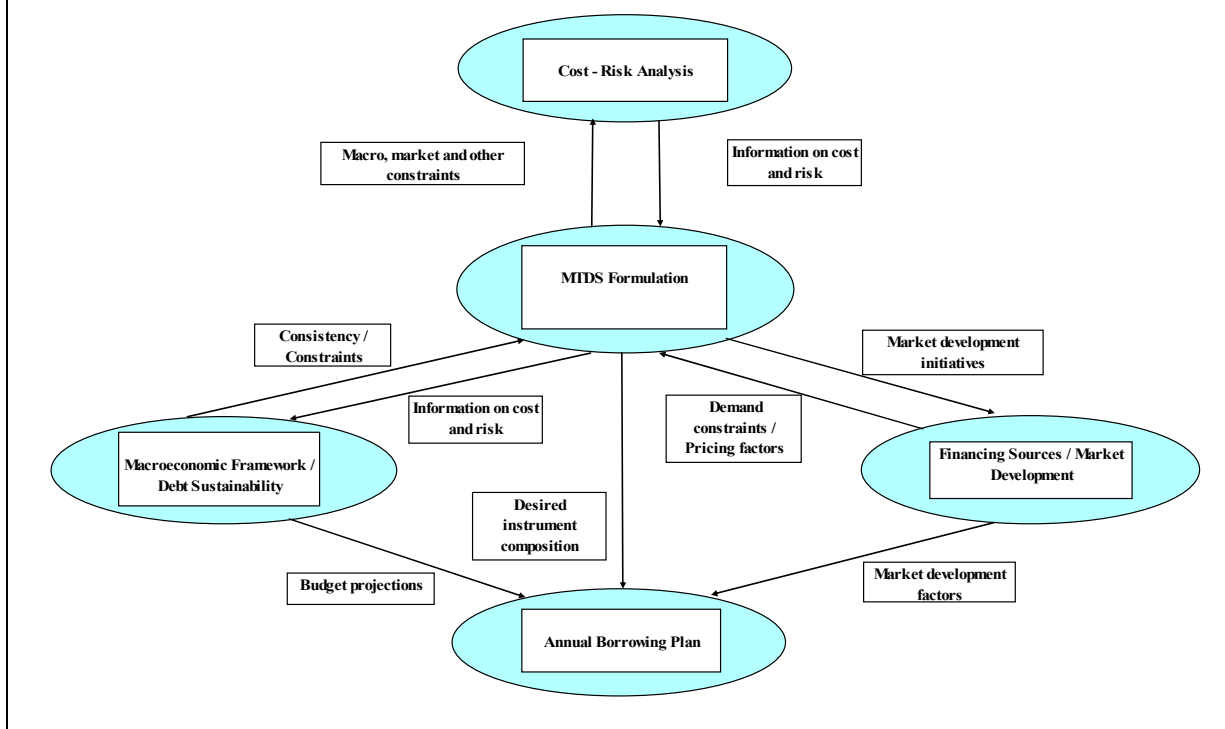
<sup>10</sup> See Appendix IV for a broader discussion of issues relating to the interaction with monetary policy.



- MTDS and Annual Borrowing Plan*

An annual borrowing plan should be developed, consistent with the MTDS and taking account of the underlying volatility in government cash flows. The borrowing plan helps operationalize the MTDS. The specifics on size and timing of new borrowing are determined in conjunction with the forecast of cash needs given the expected implementation of the budget, and taking account of any specific market characteristics or creditor behavior, and objectives of regular and stable issuance in the domestic market. An important factor in determining the effectiveness of the borrowing plan will be the quality and robustness of government cash management and forecasting. The plan also has important consequences for the central bank's assessment of liquidity conditions and should be shared with it.

Figure 2: Key Interlinkages



### *Developing an MTDS*

15. The MTDS is most effectively developed where an appropriate enabling framework already exists, including a well-developed medium-term macroeconomic framework, with clear and consistent objectives for fiscal and monetary policies.<sup>11</sup> Key elements of such a framework include (see Appendix I): (i) an adequate legal framework; (ii) effective institutional arrangements; and (iii) comprehensive and efficient debt recording. While

<sup>11</sup> The Guidance Note recognizes that many of these elements may not be fully in place in many developing countries; nevertheless, an effective MTDS could help identify needed reforms.

countries take different approaches to each of these, some key underlying principles generally hold true.<sup>12</sup>

- **The legal framework.** This should clarify the authority to borrow and to issue new debt, invest, and undertake transactions on the government's behalf. Often, the legal framework also sets out the overall objectives for debt management, clarifies the accountability, and outlines the desired reporting and audit requirements.
- **Institutional arrangements.** The supporting governance structure should clearly outline and describe the roles and responsibilities of all relevant institutions involved in debt management activities. In particular, it should be clear which agent is responsible for debt management decisions.
- **Debt recording.** The DM needs to have sufficient information available on the debt portfolio on which to base the analysis. Often, establishing an effective database which covers all types of debt presents a significant challenge. A precondition for high-quality and comprehensive debt data is efficient debt recording.

16. In addition, given that the purpose of the MTDS is to inform future financing choices, it is imperative that there is political commitment to, and strong ownership of, the process.

17. The steps involved in designing an MTDS are set out below. Note that although these steps are presented in a specific sequence, this is only indicative. In practice, the distinction between each step will not be so clear, several steps may be undertaken simultaneously, and / or in a different order:

1. *Identify the objectives for public debt management and scope of the MTDS.*
2. *Identify the current debt management strategy and analyze the cost and risk of the existing debt.*
3. *Identify and analyze potential funding sources, including their cost and risk characteristics.*
4. *Identify baseline projections and risks in key policy areas—fiscal, monetary, external, and market.*
5. *Review key longer-term structural factors.*
6. *Assess and rank alternative strategies on the basis of the cost-risk trade-off.*
7. *Review implications of candidate debt management strategies with fiscal and monetary policy authorities, and for market conditions.*

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<sup>12</sup> See the *Guidelines* for a fuller discussion.

8. *Submit and secure agreement on the MTDS.*

18. Once the MTDS has been agreed, it should be disseminated through a published strategy document. The DM should then develop an annual borrowing plan that is consistent with the MTDS.

19. As the borrowing plans are implemented, their impact on progress towards achieving the MTDS should be regularly monitored and evaluated. In addition, the MTDS should be reviewed on a regular basis (e.g., annual), or more often if macro or market conditions change significantly. This monitoring and review process is an important element of effective risk management.

## II. DEVELOPING A MEDIUM-TERM DEBT MANAGEMENT STRATEGY

### Step 1. Identify the objectives for public debt management and scope of the MTDS

Objective: Identify the main objectives for public debt management and define the scope of the MTDS.

20. To enhance accountability, the objectives and scope for public debt management, which effectively determine the DM's tasks and responsibilities, as well as the coverage of the MTDS, should be identified. In countries where debt management objectives are not clearly stated, e.g., in a legal document, the DM should agree on the primary objectives with the highest authority (preferably the Minister of Finance) and ensure that these are clearly documented.

21. The relevant objectives for debt management are often framed in terms of ensuring that the government's financing needs and payment obligations are met on a timely basis, and at the lowest possible cost, consistent with a prudent degree of risk. Often a secondary objective is supporting domestic debt market development. Furthermore, the DM should identify other policy objectives that may have implications for the formulation of the MTDS, such as supporting the implementation of monetary or exchange rate policy.

22. A precondition for developing and implementing a sound MTDS is a clear definition of the scope for the strategy.<sup>13</sup> At a minimum, the scope should include the total (domestic and external) direct central government debt. The exact definition of the scope will depend on the degree to which the DM can influence the risk exposure of specific portfolios.<sup>14</sup> The coverage of the MTDS could be gradually expanded as information becomes available and

<sup>13</sup> Usually the MTDS excludes central bank debt. This is because the anticipated profit remittances from the central bank are already embedded in the fiscal projections (see Appendix IV), although it would be important to check that these projections are indeed consistent with the assumed cost of monetary policy implementation. However, the implications of the currency composition of government's foreign debt and central bank's foreign assets can be separately reviewed for the scope to match the exposure and reduce risk in the overall public sector balance sheet, i.e., an asset-liability management (ALM) approach.

<sup>14</sup> For example, if the scope includes the portfolio of government guarantees, the DM should be involved in the decision-making process with respect to the issuance of guarantees.

where the institutional arrangements allow for a broader and more comprehensive strategy to be implemented.

23. Even with a relatively narrowly defined scope, the DM should attempt to gather information on the overall balance sheet of the government, i.e., the main financial assets and liabilities of the government, and main contingent liabilities. This information can inform the assessment of overall vulnerability of the debt position, and strengthen the analysis of the appropriate strategy by taking into account the net financial exposures of the government.<sup>15</sup>

Output:

- Description of the overall objectives for debt management.
- Description of the scope for the MTDS.

### **Step 2: Identify the current debt management strategy and the cost and risk of the existing debt**

Objective: Identify the current debt management strategy, the outstanding debt and its composition; calculate basic cost and market risk indicators.

24. Identifying the current debt management strategy helps provide a basis against which alternative strategies can be tested. Often a formal debt management strategy does not exist, or only covers part of the debt portfolio. In such cases, the current strategy would be a description of existing borrowing practices.

25. A solid understanding of the structure of, and risks to, the outstanding stock of debt is fundamental in developing an MTDS. The DM should gather the data on the debt portfolio as defined under Step 1. The data should comprise the total size of debt, a breakdown by currency, creditor type, instrument-type, i.e., fixed, floating, or indexed, bullet or amortizing (see also Box 7). The DM should organize the data so that the debt servicing and debt maturity profile can be readily determined and the impact of changing assumptions assessed.<sup>16</sup> Ideally, this information will be easily available from the debt recording system(s).

26. The DM should analyze the debt stock on the basis of key cost and risk indicators. This requires the DM to identify a clear definition of cost and risk. While this may seem trivial, in practice, it is an issue that debt managers struggle with. It is important that the DM is clear about the objectives of debt management, and the relevant time horizon to which they apply. Typical cost and risk indicators used by DMs are discussed in Appendix III. Based on an assessment of these indicators, the DM should identify sources of vulnerability to the

<sup>15</sup> This can lead to a more comprehensive ALM approach.

<sup>16</sup> For variable rate debt and debt denominated in foreign currencies, the current interest and exchange rates are typically applied for the initial calculation of the debt servicing and maturity profile of the outstanding debt stock. However, these would be recalculated using the projections underlying any forward-looking quantitative analysis (see Step 6).

existing debt.<sup>17</sup> The extent of the risk will depend on the *risk factors*, such as the variability and trends in interest rates, and exchange rates,<sup>18</sup> as well as the *risk exposure*, such as the share of domestic debt, short-term, and variable rate debt.

Output:

- Detailed information on outstanding debt.
- Debt servicing profile of outstanding debt.
- Description of main portfolio risks.

### **Step 3: Identify and analyze potential funding sources, including their cost and risk characteristics.**

Objective: Identify potential sources of finance, their financial characteristics, amounts available, and desirability of use.

27. The DM should identify the characteristics of all existing financing instruments, and assess the relative cost and risk of these.<sup>19</sup>

28. In addition to the standard characteristics of the outstanding debt that affect the cost and risk analyzed in step 2, other characteristics also affect the desirability of specific types of debt instruments. These include:

- whether its use is restricted to certain purposes, e.g., project financing or budget support;
- whether there are other conditions attached to it, e.g., is co-financing required; and
- whether there are any uncertainties associated with disbursement.

29. The DM also needs to consider whether the use of certain instruments (such as international capital market financing) would entail other indirect costs such as the legal or financial advisory services necessary to achieve a successful issue. In addition, the DM should determine whether any instruments come with added benefits, such as advisory services or project management support, which could offset some of the cost factors. Clear

<sup>17</sup> This assessment of vulnerabilities could also include creditor concentration, which captures an element of rollover risk.

<sup>18</sup> It is important that variability is assessed over an appropriate time horizon. For example, using an annual measure of volatility might mask a trend in a key variable, often apparent when data are graphed; in those cases, volatilities should be evaluated over longer periods. Moreover, it is important to evaluate real changes in these variables. For example, the long-term debt to GDP ratio—and other ratios indicative of the cost of debt—depends on developments in the real interest and exchange rate. In one country to which the MTDS was applied, the annual standard deviation in the real exchange rate was 2 percent, masking that the real exchange rate had depreciated 20 percent over the past 10 years, adding 2 percent to the real cost of foreign debt annually.

