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**KEY ISSUES FOR ANALYSING  
DOMESTIC DEBT SUSTAINABILITY**

**Alison Johnson**

Debt Relief International Ltd  
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## Foreword

This publication series has been launched in response to the increasing number of requests *Debt Relief International (DRI)* has received for information on the activities of the *Heavily Indebted Poor Countries (HIPC) Initiative Capacity Building Programme (CBP)* and on the technical aspects of debt analysis and negotiations needed to develop and implement national debt strategies. The aim of the HIPC CBP, funded by five European governments (Austria, Denmark, Sweden, Switzerland and the United Kingdom), is to build and strengthen the capacity of HIPC governments to develop and implement their own national debt relief strategy, and a new borrowing policy consistent with long-term debt sustainability, without having to rely on international assistance. DRI is its non-profit implementing organisation.

This series arises from DRI's experiences of working with 32 HIPC countries and in particular conducting national, regional and international workshops on debt strategy, debt negotiations, macroeconomic forecasting and poverty reduction. It is targeted mainly at senior officials and policy makers in HIPC countries, but it will be useful for officials of regional African, Asian and Latin American organisations, NGOs and academics in developing and developed countries.

The aim of the series is to present particular topics in a concise, accessible and practical way for use and implementation by HIPC governments. The series should enable senior officials and policy makers to focus on some of the key issues relating to long-term debt sustainability, macroeconomic forecasting and poverty reduction in HIPC countries. Each publication is intended to be reasonably self-contained.

The views expressed in the publications are those of the authors and not necessarily those of the HIPC CBP donors.

We welcome any comments on this publication or suggestions for other topics to be included.

Alison Johnson  
Publications Editor

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## **I. INTRODUCTION**

This paper has been prepared as a background document for national Debt Strategy Workshops, organised by Debt Relief International Limited (DRI) in co-ordination with HIPC and developing country governments. The aim of a national workshop is to assist the government in designing an updated national debt strategy in the context of the Heavily Indebted Poor Countries (HIPC) Initiative.

While the HIPC Initiative is focused on the sustainability of external debt, it is just as important for governments to assess the sustainability of total debt – i.e. both external and domestic debt. In particular, there is a need for governments to examine and evaluate the fiscal burden of total debt on the budget and on the financial sector. To date, debt sustainability analysis has focused primarily on external debt. Therefore, this paper focuses on the key issues relating to the analysis of domestic debt sustainability.

This paper draws on the work of Matthew Martin, Michel Vaugeois, Sanga Sangarabalan, Jaime Coronado, Godfrey Dhatemwa and the Ghanaian and Tanzanian officials who helped prepare their country Case Studies on Fiscal Sustainability, which were presented at the UK Department for International Development (DFID) Seminar in London in November 1998. Most importantly, it tries to reflect the questions and comments of HIPC countries and hence it is their inputs and comments which are the most relevant.

The paper is divided into sections that focus on the key issues with regard to analysing domestic debt sustainability and designing scenarios for debt relief and new borrowings. These sections are:

- Debt data: coverage, reconciliation, portfolio review and calculation of present value
- Analytical issues: reasons for domestic borrowing, legal and institutional considerations and financial sector development
- Debt relief and new borrowing options: which debts to restructure, restructuring and new borrowing options
- Sustainability ratios
- How to choose between external and domestic debt relief and new issues
- Linkages to poverty reduction

## **II. DEBT DATA**

This section discusses four sets of issues relating to debt data: the coverage of domestic debt; domestic data reconciliation; portfolio issues; and the calculation of present value.

## 2.1 Debt Data Coverage

The first issue to be addressed when considering the sustainability of domestic debt is:

*What constitutes domestic debt?*

For most HIPC countries, the phrase ‘domestic debt’ is usually a shorthand expression for debt instruments issued by the central government. But it is not only the central government that can issue debt instruments. In principle, regional and local governments can also issue debt, as can public enterprises, and, together with central government debt, this makes up ‘public domestic debt’. However, in many developing countries, regional and local governments and public enterprises are limited in their ability to issue debt instruments and/or there may be few investors willing to hold these instruments. Therefore, public domestic debt usually means debt instruments issued by the central government.