<sup>19</sup> Appendix III discusses possible sources and their cost and risk characteristics. Note that the MTDS is focused on debt creating financing options; this means that grants are not covered by the MTDS. However, the projected availability of grants is an important factor in determining the net debt creating financing need, and should be incorporated into any quantitative analysis, as they will effectively reduce the funding need.

identification of such factors will help inform the appropriate balance, for example, between bilateral and multilateral sources. The DM should assess, given information about the potential sources of funding, if there are any limitations on the quantity that could be borrowed from these sources going forward, or the conditions under which its availability might change.<sup>20</sup>

30. The DM should consider what potential new financing instruments might become available within the horizon of the MTDS (e.g., access to international capital markets, retail debt, and longer tenors). Issues of timing can also be critical in determining the feasibility of specific instruments.<sup>21</sup> The DM should also consider whether financial derivatives might be accessible and clarify how these might affect the implementation of the MTDS. However, while using swaps to alter the currency composition of the debt might be appropriate for LICs, this requires that the necessary capacity, systems and institutional set-up are in place. Where actions are outside his scope, the DM should consider raising this with the relevant policy maker, and more generally working with other officials to enhance the country's access to financing.<sup>22</sup>

**Output:**

- An assessment of the characteristics, including the cost and risk, of all available and potential financing instruments, and how they might mitigate the portfolio risks previously identified.
- An identification of constraints, particularly on issue size, relevant to the determination of the MTDS.
- An identification of steps necessary to improve access to, or terms of, these instruments.

**Step 4: Identify baseline projections and risks in key policy areas—fiscal, monetary, external, and market**

**Objective:** Identify the baseline projections for key fiscal, monetary and external policy variables, as well as market rates, the main risks to these projections, and the relevant constraints and implications for MTDS formulation.

<sup>20</sup> For example, if a country decides to access the international capital markets, its access to concessional financing might change. See “IDA Countries and Non-Concessional Debt: Dealing with the ‘Free Rider’ Problem in IDA14 Grant Recipient and Post-MDRI Countries”, IDA/R2006-0137, July 2006. Or, currently, it may only be feasible to access the domestic market at variable rates or at relatively short tenors, but if the domestic market were more developed, it would be feasible to issue longer-term fixed rate debt. In this case, the DM should actively consider what policy actions are within his purview, that would be effective in developing the domestic market further.

<sup>21</sup> For example, if monetary policy is not yet fully credible, then the DM may want to postpone issuance of longer-term fixed rate instruments on the grounds of cost.

<sup>22</sup> This could involve, for instance, supporting the implementation of a program of investor education by the securities regulator, or encouraging the tax authorities to review the tax treatment on investments in government securities, to facilitate domestic market development.

31. The DM should have a clear understanding of the macroeconomic framework within which the MTDS is to be developed, and how it interacts with decisions on debt management. In particular, this step will require interaction with the fiscal and monetary policy authorities. The baseline projections for the macro variables will in general be the same as those used in the authorities' debt sustainability analysis (DSA) (see Box 2).

### **Box 2. MTDS, DSA and the DSF: The linkages**

MTDS and DSF are both frameworks that address debt issues, but, given their different focus, they are complements rather than substitutes.

The DSF provides the analytical tool to undertake debt sustainability analysis (DSA). It focuses on the long-term sustainability of debt, which is influenced by both its level and composition. To assess debt sustainability, the DSF considers a baseline macroeconomic framework that outlines a country's fiscal and balance of payments stance under certain assumptions and conditions, and then considers the robustness of key debt burden indicators—usually the ratio of the NPV of debt to GDP, exports or tax revenue—to various macroeconomic shocks, such as to GDP, the exchange rate, revenues, etc. Overall, its primary objective is to gauge if the level and terms of current and expected future borrowing may lead to future debt servicing difficulties over the long-term. However, certain simplifying assumptions are generally made, e.g., the term structure for market debt is not explicitly modeled, which limits its ability to provide some of the detailed analysis that would be of interest to the debt manager.

The MTDS is a more targeted debt management framework, focusing on the specifics of how the composition of debt should be managed over the medium-term. Determining an effective MTDS requires the performance of various financing strategies to be evaluated under a given path for key macroeconomic variables, which should be consistent with that used in the DSF. Similarly, it requires the robustness of each alternative strategy to be evaluated under various shocks. Again, the DSF should inform the stress tests to be applied. Here, variables that capture market risk, such as the interest rate sensitivity of cash flows, other determinants of the term structure, and the exchange rate, may be explicitly modeled. This means that more detailed information on the specifics of the debt portfolio can be assessed more readily.

The DM needs to recognize that MTDS may have important consequences for the DSA conducted within the DSF. Where testing of the alternative debt strategies under the various stress tests suggests that key debt sustainability indicators may be at risk, this should be discussed with the fiscal authorities. At this point, the preferred strategy, and its associated cost and risk implications, could be fed into an updated DSA.

32. As regards the *fiscal policy setting*, the DM should be clear about the expected path of the primary balance, and the key drivers underlying this projection, including anticipated government revenues and expenditures, and economic growth. An issue that may be particularly pertinent for LICs is the appropriate treatment of project loans and associated spending. The planned spending, as reflected in the fiscal framework, is typically dependent on the receipt of specific project loans. Thus the DM may want to take the path of expected disbursements as a given, as they will be offset by changes in spending.<sup>23</sup>

<sup>23</sup> Nevertheless, it will be important to assess from time to time strategic choices in a more unconstrained manner, which will enable the authorities to determine the relative costs and benefits of project-based versus general budget financing.

33. With respect to *monetary policy and external factors*, the DM should seek the views of the monetary authorities on their assessment of the future stance of monetary policy, the exchange rate, the anticipated balance of payments developments and the implicit debt strategy incorporated in the external DSA. Given their assessment of the outlook, the monetary authorities may require a specific target for reserves accumulation to be financed; this could be particularly pertinent in the case where countries are part of a monetary union, or where the country operates a fixed exchange rate regime. In addition, the credibility of monetary policy should be considered as it may affect the relative cost considerations of short- and long-term domestic debt and influence the choice of the preferred strategy. In this case, the MTDS could contribute to coordinated efforts to enhance credibility and reduce the inflation risk premium.<sup>24</sup> More generally, the role of debt management policies in reinforcing or hindering these policies needs to be clearly understood and may require coordination (see also Box 1 and Appendix V).<sup>25</sup>

34. In addition, the DM needs to determine a baseline projection for relevant yield curves, and any other relevant *market factors*, that will prevail through the planning horizon, thereby enabling the assumed cost of contracting new debt or rolling over existing debt to be determined. Judgment is required when identifying the most suitable methodology for undertaking these projections, and estimating any required risk premia. The DM should draw on market contacts and market analysis to help inform these projections.<sup>26</sup> As domestic debt markets develop, the quality of these estimates can be improved and more sophisticated techniques may become feasible.

35. The DM can also draw on officials involved in other areas, particularly banking supervision, to understand the scale of potential weaknesses in banks which may affect demand for public debt, and those involved in capital controls to understand the potential scale of rollover risk in domestic debt. More generally, a broad understanding of financial sector, regulatory or taxation policies will be useful to assess possible developments that could impact the market environment for issuing debt. Finally, the DM should review the financial advice and analysis available from other sources, e.g., investment banks, which could provide some useful insight into how market conditions might evolve.

36. Once a baseline has been determined, the DM should identify, in consultation with other officials, relevant risk scenarios, which could potentially impact the quantity, and cost, of financing required. For example, where countries have increasingly accessed external funding sources, including the international capital markets, the DM should consider the risk

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<sup>24</sup> For example, the introduction of inflation-linked instruments could signal a wider commitment by the authorities to maintaining price stability.

<sup>25</sup> For example, in relatively underdeveloped markets, any implied volatility in the supply of domestic debt securities, and the tenor of those instruments, could affect the transmission of monetary policy, and the effectiveness of any monetary policy signals.

<sup>26</sup> Standard options for deriving a yield curve would include inferring the forward curve from the current observed curve, or assuming a domestic yield curve based on a benchmark external curve (e.g., in US dollar or Euro) and adjusting for expected inflation differentials, inflation risk premium and credit risk premium. This option is included in the accompanying spreadsheet tool.



of a “sudden stop,” which could lead to rollover problems. That assessment could influence the preferred strategy towards lengthening the average maturity of external debt or building a cushion of reserves.<sup>27</sup> At a minimum, these risk scenarios should reflect those highlighted by the debt sustainability framework (DSF).<sup>28</sup>

37. Note that, even in the absence of a substantive change in the macroeconomic framework, the MTDS may have important consequences for the DSA. Where testing of the alternative debt management strategies being considered (see Step 6 and Box 2) suggests that key debt sustainability indicators may be at risk, the DM should interact closely with those involved in the DSA to identify strategies that reduce the risk of debt default, or if there are no such strategies, highlight this, so that other measures can be taken.

**Output**

- Baseline projections for key fiscal, monetary policy, external, and market variables.
- A clear and comprehensive set of country specific risk scenarios to be tested.

**Step 5: Review longer-term structural factors**

Objective: Review structural factors that will potentially influence the desired direction of the debt composition over the longer-term.

38. The DM should identify, in consultation with economic policy-makers, long-term structural features of the economy that may influence the desired debt composition. These factors should also be reflected and discussed in the authorities’ DSA. These could include the following:

- the economy’s dependence on commodities, and the associated vulnerability to developments in commodity prices;
- the longer-term prospects of continued access to concessional finance;
- possible long-term trends in the real effective exchange rate; and
- long-term inflationary trends.

39. Such factors could have a significant influence on the desired debt composition over the long term. For example, the desirable currency composition should take account of the long-term outlook for the real effective exchange rate and consequent implications for an evaluation of domestic versus foreign real interest rates. Similarly, the maturity composition

<sup>27</sup> Where this external vulnerability is high and reinforced by the operation of a fixed or semi-fixed exchange rate regime, coordinating that risk mitigation response with the monetary authorities is critical.

<sup>28</sup> For example, experience suggests that the authorities should be cautious in their assessment of the expected return on public investment or aid; consequently a more pessimistic growth scenario should be considered. The DSA should highlight the key stress tests.

of the portfolio should take account of the broad macroeconomic policy regime, and whether that might change over the long term.<sup>29</sup>

40. An assessment of how economic policy makers expect these factors to develop over time, will guide which strategies the DM should focus on (see Box 3). In addition, a longer-term perspective on the extent, and speed, to which the quality of institutions can be strengthened and credibility of macroeconomic policies established, would be relevant to consider, as those developments will affect the terms on which new borrowing will become available.

### **Box 3. Linkage Between MTDS and Country Specific Structural Economic Factors**

Depending on the country specific factors that are being analyzed, the MTDS should be targeted at mitigating or offsetting, as much as possible, undesirable outcomes. For example:

- Terms of trade developments: Where countries revenues are significantly exposed to terms of trade developments, e.g., as a consequence of a dependence on commodity exports or imports, this is likely to have implications for their real effective exchange rate. This aggravates the potential cost and risk of foreign currency debt. Alternatively, potential cost and risk is significantly reduced if a country's real effective exchange rate is systematically appreciating. So, while many LICs have suffered from the consequences of the prolonged downward trend in commodity prices in the 1980's and 1990's, for the Asian tigers, foreign currency debt might have proved relatively cheap. As commodity prices and terms of trade can follow very long cycles a long-term view on the risk is necessary.
- Access to concessional financing: As countries' income levels grow, access to concessional financing may become limited. In this case, the MTDS will be biased to enhancing the access to other types of financing. For example, introducing a broad range of domestic marketable securities, or establishing access to international capital markets.

#### **Output**

- Articulation of long-run structural factors that the MTDS should take into account.

#### **Step 6: Assess and rank alternative debt management strategies on the basis of the cost-risk trade-off.**

**Objective:** Identify and analyze possible debt management strategies, assess their performance, and choose a small number of candidate debt management strategies.

41. To determine the preferred MTDS, the DM should assess the performance—either qualitatively or quantitatively—of a range of alternative strategies, from a cost and risk

<sup>29</sup> For example, if it is envisaged that, over time, the exchange rate regime may become more flexible, then that might have implications for the longer-term currency and maturity composition of the portfolio. As noted earlier, rollover risk is more pronounced in countries that follow a fixed exchange rate regime, but a more flexible exchange rate regime could support a greater proportion of short-term debt.

perspective. This requires the DM to identify a set of relevant strategies, and assess these under the constraints and future scenarios for the primary balance and market rates previously determined. Furthermore, the strategies should then be evaluated under the relevant risk/stress scenarios that have been identified.

42. In practice, the DM only needs to analyze in detail a small set of strategies. To begin, the DM could consider the existing—implicit or explicit—debt management strategy (see Step 2). The DM might then identify alternative debt compositions and strategies that could help mitigate the key vulnerabilities already identified. Strategies that support the development of domestic markets might also be considered.

43. In the absence of any specific quantitative tools to analyze alternative strategies, the DM should consider what characteristics of debt or debt composition would mitigate key sources of volatility to the budget or provide some buffer to the impact of identified risks (see Step 4), and consider the potential costs of achieving that debt composition. For example, if the country is exposed to external shocks and the real exchange rate is volatile or at risk of a downward trend, the DM may want to avoid aggravating that by reducing external financing. This would allow the DM to specify the preferred direction of specific risk indicators, such as increasing the share of domestic currency debt or lengthening debt maturity.

44. If the DM has developed, or has access to, relevant tools (such as the accompanying MTDS spreadsheet tool, see Box 4 and illustration in Appendix VI), a quantitative assessment of the cost and risk of the alternative strategies can be undertaken. Typically, such tools compare the cost of debt to the risk (as defined by the change in the cost) over a specific time horizon under different scenarios. Such tools allow the DM to simulate the impact of various financing options, tracking the evolution of the key cost and risk indicators for each strategy tested.

45. Scenario analysis allows the impact of specific shocks or risk scenarios to be evaluated. These should include the alternative scenarios or stress tests identified in Step 4, including any compound shocks considered in the DSA. Similarly, where the DSA analysis suggests that the baseline macro scenario is optimistic, it is important to assess the implications of using a more conservative set of macro assumptions.<sup>30</sup> This risk assessment becomes critical where debt levels are already high, relative to the government's ability to pay.

46. The choice of time horizon over which the cost and risk are evaluated should take account of the stability of the economy. For example, if the economy is quite stable, evaluating the cost and risk over a shorter time horizon may be fully representative; however, if the economy is not stable, it may be necessary to consider a longer time horizon.<sup>31</sup>

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<sup>30</sup> This might bias the MTDS towards lower risk, but possibly more costly, strategy.

<sup>31</sup> For example, if commodity export prices are in a downward trend, a longer time period may need to be chosen so that the upward trend is also captured.

Similarly, the shocks considered also need to correspond to the period evaluated.<sup>32</sup> More generally, when comparing the relative impact of specific stress tests, the subjective probability assigned to the realization of each specific shock should be taken into account.

#### **Box 4. The MTDS Analytical Tool**

An analytical tool (MTDS AT) complements the analysis described in this Guidance Note. The purpose of the tool is to support quantitatively the process of decision-making. The outputs are intended to inform and illustrate the consequences of following a particular debt management strategy under various scenarios or stress tests. The tool can be used to test the consequences of either following a specific financing plan or achieving and maintaining a specific debt composition, with the associated series of financing plans determined by the tool. In this connection, the tool can be used to highlight the relation between, on the one hand, the cost of various financing plans or debt compositions, and, on the other hand, the associated risk. The tool is flexible, users can, within certain limits, specify the time horizon for the projections, the number of currencies, and the range of instruments.

The tool is Excel-based and comprises four separate spreadsheets. A variety of cost and risk indicators are produced allowing the DM to consider cost-risk trade-offs of each alternative strategy.

While the resulting cost-risk trade-offs help in the decision-making process by providing quantitative information, the tool is not meant to be the sole focus when making decisions. With outputs driven by the input assumptions, careful judgment must be applied to any interpretation of the results.

47. The strategies under consideration should be reviewed against the assessment in Step 3, to ensure that they would be feasible to implement. This review might identify broader policy issues that effectively constrain the set of feasible strategies. Even where the range of feasible debt management strategies is limited, as is the case in many LICs, this explicit evaluation of the costs and risks is an important element of risk management.

48. Once the DM has assessed the performance of the key relevant strategies, core results should be summarized (e.g., tabular or graph form) and a small number of candidate strategies should be identified, presented, and discussed with other policy officials.

#### **Output:**

- A ranking of a small number of candidate strategies in terms of cost and risk.

<sup>32</sup> For example, is a typical shock best represented by the annual standard deviation or are shocks correlated over time and is the shock best represented by the standard deviation over a 5-year period, measured on a rolling basis, e.g., over a 20-year horizon. Ideally the standard deviation would be calculated over a period that is equal to or longer than the cycle. See also the discussion under Step 2.

## **Step 7: Review implications of candidate debt management strategies with fiscal and monetary policy authorities, and for market conditions**

Objective: Ensure that relevant feedback from the strategies identified is provided to the fiscal and monetary policy authorities. Review the potential debt market implications of the strategies.

49. The candidate strategies, and their associated cost and risk implications, should be reviewed with the fiscal policy authorities, and their implications for debt sustainability assessed. If the review of the strategies identified under Step 6 with the fiscal authorities suggests potential risks to the budget, or that debt sustainability or external viability appears to be at risk, the potential strategies may have to be adjusted. Alternatively, a review of the baseline fiscal projections may be required so that more fiscal space can be created.

50. Similarly, the potential implications of the candidate strategies for monetary conditions should be discussed with the central bank, including their potential to support monetary policy objectives. The anticipated amount of foreign currency, and other non-resident financing, and the likely tenor, may have implications for intervention, the exchange rate and crowding out of the private sector. Also, the implications for the balance of payments and the level of rollover risk relative to the anticipated level of international reserves should be discussed. In case external debt sustainability appears at risk, or financing strategies create or contribute to excessive liquidity risk, the implications for the exchange rate regime should be discussed. The outcome of such discussions may also affect the choice of strategy, or might require the DM to identify an alternative strategy.

51. The implications of the DM's preferred MTDS, including the implied financing from domestic and international markets, should be reviewed with the monetary and financial market authorities to assess the impact of the implied investment assumed from key investor groups. The potential implications for capital market development and financial stability should also be assessed.<sup>33</sup> These implications might be positive—for example, a strategy under consideration that would help provide an effective benchmark for the private sector—or negative—for example, the quantity of proposed financing through one instrument would effectively absorb all available capacity and may crowd out the private sector. Similarly, regulatory concerns about, for example, the exposure of the banking system, could be brought to bear, helping determine whether the proposed MTDS is appropriate.

52. In general, if the debt management strategy has significant implications for the underlying macroeconomic assumptions, an interactive approach may be needed where debt and macroeconomic strategies are jointly discussed, and revised using a process of iterations. A significant revision to the baseline projections (Step 4) will require the DM to repeat the strategy analysis exercise (Step 6), etc.

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<sup>33</sup> This could arise as a consequence of a concentration of the investor base, e.g., an increase in the vulnerability of the banking system, might lead to an increased debt burden in the event that the banking system collapses.

**Output:**

- A clear assessment that the candidate strategies are consistent with fiscal and monetary policies, maintaining debt sustainability, and are in line with plans for market development.

**Step 8: Submit and secure agreement on the MTDS**

Objective: Identify the preferred MTDS, and send proposal, along with ranked alternative candidate strategies, to the highest authority responsible for debt management for approval.

53. Based on Steps 1 through 7, the DM should present the preferred MTDS to the highest authority responsible for debt management for approval. The presentation should include alternatives to the preferred MTDS.

54. The MTDS should be approved by the highest authority of the Ministry of Finance as it should embody the government's preferred risk tolerance, which involves a political judgment on the cost and risk tradeoff. Once approved, the debt management strategy should be formalized and an explicit mandate given to the DM to implement the strategy.

**Output:**

- An approved MTDS.

**III. DISSEMINATION**

55. Once the MTDS has been agreed and formalized, it is recommended that the MTDS be disseminated through the release of a public debt management strategy document.<sup>34</sup> Dissemination of the MTDS will help the DM strengthen the relationship with creditors, investors and other key stakeholders (e.g., credit rating agencies), and facilitate an open dialogue on key factors influencing the choice and implementation of the MTDS. This could help secure support for the chosen MTDS and reduce investor uncertainty.

56. A typical published document describing the MTDS would highlight the following: the objective and scope of the MTDS; a description of the current and expected macroeconomic environment; an evaluation of the existing stock of debt; and an outline of the agreed MTDS, with a discussion of factors that influenced the choice of strategy, including the key risk factors that the MTDS is focused on managing.<sup>35</sup>

57. The MTDS could be expressed through targets for a specific instrument composition or specific indicators of cost or risk. At the initial stages, the indicators could be more descriptive, e.g., the desired MTDS is to increase the share of domestic currency debt or

<sup>34</sup> The DM should use all readily available avenues for publication, including websites.

<sup>35</sup> See Appendix VII on "Template for a debt management strategy document". It is generally not necessary to disclose the full extent of the analysis undertaken; in particular, some of the stress scenarios considered may be sensitive.

gradually extend maturities. Over time, the targets could become more specific and precise, e.g., setting a portfolio target of 60 percent domestic currency debt.

58. Where an MTDS is developed for the first time, it might be particularly useful to reach out to a broad audience including parliamentarians, domestic and foreign investors, intermediaries, rating agencies, by organizing workshops, seminars or roadshows. More generally, the MTDS can provide a strong basis for building an effective investor relations program,<sup>36</sup> which can facilitate domestic debt market development and impact the cost of future market-based debt.

#### IV. IMPLEMENTATION AND FOLLOW-UP

59. Once the MTDS has been decided, the DM should develop an internal *annual financing* plan outlining how the strategy will be implemented over the *coming budgetary period*. The annual funding need will be determined through the budget process, while distribution of the funding need intra-year will depend on the government's cash flows. In general, the cost-effectiveness with which a financing plan can be implemented will reflect the authorities' capacity to develop meaningful government cash forecasts.<sup>37</sup> At the aggregate level the total amounts to be raised through each of the available instruments can be determined based on the strategy. This then needs to be broken down into more specific targets based on the DM's knowledge of the sources of financing.

60. When the aggregate targets are identified, the likely timing of flows should be planned and checked to ensure that it delivers sufficient financing to meet the anticipated intra-year flows. Typically, separate plans will be formulated for domestic and external market borrowing.

61. Determining the annual financing plan generally begins with an analysis of the anticipated budget (cash) flows, including expected debt servicing flows. Taking account of the starting balance on the Treasury Single Account (TSA), or the net balances across government accounts (and the planned profile of reserves financing for the central bank) will enable the DM to map out the profile of financing requirements through the year. Supplementing this with the anticipated disbursements of official loans would identify where the anticipated balance on the TSA will be relative to its target balance, and, consequently, the preferred size and timing of financing operations.<sup>38</sup> On the domestic side, this analysis allows the DM to develop an issuance schedule consistent with any strategic goals, such as

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<sup>36</sup> See IMF (2004) for a discussion of issues relating to the design of an effective investors relations program.

<sup>37</sup> Efficient and effective government cash management will support the development of a more committed and transparent financing plan, and overall contribute to reducing the cost of debt. Where there are significant weaknesses in cash management, the timing of financing operations may be more *ad hoc*, and consequently less conducive to market development, and, so, more costly.

<sup>38</sup> It may be an agreed policy objective to maintain a positive TSA balance to absorb volatility in key in-flows. In general, to reduce potential carry cost, the debt manager will try to time financing operations to keep account balances as close as possible to their target levels, although that needs to be balanced against the desirability of following a regular issuance pattern to support market development.

following a regular issuance pattern to support market development (see Appendix VIII for an illustration). On the external side, while the DM may have less discretion to choose the precise timing of operations, the analysis would highlight the latest point at which borrowing will need to have been secured, for example, from tapping international markets or sourcing other external private sector loans.<sup>39</sup>

62. Often the annual financing plan, or at least the domestic component, is communicated to the market.<sup>40</sup> As the year progresses, and the budget is implemented, the financing plans will need to be updated depending on the realized flows.

63. In addition, it is important to periodically review the MTDS, ideally on an annual basis, and confirm its continued validity. Also, if there are fundamental shifts in macroeconomic or market conditions, the MTDS should be updated. A new analysis should be undertaken, and a new proposal should be submitted along with a clear explanation of why a revision and update of the strategy is recommended.

64. Progress on the implementation of the MTDS should also be regularly communicated to the minister of finance, or any other relevant committee, e.g., through regular management reporting. This reporting should provide information on the evolution of the portfolio, and the key cost and risk factors. Such regular reporting plays a key role in an effective risk management framework.

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<sup>39</sup> Where countries have not already established a presence in the international capital markets or relationship with specific creditors, then these plans should take account of the potentially significant lead times involved.

<sup>40</sup> Such communication can facilitate the deepening of the government bond market and contribute to both cost and risk reduction by enabling greater volumes, and a broader range of instruments, to be issued, and reducing the risk premium arising from market uncertainty. In addition, the more regularity and commitment that can be factored into the auction schedule, the more likely that operations will be successfully received by the market, helping mitigate the risk of under-subscription.



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## Appendix I. The Enabling Institutional Framework

65. A clear institutional framework facilitates effective debt management. Key elements of such a framework include: (i) an adequate legal framework; (ii) effective institutional arrangements including the organizational set-up of the DM function; and (iii) comprehensive and efficient debt recording. While countries take different approaches to each of these, some key underlying principles generally hold true.<sup>41</sup> Specifically, the legal framework should clarify the authority to borrow and to issue new debt, invest, and undertake transactions on the government's behalf (see Box 5). Often, the legal framework sets out the overall objectives for debt management, clarifies the accountability and outlines the desired reporting and audit requirements. It can also address the specific modalities of coordination among the agents involved in debt management, e.g., a fiscal agency role of the central bank.

66. The supporting governance structure should clearly outline and describe the roles and responsibilities of all relevant institutions involved in debt management activities. In particular, it should be clear which agent is responsible for debt management decisions. Typically this would be the minister of finance, possibly supported by an advisory committee. Regardless of the specific set-up, the arrangements needs to be structured, and lines of responsibility and accountability should be clear and consistent.

67. The agent responsible for debt management policies and implementation should make sure that there is sufficient information to discharge this responsibility effectively. Typically this is done through periodic reporting by the DM on progress on the implementation of the debt management strategy and associated borrowing plan. This reporting should provide information on the evolution of the portfolio and the key cost and risk indicators, so that those accountable for decisions are able to adequately monitor developments *vis-à-vis* the expected evolution of these indicators.

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<sup>41</sup> See IMF and World Bank, 2003, *Guidelines for Public Debt Management* for a fuller discussion.

### **Box 5. Elements of a Sound Legal Framework for Public Debt Management**

The legal framework for public debt management ideally contains the following key elements:

- Clear authorization by Parliament/Congress to the executive branch of government to approve borrowings and loan guarantees on behalf of the government.
- Clear authorization by the executive branch of government to the debt management entities to undertake borrowing and debt-related transactions and to issue loan guarantees.
- Clear debt management objectives. Common debt management objectives found in modern legislation are that central government's funding needs are always met, the cost of the debt is minimized from a medium/long-term perspective, the risks in the debt portfolio are kept at acceptable levels, and that development of the domestic debt market is promoted.
- A requirement to develop a debt management strategy. Once the debt management objectives are set, these objectives must be translated into an operational strategy that will provide a framework for how the government will achieve its debt management objectives.
- Mandatory reporting on an annual basis covering an evaluation of outcomes against stated objectives and the determined strategy. Such accountability is the counterpart to the delegation by Parliament/Congress of borrowing power to the executive.
- A requirement for an external audit. Such a requirement for external audit is normally found in the general Public Audit Act, rather than in specific debt management legislation.

68. Where different entities are involved in contracting direct liabilities of the central government, there needs to be effective institutional arrangements to ensure coordination and effective implementation of the MTDS. In particular, there needs to be mechanisms in place to share information on developments in these sub-portfolios and coordinate actions. Countries take different approaches to addressing this coordination challenge, ranging from centralizing all debt management functions in one unit, to creating a central unit responsible for developing and monitoring the MTDS, with other entities retaining responsibility for implementation. In addition, given the important linkages between the effective implementation of the MTDS and government cash management and monetary policy implementation, institutional arrangements need to recognize the need to establish effective coordination mechanisms between these functions.

### **Box 6. Organizational Arrangements**

Sound public debt management requires an institutional structure that clearly delineates roles, responsibilities, and reporting channels for the relevant institutions. Consolidating debt management functions into one department or directorate can avoid duplication of functions, strengthen accountability, and reduces the requirements for coordination and information sharing. It also facilitates the analysis and development of a strategy for the aggregate debt portfolio, because one entity is clearly mandated to perform this role and maintains the full set of information required to undertake it.

Experience in the developing country context suggests that that institutional arrangements surrounding debt management operations remain fragmented across a number of government agencies, especially since project management tend to require a heavy involvement of the planning or economy ministries. Strong coordination among the various agencies is then called for to be effective at carrying out DM functions. In this regard, it is generally recognized that a consolidated debt management function is not a precondition for sound public debt management.

When consolidating debt management responsibilities into one entity, clear internal divisions of responsibilities are needed to reduce operational risk. In particular, separation between front- and back-office activities is critical for reducing the risk of fraud in any organization undertaking financial transactions. In turn, in more advanced operations, the separation of front- and middle-office activities ensures the independence of those setting and monitoring the risk management framework from those responsible for executing market transactions. In addition, it is important that staff are subject to a clear code of conduct and conflict of interest rules to ensure the integrity of the debt management operations.

Based on World Bank (2007a) chapter 5.

69. Often, establishing an effective database which covers all types of debt, and that can provide necessary input for the development of the MTDS presents a significant challenge. A precondition for high-quality and comprehensive debt data is efficient debt recording. While a good IT system contributes to establishing sound debt recording, experience show that the establishment of clear processes and procedures around the debt recording system(s) is critical. With respect to IT systems, countries take a variety of approaches including developing systems in-house, use of a third-party system, or some combination of both. To ensure the integrity of any data entered into a system, adequate operational procedures should be in place to ensure accuracy.<sup>42</sup>

70. Country experience in establishing an effective enabling framework are discussed more expansively in IMF and World Bank (2007) and World Bank (2007a).

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<sup>42</sup> In general, countries should strive to achieve the “four eyes” principal, with data entered and verified by separate people.

### **Box 7. Desirable Elements of a Debt Recording System**

A robust debt recording system should provide for an accurate, consistent and comprehensive database of domestic, external and government-guaranteed debt. A good debt recording system would readily provide the following:

- An accurate breakdown of the outstanding debt by various characteristics, including currency composition, creditor composition, concessionality, and instrument composition (including by interest rate type).
- Aggregate debt servicing schedules across various categories of debt.
- Some basic portfolio indicators, such as average maturity, proportion of foreign currency debt, etc.
- Payment schedules for interest and amortization of individual loans and securities, along with the associated payment notices. This can be decentralized if management is spread across different contracting entities.

Ideally, the system would also interface with other key systems including (i) the payments system used to make debt servicing payments; (ii) the transaction management system (where relevant);<sup>43</sup> (iii) the auction system (if separate from the transaction management system), and (iv) the government's financial management information and accounting system(s).

In addition, it should be possible to ensure the integrity of the system by imposing appropriate security controls.

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<sup>43</sup> For example, if the debt management unit engages directly in financial market transactions.

## **Appendix II. Designing an MTDS: Checklist for Debt Managers**

*The key elements of the steps involved in formulating an MTDS are summarized below:*

### ***Step 1. Identify the objectives for public debt management and the scope of the MTDS***

Purpose is to help clarify what objectives the MTDS should seek to achieve. This will also help clarify the tasks and responsibilities for which the DM is accountable.

- Identify the main objectives for public debt management
  - For example
    - Meet the financing need
    - Minimize cost
    - Maintain risk at a prudent level
    - Develop the domestic debt market
    - Establish a reference or benchmark for private sector issuance
- Ensure objectives (where they are not set down in law) are properly documented
- Define scope of MTDS
  - Central government; general government; or wider public sector
  - Contingent liabilities
  - Interaction with private sector external debt

### ***Step 2. Identify the current debt management strategy and cost and risk of existing debt***

Purpose is to clearly determine the starting position for the analysis; this will help identify whether the MTDS should seek to change the characteristics of the existing debt portfolio in any specific way, e.g., reduce a specific risk.

- Explicitly identify the current strategy
  - Provides a benchmark against which alternatives can be evaluated
- Identify outstanding debt and its composition
  - Determine debt servicing profile of outstanding debt
- Calculate basic cost and risk indicators for the portfolio
  - Identify sources of vulnerability to the existing debt stock

### ***Step 3. Identify and analyze potential funding sources, including cost and risk characteristics***

Purpose is to determine the range of possible strategies that might be feasible and desirable to implement. This will also help identify any potential constraints that might impede the implementation of a chosen strategy. This may require interaction with financial market supervisors, or other agencies (e.g., ministry of planning).

- Identify potential sources of finance, their financial characteristics, including cost and risk parameters, and potential amounts available

- List existing and potential instruments, domestic and external, and describe their financial characteristics
- Evaluate the potential quantum of borrowing available through each instrument
- Identify any constraints that might impede the availability of funding
- Discuss/rank the instruments based on their cost/risk characteristics (and within the context of the vulnerabilities in the debt portfolio previously identified)

***Step 4. Identify baseline projections and risk in key policy areas—fiscal, monetary, external and market***

Purpose is to determine the baseline scenario for the analysis of the performance of alternative strategies and identify specific risk scenarios to be evaluated. Requires interaction with fiscal, monetary policy and financial market authorities, and (where relevant) market participants.

- Identify the baseline medium-term projections for key fiscal and monetary policy variables
  - Use projections from the DSF
- Identify whether there are any external constraints relevant for MTDS formulation
  - Discuss any anticipated change in exchange rate or capital account regime
  - Discuss any required financing of international reserves
- Identify the baseline medium-term projections for market rates
- Clarify assumptions about likely pricing of non-market instruments
  - Based on creditor information and other sources
- Determine specific risk scenarios
  - Those identified in DSF
  - Other specific changes to market conditions and demand (e.g., shock to global liquidity conditions)

***Step 5. Review longer-term structural factors***

Purpose is to take a longer-term perspective and identify any factors that could influence how the debt composition should ideally change over the longer-term. Requires interaction with fiscal and monetary policy authorities.

- Set out long-run structural features of the economy that the MTDS should try to take into account, e.g.,
  - Commodity price vulnerability
  - Access to concessional financing
  - Trends in real effective exchange rate
  - Inflation trends

***Step 6. Assess and rank alternative debt management strategies on the basis of the cost-risk trade-off***

Purpose is to analyze a number of alternative debt management strategies, assess their performance, and identify a small number of candidate strategies, including a preferred strategy.

- For a range of alternative strategies
  - Assess how costs could change under the various risk scenarios
  - Assess how well each strategy helps mitigate the identified portfolio vulnerabilities
  - Assess how well each strategy meets the debt management objectives, both primary and secondary
  - Assess whether each strategy would be feasible to implement given assumptions about potential sources of financing

***Step 7. Review implications of candidate strategies with fiscal and monetary policy authorities, and for market development***

Purpose is to clearly determine that the preferred, and other candidate, strategies are consistent with fiscal and monetary policies, maintaining debt sustainability, and in line with plans for market development.

- Outline the preferred, and other candidate, strategies to the fiscal and monetary policy authorities
  - Discuss any points of interaction
  - Confirm that debt sustainability indicators are in line with DSA
- Review the potential debt market implications of the candidate strategies, including where relevant with financial market authorities

***Step 8. Propose and Approve the MTDS***

Purpose is to propose the preferred strategy to the decision maker, and secure his / her agreement.

- Document the preferred and a small number (e.g., one or two) alternative strategies
  - Outline why the preferred strategy is superior to the others
  - Clearly describe the key associated costs and risks, and relationship with the broad objectives
- Present the proposal to the highest responsible authority
- Agree the MTDS

Once determined, the agreed MTDS should be disseminated.



### **Appendix III. Cost and Risk, and Debt Indicators**

*This appendix discusses a variety of measures of cost and risk, and other useful debt indicators that the debt manager may need in the course of effectively managing the debt portfolio. Appendix VI outlines how some of these could be used in specific country application of the framework.*

71. A precondition for developing a sound debt management strategy is a clear definition of cost and risk. While this may seem trivial, in practice, this is an issue that debt managers have been and are struggling with. It is important that debt managers are clear about what exactly is captured by specific cost and risk measures so that the most appropriate measures are selected for a given objective.

72. For immediate budget purposes the focus is typically on absolute nominal measures, i.e., nominal interest payments at current exchange rates. While nominal measures are useful for budgeting purposes they fail to inform the decision makers of the true cost of debt as they ignore the implications of inflation on the real value of debt or the gains or losses on indexed debt or debt denominated in foreign currency. They also do not reflect how the repayment capacity is influenced by growth in GDP or tax revenues. Consequently, it may be useful to consider the ratio of interest payments to nominal GDP or nominal tax revenues—both effectively real measures that better capture the true burden of debt. Other important real cost measures discussed below are the ratio of the NPV of debt to GDP and the ratio of interest payments adjusted for capital gains/losses to GDP. The NPV measure is useful because it captures the concessionality of debt. The adjusted interest cost measure captures concessional interest rates directly, but it also adjusts the typically lower foreign currency interest payments for the expected depreciation of the exchange rate, which adds to the principal and consequently to the true burden of that debt.

73. In the context of what follows, and in the MTDS analytical tool accompanying this guidance note, risk is defined as a change in one of these cost measures after a shock is applied. However, this appendix also discusses some other useful portfolio statistics that capture directly the inherent exposure of the debt portfolio to such risks as interest and exchange rate changes. In using these portfolio statistics, it is important to understand how they relate to the more fundamental risk measures.

#### **Cost measures**

74. Examples of commonly used cost indicators for a debt portfolio include:

### *Interest cost*

- Nominal interest cost captures the direct nominal impact of interest payments, or coupon payments in the case of bonded debt, but ignores any realized capital gains/losses on indexed debt, such as foreign currency denominated or inflation-linked debt. Algebraically, this measure can be expressed as:<sup>44</sup>

$$I_t^* = \sum_{j=1}^m e_{jt} I_{jt}^{FX} + I_t^{DX} \quad (1)$$

where  $I_t^*$  = total interest payments expressed in local currency at time  $t$ ,  $e_{jt} = j^{th}$  exchange rate between the domestic currency and foreign currency  $j$ ,  $I_{jt}^{FX}$  = interest payments denominated in foreign currency  $j$ , and  $I_t^{DX}$  = local currency interest payments. The absolute nominal interest cost does not give a good indication of the true cost or burden of the debt. Thus, it is better to normalize nominal interest cost in real terms, or in terms of units of nominal GDP or government revenues. The latter two normalizations reflect the capacity of the government to meet the interest payments. Such normalizations would imply that we could define: (a) real interest cost; (b) nominal interest cost as a proportion of nominal GDP; and (c) nominal interest cost as a proportion of revenues.

- The real interest cost may capture better the economic cost of debt associated only with interest payments. It measures the nominal interest cost of debt adjusted for prices, and can be expressed as:

$$I_t^P = \frac{I_t^*}{P_t} \quad (2)$$

where  $I_t^P$  = real total interest payments,  $P_t$  = domestic prices and  $I_t^*$  is as defined previously.

- The nominal interest cost-to-nominal GDP ratio is a widely used measure of cost and is calculated as:

$$I_t^Y = \frac{I_t^*}{Y_t} \quad (3)$$

where  $I_t^Y$  = nominal interest cost-to-nominal GDP ratio,  $Y_t$  = nominal GDP and  $I_t^*$  is as defined previously.

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<sup>44</sup> For simplicity, we assume that there are only domestic currency nominal debt and foreign currency denominated nominal debt. The equation (and all subsequent ones) could be easily expanded to accommodate debt with different characteristics, such as inflation-linked debt. We also ignore other costs, such as commissions, legal fees and other administrative outlays, that are typically associated with incurring debt.

- The nominal interest cost-to-nominal government revenues ratio is calculated as:

$$I_t^T = \frac{I_t^*}{T_t} \quad (4)$$

where  $i_t^T$  = nominal interest cost-to-nominal government revenues ratio,  $T_t$  = nominal government revenues and  $I_t^*$  is as defined previously.

- It may be also useful to measure the interest payments per unit of debt, i.e., the average interest rate. The (unweighted) average interest rate is the nominal interest payment relative to the outstanding stock of debt and is computed as:

$$\bar{i}_t = \frac{I_t^*}{D_t} = \frac{\sum_{j=1}^m e_{j,t} I_{j,t}^{FX} + I_t^{DX}}{D_t^{DX} + D_t^{FX}} = \frac{\sum_{j=1}^m e_{j,t} I_{j,t}^{FX} + I_t^{DX}}{D_t^{DX} + \sum_{j=1}^m e_{t,j} D_{t,j}^{FX}} \quad (5)$$

where  $\bar{i}_t$  = the unweighted average interest rate,  $D_t = D_t^{DX} + D_t^{FX}$   
 $= D_t^{DX} + \sum_{j=1}^m e_{t,j} D_{t,j}^{FX}$  = the outstanding total debt stock in period t, and  $D_t^{DX}$  and

$D_t^{FX} = \sum_{j=1}^m e_{t,j} D_{t,j}^{FX}$  are the outstanding domestic currency and foreign currency debt respectively.

- The real unweighted average interest rate is the unweighted average interest rate adjusted for domestic inflation:

$$\bar{i}_t^{-\pi} = \bar{i}_t - \pi_t \quad (6)$$

where  $\bar{i}_t^{-\pi}$  = the real unweighted average interest rate, and  $\pi_t$  = domestic inflation.

### ***Interest cost adjusted for capital gains/losses on indexed debt***

- As described previously, the nominal interest cost ignores any costs associated with capital gains/losses. These capital gains/losses arise from the exchange rate effects on foreign currency denominated debt as the debt is effectively indexed in currencies other than the domestic one. The nominal adjusted interest cost can be measured as:

$$C_t^* = I_t^* + \sum_{j=1}^m (D_{t-1,j}^{FX} \cdot \Delta e_{t,j}) \quad (7)$$

where  $C_t^*$  = adjusted nominal interest cost,  $\sum_{j=1}^m (D_{t-1,j}^{FX} \cdot \Delta e_{t,j})$  = the capital gains/loss arising from the change in the exchange rates associated with outstanding FX debt at  $t-1$ , and  $I_t^*$  is as defined previously.

- The real adjusted interest cost is calculated as:

$$C_t^P = \frac{C_t^*}{P_t} \quad (8)$$

where  $C_t^P$  = real adjusted interest cost, and all other terms are as defined previously.

- The capital gain/loss adjusted nominal interest cost-to-nominal GDP ratio is calculated as:

$$C_t^y = \frac{C_t^*}{Y_t} \quad (9)$$

where  $C_t^y$  = adjusted nominal interest cost-to-nominal GDP ratio, and all other terms are as defined previously.

- The capital gain/loss adjusted nominal interest cost-to-revenues ratio is calculated as:

$$C_t^T = \frac{C_t^*}{T_t} \quad (10)$$

where  $C_t^T$  = adjusted nominal interest cost-to-revenues ratio, and all other terms are as defined previously.

## Risk measures

75. Risk is generally a function of the exposure of the government debt portfolio and the specific risk factor. While the exposure tends to be endogenous to management decisions, the risk factor is exogenous as it is driven by forces beyond the control of the debt manager, including macroeconomic developments in a country and the rest of the world, changes in market sentiment, and other factors that give rise to unanticipated changes in market prices.

76. Debt managers can help reduce the vulnerability of the government debt portfolios to changes in market prices by reducing the portfolio exposure. To this end, appropriate indicators that gauge the extent to which the debt portfolio, and debt cost, are exposed to various types of risks can be measured and monitored over time.

77. Risk measures estimate the potential unexpected increase in debt service payments produced by a surprising shift in market variables such as interest or exchange rates.

78. As noted above, in a deterministic setting, as used in the MTDS analytical tool, risk is measured as the difference between the cost in a given period under a scenario incorporating a specific shock and the cost under a pre-determined baseline scenario.<sup>45</sup> This difference is represented by:

$$risk_t^k = I_t^{k,s} - I_t^{k,b} \text{ or } risk_t^k = C_t^{k,s} - C_t^{k,b}, k = *, P, Y \text{ or } T. \quad (11)$$

where  $I_t^{k,s}$  and  $C_t^{k,s}$  are respectively the costs under the scenario with an expected shock and  $I_t^{k,b}$  and  $C_t^{k,b}$  are the costs under a baseline scenario.

79. In addition to interest and exchange rate risks, debt managers are also exposed to refinancing (or roll-over) risk—i.e., the risk that debt will have to be rolled over at unusually high cost, or, in extreme cases, cannot be rolled over at all. Although refinancing risk may be considered a type of interest rate risk, its materialization can lead to exceptionally large increases in government funding costs, or to the inability to refinance the government loans coming due. Since such an impact can lead to, or exacerbate, a debt crisis and thereby cause severe economic losses in addition to the purely financial effects of higher interest rates, it is important to treat refinancing risk separately. Below we discuss vulnerabilities to interest rate, refinancing, and foreign currency risks and some statistics that can be used to gauge their severity.

## Indicators of Exposure to Market Risk Factors

### *Interest rate risk*

80. Interest rate risk refers to the vulnerability of the debt portfolio, and the cost of government debt, to higher market interest rates at the point at which the interest rate on variable rate debt and fixed rate debt that is maturing is being re-priced. The following indicators provide measures of the exposure to this risk:

- Amount of the debt stock refixing the interest rate in a particular period t:

$$D_t^{refix} = D_t^v + A_t^f = D_{t_t^v}^{v,FX} + D_{t_t^v}^{v,DX} + A_{t_t^f}^{f,DX} + A_{t_t^f}^{f,FX} \quad (13)$$

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<sup>45</sup> In a stochastic setting, risk is typically quantified by some measure of dispersion (e.g., the standard deviation) or extreme or tail area of a given distribution (e.g., the 95<sup>th</sup> percentile of the empirical cost distribution or the upper tail area of the empirical cost distribution beyond the 95<sup>th</sup> percentile).

where  $D_t^v = D_{t_t}^{v,FX} + D_{t_t}^{v,DX} =$  total variable rate debt;  $D_{t_t}^{v,DX} =$  domestic currency variable rate debt; and  $D_{t_t}^{v,FX} = \sum_{j=1}^m e_{t,j} D_{t,j}^{v,FX} =$  foreign currency denominated variable rate debt (converted to domestic currency);  $A_t^f = A_t^{f,DX} + A_t^{f,FX}$ ;  $A_t^f =$  principal or amortization repayments of fixed-rate debt falling due in period  $t$ ,  $A_t^{f,DX} =$  principal repayments on domestic fixed-rate debt falling due in period  $t$ , and  $A_t^{f,FX} = \sum_{j=1}^m (A_{t,j}^{f,FX} \cdot e_{t,j}) =$  principal repayments on foreign currency denominated fixed-rate debt falling due in period  $t$ .

- Share of debt in the debt portfolio refixing the interest rate in a particular period  $t$ :

$$d_t^{refix} = \frac{D_t^{refix}}{D_t} \quad (14)$$

- Average time to refixing of the debt portfolio. This indicator is a measure of the weighted average time until all principal payments in the debt portfolio become subject to a new interest rate.

$$ATR_t = \frac{\omega^f \cdot \sum_{t=1}^T (A_t^f \cdot t) + \omega^v \cdot \sum_{s=1}^S (D_{t,s}^v \cdot s)}{D_t} \quad (15)$$

where  $ATR_t =$  the average interest rate re-fixing period of the debt portfolio,  $D_t^v$ ,  $D_t$ ,  $A_t^f$  are as defined above,  $s =$  time to the next interest rate reset for the variable rate debt, and  $\omega^j$ ,  $j = v$  and  $f$ , are the respective shares of the variable rate debt outstanding and fixed rate principal falling due.  $ATR_t$  shows on average the time it takes for principal payments to be subject to a new interest rate. As an average measure, this indicator gives information over time of the changes in the portfolio's average time to refixing. A shortening of this indicator suggests that the portfolio is, on average, facing a new interest rate more frequently and therefore is more exposed to refixing shocks.

### Refinancing (roll-over) risk

81. Refinancing risk captures the exposure of the debt portfolio to unusually higher interest rates at the point at which debt is being refinanced; in the extreme, when this risk is too high debt managers are unable to roll over maturing obligations. The following indicators measure the exposure to this risk<sup>46</sup>:

<sup>46</sup> Note that the indicators discussed here can also be used to assess the exposure to interest rate risk arising only from maturing debt.

- The redemption profile of the outstanding debt. The redemption profile of the debt is the sequence of principal or amortization payments that the outstanding stock of debt gives rise to. It is represented as:

$$RP_t = [A_t]_{t=1}^T = [A_t^{DX} + A_t^{FX}]_{t=1}^T = \left[ A_t^{DX} + \sum_{j=1}^m (A_{t,j}^{FX} \cdot e_{t,j}) \right]_{t=1}^T = \{A_{t=1}, A_{t=2} \dots, A_{t=T}\} \quad (16)$$

where  $RP_t$  = the redemption profile of the outstanding total debt stock that spans the entire expected sequence of principal or amortization payments beginning in period  $t$  and ending in future period  $T$  in which the final outstanding principal falls due for repayment; all other terms are as defined previously.

- Proportion of the debt stock falling due within a particular period. The ratio of the debt falling due in a given period to the total outstanding debt can be expressed

as:  $\frac{A_t^D}{D_t}$ .

- Proportion of the debt stock falling due within a particular period adjusted by liquid assets. While  $\frac{A_t^D}{D_t}$  provides the gross exposure to refinancing risk, countries may have “liquid cushions” in the form of FX reserves, or cash balances, that reduce the government’s vulnerability to refinancing risk. These assets should be netted out from the gross exposure. Consequently, the adjusted ratio of debt falling due at time  $t$  can be expressed as:  $\frac{[A_t^D - R_t - CB_t]}{D_t}$ ,

where  $CB_t$  = cash balances, and  $R_t$  = international reserves.

Separate estimates of the proportion of the debt exposed to refinancing risk can be done for external and domestic portions as follows:

$$\frac{A_t^{DX} - CB_t}{D_t^{DX}}, \text{ and } \frac{A_t^{FX} - R_t}{D_t^{FX}}$$

Finally, the ratio of debt falling due to tax revenues,  $\frac{A_t^D}{T_t}$ , provides an idea of the size of the rollover relative to the government ability to raise revenues.

- Average time to maturity. This indicator measures the weighted average time to maturity of all the principal payments in the debt portfolio. It is computed as:

$$ATM_t = \frac{\sum_{t=1}^T (A_t \cdot t)}{\sum_{t=1}^T A_t} \quad (17)$$

where  $ATM_t$  = the average time to maturity of debt portfolio,  $A_t = t^{th}$  period principal payment in the portfolio.  $ATM_t$  shows how long it takes on average to rollover the debt portfolio. A shortening of this indicator suggests that the portfolio is being rolled over more frequently and therefore is more exposed to refinancing shocks.

### **Foreign exchange rate risk**

82. FX risk relates to the vulnerability of the debt portfolio, and the government's debt cost, to a depreciation/devaluation in the external value of the domestic currency. The following indicators provide a measure to the exposure to this risk:

- Ratio of foreign currency debt to total debt:

$$d_t^{fx} = \frac{D_t^{fx}}{D_t} = \frac{D_t^{FX}}{D_t^{DX} + D_t^{FX}} = \frac{\sum_{j=1}^m e_{t,j} D_{t,j}^{FX}}{D_t^{DX} + \sum_{j=1}^m e_{t,j} D_{t,j}^{FX}} \quad (18)$$

where  $d_t^{fx}$  is the share of foreign currency debt in the debt portfolio.

- Mismatch in the level of foreign currency liabilities in relation to foreign currency reserves:

$$d_t^{fxr} = \frac{D_t^{fx}}{R_t} = \frac{D_t^{FX}}{R_t} = \frac{\sum_{j=1}^m e_{t,j} D_{t,j}^{FX}}{\sum_{h=1}^n e_{ht} R_{ht}} \quad (19)$$

where  $d_t^{fxr}$  = the ratio of foreign currency debt to foreign currency reserves;

$R_t$  = foreign currency reserves;  $h = 1, \dots, n$  denotes different currencies held by the Central Bank in international reserves.



- Mismatch in the composition of foreign currency liabilities in relation to foreign currency reserves

$$d_t^c = \sum_{j=1}^W \omega_t^j D_{t,j} / R_{t,j} \text{ where } d_t^c \text{ indicates the degree of currency mismatch FX}$$

debt and FX reserves at time  $t$ ,  $\omega_t^j$  is the share of FX debt denominated in currency  $j$  and  $D_{t,j}$  and  $R_{t,j}$  are the absolute values of the FX debt and FX reserves denominated in currency  $j$ . When debt and reserve levels are too far apart,  $D_{t,j}$  and  $R_{t,j}$  could be measured as shares rather than absolute values. The farther the indicator departs from 1 the greater the degree of currency mismatch.

### Other useful debt indicators

- The net present value (NPV) of the total debt: The present value of the outstanding debt stock is the discounted stream of all its future cash flow payments. It is computed as:

$$NPV_t^D = \sum_{t=0}^T (CF_t^D \cdot \delta^t) \quad (20)$$

where NPV is the present value of the debt stock, CF the cash flow payments in period  $t$ , and  $\delta$  = is the discount factor. Future foreign currency payments are to be first translated to domestic currency using the expected exchange rate.

- LICs have access to concessional sources of financing, which reduces the cost considerably. This is not captured in a normal stock measure of the debt, but can be captured by examining the net present value of debt (NPV) which discounts future (low) debt servicing payments to the present. The drawback of the NPV measure is that it does not assume that a concessional loan is rolled over. Thus if a concessional loan falls due the next day, the NPV is in essence the same as the face value. In a typical country case, concessional loans are often replaced with new loans. In a full-fledged strategy evaluation—see the MTDS spreadsheet tool—this is overcome by assuming rollover strategies for such loans for a very long time horizon. As the distant future is heavily discounted, this problem is reduced.

## Appendix IV. Potential Sources of Financing

*This appendix provides a brief overview of the main classes of financing sources available to the sovereign. When evaluating alternative funding sources, it is important to take into consideration the all-in-cost of borrowing as there may be fees and hidden costs associated with the borrowing.*

### **External sources**

83. There are two main sources of external debt—official and private. Official debt is typically contracted in the form of non-marketable loans. Private sector external debt can be either non-marketable loans or marketable debt securities).

#### *Official sources*

Official sources include multilateral institutions and bilateral loans from sovereigns.

84. Concessional loans typically have long maturities (e.g., 40 years) and long grace period (e.g., 10 years). In the case of IDA (LICs), they are fixed rate debt denominated in SDR (composite of US dollars, Euro and the Japanese Yen). In the case of IBRD (MICs) they can be fixed or variable, and with the currency chosen by the borrower. Interest rates are typically very close to or below Libor. Bilateral loan terms vary, and may be at a discount to market terms, but their distinctive characteristic is that they tend to be denominated in the currency of the lending country.

85. Often such creditors set specific conditions before loans are disbursed. Multilateral creditors may either constrain the use of funds to specific purposes or set other policy-related conditions. In terms of bilateral loans, these conditions could include requiring recipients to use or procure goods and services exported by the creditor country have to be met. In the specific case of project loans, there is typically a co-financing element where recipients need to partially match the funding provided by the creditor. All of these factors can indirectly add to the cost of the loan, including through a delay in disbursements.

86. In many countries, the authorities organize a donor conference to coordinate the financial commitment of each donor. This allows the authorities to assess the amount of concessional financing available, to identify the profile of any pre-committed financing that they may want to constrain (i.e., by assuming it is fixed) in the MTDS analysis, and to determine the financing gap after the committed concessional financing, to be accessed through non-concessional borrowing.

#### *Private sources*

87. Private sources include borrowing from the international capital markets, or from commercial banks.

88. With MDRI, countries access to international capital markets is increasing. However, access can be uncertain and is subject to sudden shifts in market sentiment and appetite. Consequently, to enhance analysis, it is important to constantly collect market intelligence

and to monitor issuances by sovereigns with similar credit ratings. Developing an advisory relationship with an investment bank may be one way to improve the quality of this information collection. Countries can further mitigate this risk by establishing a strong track record in meeting their debt obligations and by establishing an effective investor relations program. In addition, countries should be aware of any likely constraints on the terms of an issue, such as whether a minimum issue size or currency choice is likely to be required. In addition, the structure of the security—i.e., bullet or amortizing—will also be important. Such factors will affect any analysis of cost and risk of this financing option, and its relative attractiveness.

89. In addition, it may be possible to negotiate bank loans with commercial banks. Credit and market sentiment is likely to influence the quantum available from these sources. Such loans will typically be on a floating interest rate basis, for shorter maturities than are available in the capital markets.

### *Domestic sources*

90. Domestic sources of financing will take the form of either non-marketable instruments or marketable debt securities.

91. The sources of non-market domestic financing will include bank loans, suppliers, and often the central bank. Relying on central bank financing, e.g., through requiring direct participation in the primary market or through an overdraft facility, is not desirable, as it can conflict with the monetary authorities' achievement of its objectives and distort the market.<sup>47</sup> Such financing is inflationary, and will typically lead to a higher general level of interest rates. In addition, depending on the terms agreed on central bank financing, it can impede the price discovery process, hindering the development of an efficient government bond market. Captive investors, such as the public sector institutions, may also be an important source of financing; but reliance on these investors will be counter-productive as regards developing an efficient bond market.<sup>48</sup> As with external bank loans, domestic bank loans are likely to be short-term and on variable rates. Short-term credit from suppliers may also be available in the form of accounts payable.

92. In terms of marketable instruments, the range of available debt securities will be limited by the level of market development. As markets develop, the choice of financing instruments (maturity, instrument type, and so on) expands to include instruments with potentially more desirable risk properties. This creates a role for the DM in encouraging the development of domestic debt markets. For instance, it is necessary for the DM to move from

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<sup>47</sup> In most countries, monetary financing of the government is explicitly prohibited by law.

<sup>48</sup> While their presence might appear to be beneficial and help keep interest costs contained, over the long-term, their presence will impede market development and ultimately limit the amount and quality of financing available in domestic markets. Where possible, the DM should seek to minimize, subject to appropriate prudential standards being maintained, the impact of captive investors on the market (e.g., by allowing their participation in auctions on a non-competitive basis to meet regulatory related demands, ensuring that securities are allocated to them on market terms).

a regime of administered rates to fully market determined rates before the market will develop effectively; and the DM may need to commit to a benchmark issuance program in order to develop an effective yield curve.

93. The nature of the investor base, comprising some combination of banks, pension and insurance companies, other domestic institutional investors, foreign investors and retail investors, will determine the capacity of the domestic market to absorb the quantum and the desired range of debt instruments. Market participants tend to have segmented preference for different debt instruments, particularly with respect to maturity, based on their own balance sheet needs.<sup>49</sup> Consequently, the relative composition of the investor base will be a key factor in determining the relative cost of extending the yield curve or introducing different instrument types. Developing these sources of savings will require a long-term effort on a range of fronts, including regulatory, taxation, legal, market infrastructure and financial literacy. Building the foreign investor base will also have consequences for the capital account and the functioning of the foreign exchange market, and will need careful consideration and coordination with the monetary authorities. As with external markets, it is important to gather market intelligence on a regular basis to monitor the market appetite for certain maturities and instrument types (fixed versus floating or other indexation); establishing effective relations with the investor base will facilitate that.

#### ***Cost and risk characteristics***

94. The cost and risk characteristics of different instrument types can be broadly characterized as in Table 1.

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<sup>49</sup> For example, pension funds tend to require long-term inflation-protected assets, while banks tend to have a preference for short-term assets to match short-term deposits.

**Table 1. Cost and Risk Factors of Different Financing Instruments**

<b>Instrument Type</b>	<b>Cost characteristics</b>	<b>Risk characteristics</b>	<b>Other comments</b>
<b>External Instruments</b>			
Multilateral concessional loan (e.g., IDA, AfDF, ADF)	Highly concessional	Fixed rate; denominated in foreign currency; ultra-long tenor; amortizing structure; long grace period.	Access will decline and terms will harden as income level increases. Limited flexibility to negotiate terms. Typically involves a commitment fee. Disbursement can be dependent on certain conditions being met.
Multilateral non-concessional loan (e.g., IBRD, AfDB, ADB)	Some concessionality.	Both fixed and variable rate; denominated in foreign currency	Flexibility to tailor terms (e.g., currency and interest rate structure) to suit recipient risk preferences. Tenor and grace period linked to country category. Involves a commitment fee. Not available to IDA-only countries
Bilateral loan (including project loans)	Typically some concessionality	Both fixed and variable rate; denominated in foreign currency	Limited flexibility on choice of terms. Various transaction charges involved. Project loans tied to specific project use; consequently disbursement highly dependent on progress of project.
Commercial bank loan (including syndicated loans)	Market rates	Can be fixed or variable rate; can be short-, medium- or long-term; typically denominated in foreign currency.	Flexibility to influence terms will depend on relative negotiating power. Can involve significant transaction fees.
Sovereign Bonds	Market rates (depending on liquidity conditions and country credit rating)	Can be fixed or variable rate; typically denominated in foreign currency; typically bullet structure.	Authorities choose key features (e.g., interest rate structure, currency and maturity). Significant transaction fees involved. Resource intensive to launch.

<b>Domestic Instruments</b>			
Treasury bills	Market rates	Short-term; denominated in domestic currency	Typically the first instrument introduced in the domestic market.
Treasury bonds	Market rates	Medium- to long-term; typically denominated in domestic currency. Can be fixed or variable rate. Can be indexed.	Structure of investor base will be determinant of relative cost of different types and maturities.
Retail instruments	Administrative or market rates	Can be fixed or variable rate; denominated in domestic currency; can be indexed. Typically short- to medium-term.	Developing retail investor base can provide some support in face of rollover risk. Can be relatively costly depending on the distribution arrangements.
Commercial bank loan	Market rates	Can be fixed or variable rate; generally short-term; typically denominated in domestic currency.	Flexibility to influence terms will depend on relative negotiating power. Some transaction fees involved.

## **Appendix V. Formulating the MTDS: Taking Account of the Costs of Monetary Policy Implementation**

95. This appendix discusses how the costs of monetary policy implementation can be taken into account when formulating the MTDS. These issues would be automatically resolved where the MTDS is formulated on the basis of a fully consolidated public sector including the central bank; however, it is not typical to formulate an MTDS in that way.
96. In pursuit of its monetary policy objectives, the central bank might need to eliminate excess liquidity in the system, using a variety of instruments to including (i) reserves requirements; (ii) deposit auctions; (iii) central bank bills; (iv) government securities, or (v) liberalizing capital outflows. Using instruments that imply costs that are directly borne by the central bank should be reflected in the projected profit remittances of the central bank. When government securities are issued in the primary market to sterilize excess liquidity, this has direct budget implications as the interest is directly borne by the government—even though the receipts cannot be used for government funding as they are parked in blocked deposits at the central bank—otherwise they would not have a sterilization effect. These costs are normally already taken into account in the baseline macroeconomic projections and can be ignored.
97. However, there are some instances where the choice of MTDS will significantly affect those costs; consequently, the relative difference in costs should be recognized and considered when making the trade-off between alternative debt management strategies. For example, where the exchange rate is pegged or managed, and the capital account de facto not very open, external borrowing to fund the budget in excess of that needed for balance of payments purposes, will result in large international reserves accumulation. This may be a particular issue where countries are very dependent on concessional foreign currency loans to fund the budget, as is the case with many LICs. Any additional domestic liquidity injected as a consequence may then need to be temporarily sterilized until it can be absorbed. Where the country has limited capacity to absorb this liquidity, e.g., where opportunities to extend credit to the private sector are poor, this could take a considerable period of time. This net sterilization cost should in principle be factored into the cost of any external financing where that exceeds anticipated balance of payments needs.
98. For scenario analysis, the debt manager should factor the extra cost associated with such external borrowing into the net profit remittances and interest payments of the central bank, as it is not reflected in the baseline macro framework. Alternatively, if the government relies on direct central bank financing as part of its MTDS, then this is likely to need sterilization to avoid inflationary pressures. The DM can usually make the simplifying assumption that all central bank sterilization is at short-term interest rates. Another relevant operation might be where the government receives surplus external resources which it decides to use to repay debt early. Where this debt is held by domestic investors, the central bank may need to sterilize the liquidity injected in the market until it can be absorbed elsewhere. The cost of this sterilization, either direct or indirect, would still be borne by public finances.

## **Appendix VI. Developing a Medium-Term Debt Management Strategy in Practice: An Illustration**

*This Appendix illustrates the application of the MTDS framework in the context of two different country cases.*

### **Country A**

#### **Existing debt management strategy (Step 1)**

99. Until early 2008, Country A's implicit debt management strategy had focused almost exclusively on cost reduction. However, having secured external debt relief and recognizing the importance of developing the domestic debt market, the authorities published for the first time a national public debt management strategy document in April 2008. That strategy document charted a new course for developing the domestic debt market, and sought to institutionalize a closer consideration of the cost and risk trade-offs of new borrowing options going forward, while maintaining long-term debt sustainability. The MTDS exercise was to help provide a framework to quantitatively evaluate these options, by providing the cost and risk trade-offs involved in alternative debt management strategies.

#### **Characteristics of the existing debt portfolio (Step 2)**

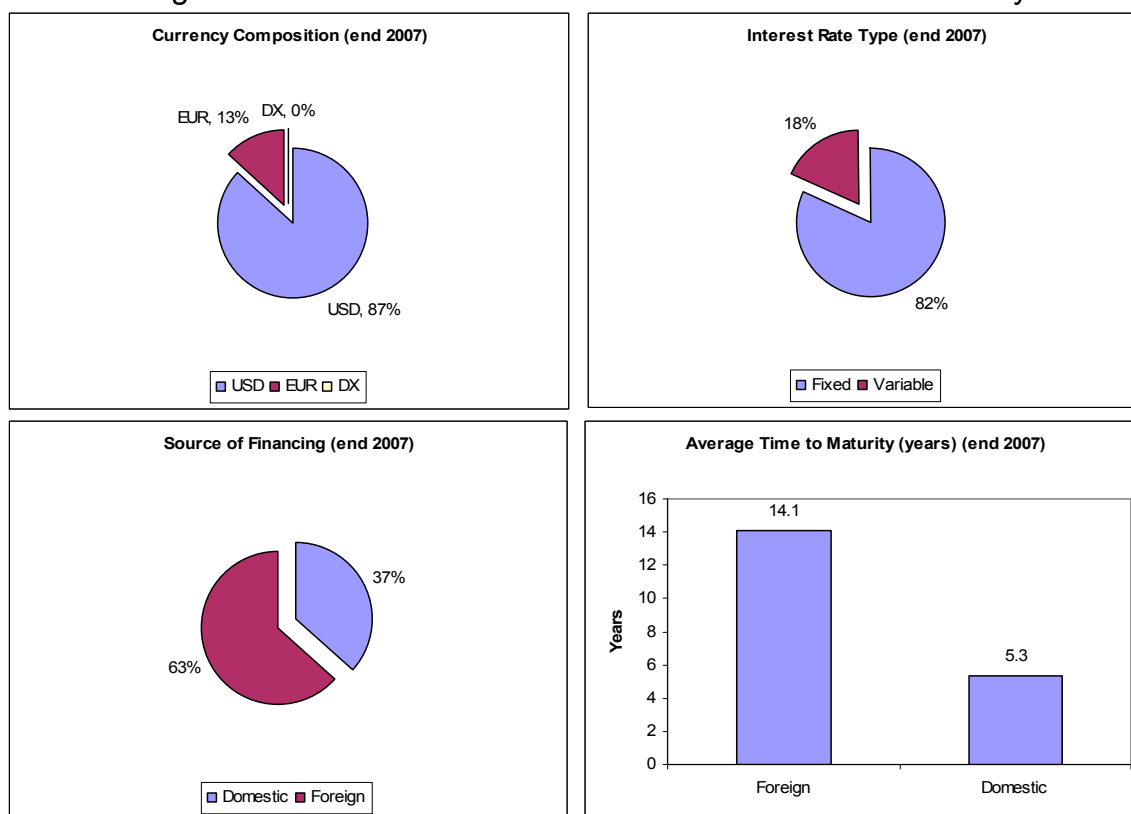
100. The existing debt portfolio is composed of 63 percent external and 37 percent domestic debt; however, all domestic debt is denominated in foreign currency. Overall the portfolio is relatively low cost. Almost all external debt is contracted at concessional rates, while the presence of captive investors, and practice of forced placements, has kept the cost of domestic debt below a true market rate. With regard to key vulnerabilities, foreign exchange risk is the dominant risk as there is no domestic currency debt. Refinancing risk and interest rate risk represents moderate risk as only 6 percent of the total debt matures within the next five years, and over 80 percent of the total portfolio is fixed rate. A reduction in foreign exchange risk would be desirable, but that would require the introduction of domestic currency debt instruments. Going forward, the combination of the authorities' stated strategy of developing the domestic debt market, and their perception that their access to concessional financing will decline, is likely to change the cost and risk profile of the portfolio significantly.

#### **Potential funding sources (Step 3)**

101. As an IDA-only country, Country A relies heavily on grant and concessional financing. Nevertheless, as the country moves towards graduation from IDA, it is expected that the terms at which these funds are available will become less concessional. In the domestic market, a feature of the country's financial market is that more than 70 percent of financial institutions' deposits and more than 95 percent of the investments are in foreign currency, limiting the demand for domestic currency assets. The institution that manages the public pension is the most important institutional investor in government bonds, absorbing between 60 and 65 percent of all new issuances.



Figure 3. Characteristics of the Current Debt Portfolio: Country A



### Current macroeconomic challenges and structural features (Steps 4 and 5)

102. Despite substantial debt relief and recent fiscal consolidation, the country remains at a modest risk of debt distress, underlining the importance of continuing to contain debt interest costs. A key factor affecting the risk of debt distress is the country's vulnerability to exchange rate movements, particularly given its dependence on commodity exports and high oil imports. Given persistently high current account deficits, and the limited availability of concessional loans and volatility of aid, the authorities have sometimes felt the need to rely on domestic issuance or external borrowing from nontraditional sources to meet expenditure needs. Weather related events regularly impact the fiscal and balance of payments position, again potentially resulting in unanticipated financing needs. However, the domestic financial market is highly dollarized and shallow with limited institutional investors, limiting its ability to smooth the impact of these temporary budgetary shocks. In addition, the impact of rising food and fuel prices poses an additional challenge with respect to containing domestic financing costs, and pressure on the real exchange rate. Overall, this suggests a need to develop access to a diverse range of financing sources to help mitigate potential expenditure volatility.

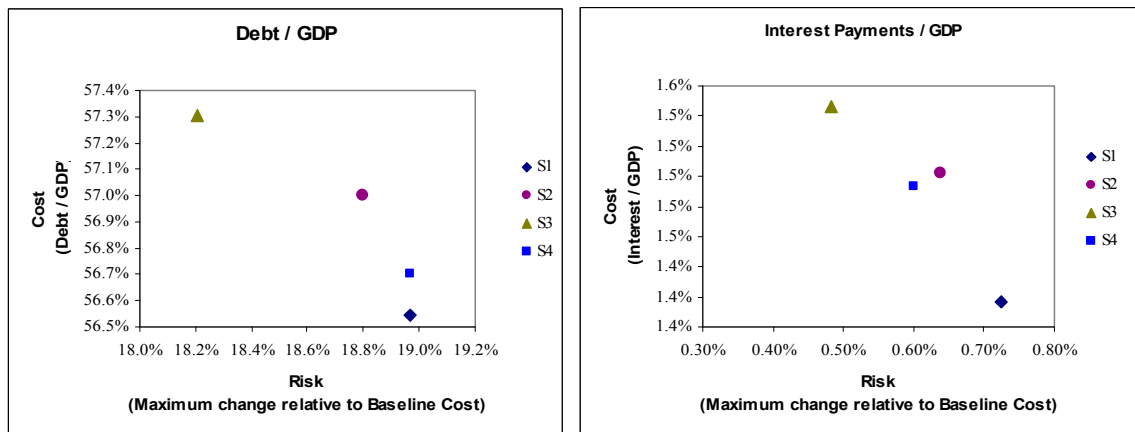
### Assessing the alternative debt strategies (Step 6)

103. Taking these factors into account, the relative performance over the medium-term of four alternative debt management strategies was considered. The strategies tested were based on discussion with the authorities with respect to their goal of developing the domestic debt market and their perspective on their options for securing concessional financing going forward. This analysis was undertaken on the basis of a specified set of macroeconomic projections, and a specific set of pricing assumptions. A number of risk scenarios were also specified reflecting some of the vulnerabilities identified above. The four strategies considered were:

- S1: A status quo strategy that (largely) covers the financing need with external concessional debt, while continuing to refinance a small proportion of non-standardized domestic debt with standardized instruments;
- S2: A more aggressive domestic market development strategy that rolls over a greater proportion of non-standardized debt using standardized debt, consequently reducing the recourse to concessional external debt. This is the strategy set out by the authorities going forward;
- S3: A strategy that aims to address the exchange rate risk in the portfolio by considering the introduction of standardized domestic currency denominated debt, at the same pace as domestic debt issued under S2; and
- S4: A strategy that considers a change in the composition of external debt by introducing a decline in the degree of concessionality of external financing.

104. Figure 4 illustrates the relative performance of these strategies on the basis of two key indicators—the end period interest payments/ GDP and debt / GDP. Risk is defined as the maximum increase in these two indicators under stress.<sup>50</sup>

Figure 4. Strategy Trade-offs: Country A



<sup>50</sup> These are calculated using the analytical tool that accompanies the Guidance Note.

105. For a similar level of risk, Strategy 1 is the least costly compared to strategies 2 and 4. This strategy implicitly maximizes concessional borrowing to help maintain debt sustainability. Strategies 2 and 3 are illustrative scenarios that highlight the potential increase in costs associated with the authorities' stated objective of building the domestic debt market. Similarly, these strategies capture the impact of using domestic sources of financing in the event that the total amount of concessional funding is not forthcoming and external non-concessional sources are limited. In addition, Strategy 3 highlights the potential cost of reducing exchange rate exposure in the portfolio. The primary benefit of presenting the cost and risk of each strategy in this context is to highlight the estimated cost to the government budget of pursuing a domestic debt market development strategy. In order to contain these costs, and to ensure that risks of debt distress are not excessively aggravated, this market development strategy would need to be supported by prudent macro policies that would help reduce the cost—by reducing credit and inflation risk premia, while creating sufficient budget space to accommodate these costs. It would also need to be accompanied by a clear strategy to develop the market infrastructure, including adopting an effective communication plan, to ensure that it could be successfully implemented.

### ***Country B***

#### **Existing debt management strategy (Step 1)**

106. Country B had in place a formal debt strategy of maximizing concessional debt, with a secondary debt management objective of developing the domestic debt market. Nevertheless, after securing debt relief and in light of the extent of its infrastructure investment needs, it was actively developing alternative sources of quasi-concessional and market based financing. The country had recently successfully tapped international capital markets.

#### **Characteristics of existing debt portfolio and funding sources (Steps 2 and 3)**

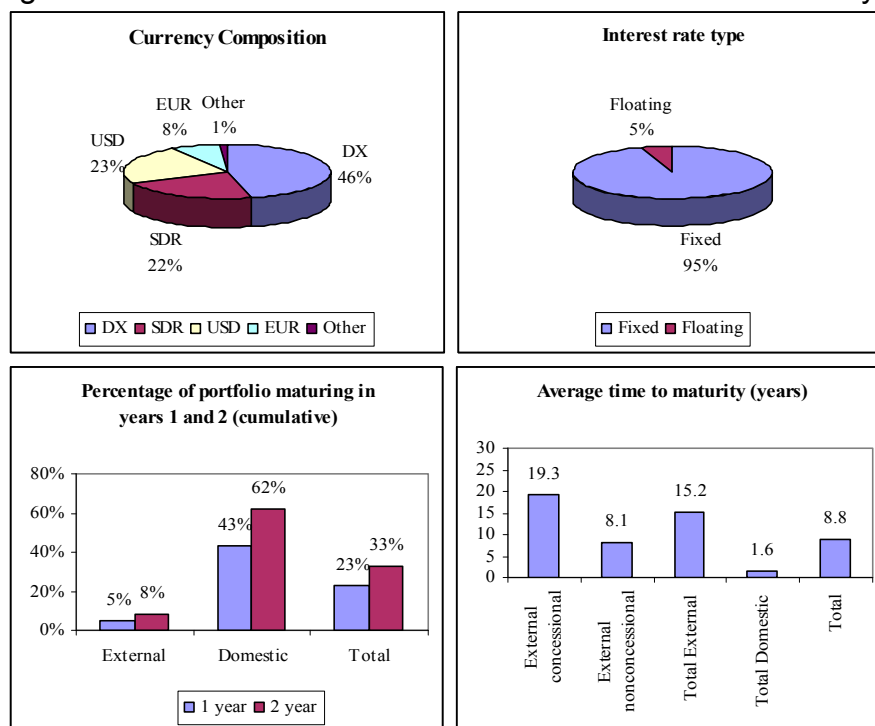
107. The existing debt portfolio consists of a relatively wide range of instruments including concessional financing from multilateral creditors, quasi-concessional financing from bilateral creditors, external commercial loans, a US\$ denominated Eurobond, Treasury bills, floating rate Treasury notes (issued with 2- and 3-year maturities), and fixed rate Treasury bonds (issued at 2-, 3- and 5-year maturities).

108. The portfolio broadly consists of 46 percent domestic and 54 percent external debt (Figure 5), suggesting a relatively significant exposure to movements in the exchange rate. While the majority of debt is at fixed rates, the short average maturity of domestic debt—almost of the portfolio will mature in the next 2 years and the average maturity is 1.6 years—means that interest rate risk is not inconsequential. The extent of the refinancing risk in the domestic debt portfolio is further aggravated by the authorities' assessment that the market is relatively underdeveloped, with low capacity to absorb significant quantities of debt at any one time.

109. In summary, this suggests that strategies which lead to a reduction in foreign exchange or refinancing risk would be desirable. Nevertheless, containing the cost will be

imperative given that the underlying fiscal deficit, i.e., excluding grants, is 7 percent of GDP, so fiscal space is severely limited.

Figure 5. Characteristics of the Current Debt Portfolio: Country B



### Macroeconomic factors influencing choice of strategy (Steps 4 and 5)

110. The debt manager has reviewed the DSA and more generally discussed macroeconomic policy challenges with officials involved in fiscal, monetary and exchange rate issues.

111. Overall, the fiscal position is relatively weak and expectations have often turned out to be over-optimistic; the country is relatively aid dependent, with grants typically accounting for up to 3–4 percent of GDP—this has led to volatility in receipts with a consequent impact on the implementation of budgeted expenditure plans; the country is also exposed to significant terms of trade shocks and has a large current account deficit, mainly financed by official flows. Nevertheless, incomes have risen sharply in the last few years and are projected to continue doing so; this itself raises the prospect that access to grants and concessional financing may become more limited going forward. On the monetary side, the country has recently adopted an inflation targeting regime, with a floating exchange rate, and does not factor any specific exchange rate target, or related balance of payments needs, into the choice of domestic versus external borrowing. The foreign exchange market and the money markets are relatively shallow. The inflation rate is several percentage points above the central bank's target level and has recently spiked as a consequence of a significant increase in the price of imported commodities (e.g., oil). Furthermore, the capital account regime is relatively liberalized and non-resident investors can participate in both the equity and fixed income markets, potentially adding further volatility to the capital account.

In summary, the key structural macroeconomic factors that would influence the direction of the debt management strategy are set out in Table 2.

**Table 2. Structural Macroeconomic Factors and Link to Choice of MTDS**

Nature of exposure	Macroeconomic variables affected	Implication for choice of MTDS
Aid volatility	Government expenditure, level of international reserves	Build cash / reserves buffer; diversify financing sources
Terms of trade	Balance of payments, exchange rate	Bias towards domestic currency instruments to limit exposure to exchange rate movements
Credibility of monetary policy	Interest rates	Consider domestic currency instruments that are insulated against shocks to inflation expectations (e.g., inflation-linked, variable rate, short-term debt); bias towards foreign currency denominated instruments
Capital account	Level of international reserves	Ensure sufficient reserves to cover potential scale of non-resident outflows; limit rollover risk; diversify financing sources
Fiscal (e.g., revenue shortfall)	Budget deficit, government expenditure, growth, exchange rate	Build cash buffers; diversify financing sources; limit rollover risk; limit currency exposure
Rising income levels	Exchange rate, credit premium	Diversify financing sources; access to concessional sources may become more limited.
Shallow markets	Exchange rate, interest rates	Limit rollover risk; diversify financing sources.

112. Overall, highlighted macroeconomic risks, as well as those identified in the existing debt portfolio, point to the need to mitigate foreign exchange and rollover risks, while ensuring sufficient buffers or other means (such as diversifying financing sources) to mitigate the risk of a shortfall or volatility in receipts.

### Assessing the alternative debt strategies (Step 6)

113. Taking these factors into account, the DM considers the relative performance of four alternative debt management strategies.<sup>51</sup> A number of risk scenarios were also specified.

114. The four strategies under consideration are broadly as follows:

- S1: Retain the existing portfolio composition
- S2: Increase the proportion of domestic currency debt, but maintain existing maturity structure
- S3: Increase the proportion of domestic currency debt, but lengthen maturity of domestic currency debt

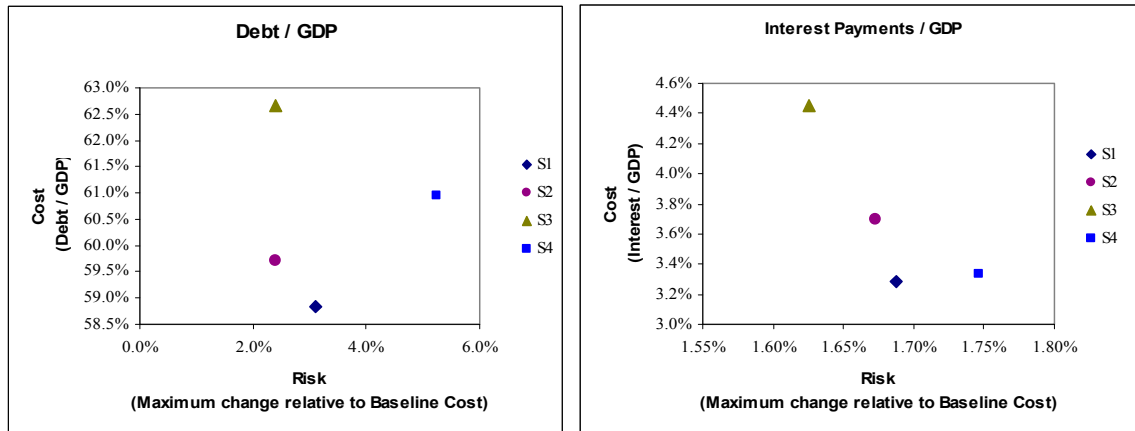
<sup>51</sup> Using in this case the analytical tool that accompanies the Guidance Note.

- S4: Increase the proportion of foreign currency debt; increase the proportion of foreign currency commercial debt; lengthen maturity of domestic currency debt

115. Both S3 and S4 are consistent with diversifying financing sources, and so are broadly consistent with helping to mitigate rollover risk; they would also mitigate some of the volatility in budget execution associated with uncertainty in the timing of disbursement of concessional loans. S2 and S3 are both consistent with the overall objective of reducing the foreign currency exposure of the debt, but rollover risk might be a concern given the associated shortening of the maturity of the portfolio.

116. Figure 6 illustrates the performance of these strategies on the basis of two key cost indicators, and under a specific set of macroeconomic and pricing assumptions used in the exercise.

Figure 6. Strategy Trade-offs: Country B



117. From Figure 6 it is clear that S1 is the least cost of all 4 strategies, while risk is relatively low. This suggests it is a contender for preferred MTDS. Nevertheless, if incomes rise as expected, the implied quantum of concessional financing might not be feasible to achieve. S2 and S3 are both higher cost given that weak monetary policy credibility and the consequent inflation risk premium keeps domestic interest rates high; this is a significant factor given the relatively weak fiscal position. In addition, the implied increase in participation by non-resident investors in the domestic market might suggest that an increase in reserve buffers is needed to mitigate associated rollover risk. Also, if S3 requires banks to hold a significantly greater proportion of longer-dated debt, then a judgment is required as to whether the associated maturity mismatch might add significantly to risk in the banking sector. Finally, while S4 is relatively low cost, especially in terms of interest cost, it aggravates the currency exposure of the portfolio, and so carries the most risk.

118. Overall, it appears that S1, which maximizes the recourse to concessional debt, should be the preferred strategy as long as it is available. Over time, as access to external concessional loans becomes more limited, and as monetary policy becomes more credible, S2 and S3 could be re-evaluated, particularly if the fiscal position strengthens, providing some scope to absorb the higher cost.

## **Appendix VII. Template for a Published Debt Management Strategy Document**

119. This appendix sets out the typical components of a debt management strategy document to illustrate the minimum content of such a document. In general such a publication would have a section discussing the following sections:

### ***Objectives and Scope***

- Description of objectives for debt management, the scope of the MTDS, and the types of risks being managed under the MTDS.

### ***Existing Debt Portfolio***

- Provide 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***

- Describe the environment for debt management in the future, including 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 MTDS***

- Describe the analysis that has been undertaken to support the recommended debt management strategy. The assumptions used and limitations of the analysis should be made clear.
- Set out the recommended strategy and its rationale. 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.
- Describe the progress to be made toward the desired composition over the planning horizon (3–5 years). Specify ranges for the key risk indicators of the portfolio and the financing program.
- The documented strategy should also outline 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.
- The documented strategy should also outline the periodic review process that will apply to check whether key assumptions continue to hold and that the MTDS remains

appropriate. The document should also highlight the process that would be followed if circumstances were to change significantly outside that regular review cycle.



### Appendix VIII. Developing a Short-term Borrowing Plan: An Example

120. The following provides an illustration of how a short-term borrowing plan might be derived, given an agreed MTDS.

121. Assume that the agreed MTDS is to finance 60 percent (of the government's cash requirement) through concessional debt, 20 percent through official quasi-concessional financing and 20 percent through medium-term domestic bonds.

122. Assume that in this particular year the total financing requirement is 100. Of the 20 quasi-concessional financing required under the strategy, 5 has already been committed from a development bank for a specific project, with another 10 available from the IBRD, so the DM needs to identify who might provide the final 5. Similarly, while the target is to raise 20 through medium-term bonds, the DM may determine that the market will absorb only 5 in 5-year bonds, so that the remaining 15 will need to come from 3-year bonds (see Table 3).

123. In terms of translating those targets into an actual issuance plan, then assuming the typical size of an auction of 3-year bonds is 2, then the DM needs to plan 7-8 such auctions across the year to meet the total financing target. Similarly, if the anticipated maximum size of a 5-year auction is 1.5, then may need to plan for 3-4 such auctions, giving an overall target of 10–12 auctions. Then the DM needs to consider whether there are any seasonal factors—such as typical holiday periods—when it may be more difficult to tap the market.<sup>52</sup> These periods should be avoided if possible. So, if August and December is a typically slow time in the domestic market, may want to avoid these months; this would leave 10 months in the year to schedule an auction. Finally, the DM should take into account the needs of the market and whether there is any benefit in following a regular schedule of auctions. So, 3-year auctions may generally be held in the first week of the month, while 5-year auctions may be most successful at the beginning of a quarter. Note, where markets are relatively underdeveloped, and access to very short-term financing is limited or its use might conflict with the achievement of the monetary policy objective, it may be desirable to front-load the financing so that gaps are covered early and cash rationing can be avoided.

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<sup>52</sup> The underlying seasonality of government cash flows also needs to be taken into account when determining the pace at which new borrowing is undertaken.

**Table 3. Sample Borrowing Plan**

<b>Total borrowing requirement</b>				<b>100</b>
<b>Strategy</b>	<i>External financing</i>	Official concessional	IDA	60
		<i>Sub-total official concessional</i>		<i>60</i>
		Official non-concessional	AfDB	5
			IBRD	10
			Bilateral creditor	5
		<i>Sub-total official non-concessional</i>		<i>20</i>
	<i>Domestic financing</i>	Market	3-year bonds	15
			5-year bonds	5
		<i>Sub-total domestic market-based</i>		<i>20</i>
<b>Provisional auction schedule</b>				

<b>Month</b>	<b>Instrument</b>	<b>Target size</b>	<b>Cumulative financing</b>
January	5-year	1.5	3.5
February	3-year	2	5.5
March	3-year	2	7.5
April	5-year	1.5	9
May	3-year	2	11
June	3-year	2	13
July	5-year	2	15
August	<i>Only if needed</i>		15
September	3-year	2	17
October	3-year. 5-year only if needed to reach target financing	1.5	18.5
November	3-year	1.5	20
December	<i>Only if needed</i>		20