In countries with relatively developed financial sectors, there can also be private sector domestic debt, as companies can use bond or loan finance to fund their activities. However, for the purposes of analysing fiscal sustainability, this type of debt is excluded.

It is usual to think of domestic debt as being debt instruments issued in local currency to residents of the country. However, this is not always the case, and it is possible for governments and/or public enterprises to issue local currency instruments (e.g. Treasury bills or bonds) that can be purchased by non-residents and held abroad. In addition, it is also possible for governments to convert a local currency debt, held by residents, into a foreign currency liability (e.g. US dollar-denominated bonds) and to issue instruments normally thought of as ‘domestic’ (and held by residents) in US dollars. In such instances, however, the government will have to bear the risk of exchange-rate changes, and hence it is not a common practice.

For the purpose of assessing the fiscal sustainability of domestic debt – that is, the budgetary burden of domestic debt - it is necessary to consider all types of debt instruments and liabilities which the government and public enterprises are required to service and repay from revenue. These categories include:

- **Treasury bills** - government-issued short-dated securities, usually sold at a discount rather than paying interest, with a maturity of 1 year or less. The issue discount gives a yield (or interest) which is how Treasury bills are analysed. It is also possible for Treasury bills to be issued at par and pay interest at maturity; in this case they are equivalent to a very short-term bond.
- **Treasury notes** - government-issued medium-term securities, issued at par and with interest payable annually or semi-annually, with a maturity of more than 1 year. The distinction between *Treasury notes* and *Treasury bonds* becomes blurred as the maturity lengthens. In some countries instruments with a maturity of 1 to 2 years are classified as Treasury notes, whereas in others the maximum maturity for notes is 5 or 10 years.
- **Central bank bills and notes** - in some countries, the central bank issues its own short- and medium-term bills and notes for conducting open market operations; these are separate from the Treasury bills and notes issued by government for budgetary financing purposes. The cost of servicing central bank bills and notes is usually borne by the central bank from its own revenue account and balance sheet and not the government budget. However, the

impact on the government budget is via central bank profits/losses remitted to the government<sup>1</sup>.

- **Bonds** (sometimes referred to as Treasury bonds when issued by the central government) - medium- and long-term instruments issued at par and with interest payable annually or semi-annually, by central, regional or local governments. Bonds are usually issued in domestic currency but it is possible for governments to issue bonds denominated in a foreign currency. In some countries, public enterprises may be able to issue bonds.
- **Loans** - similar to external loans and issued by central, regional or local governments and public enterprises.
- **Promissory notes** - these are promises to pay a specific sum on an agreed date and are usually used to pay suppliers.
- **Government stock** arising from the capitalisation of payment arrears or overdraft facilities with the central bank.
- **Government overdraft facilities** with the central bank or commercial banks.
- **Payment arrears** to suppliers and parastatals for goods and services, salaries of civil servants, pension payments and so on.
- **Debts arising from privatisations** - that is, the government has taken over the outstanding obligations of public enterprises that have been or are being privatised.
- **Recapitalisation bonds** - longer-term instruments used to finance recapitalisation of the central bank or commercial banks.
- **Contingent liabilities** - obligations arising from (i) government guarantees for non-sovereign borrowings and liabilities of regional and local governments, and public and private sector enterprises; (ii) government insurance schemes; and (iii) bank failures and other financial sector bailouts.

## 2.2 Debt Data Reconciliation

As with external debt, it is necessary to reconcile the debt data records with creditors. This should be a relatively straightforward task for medium- and long-term domestic debt as there are generally fewer creditors, namely, commercial banks and other local financial institutions, the central bank and some private sector holders. Since Treasury bills are usually issued as bearer instruments,<sup>2</sup> there is no need to reconcile them on a creditor-by-creditor basis, particularly when there is an active secondary market as the instruments will be traded and their ownership will change accordingly. However, it is important to know which types of institutions or groups are active in the initial purchase and trading of Treasury bills as well as holders of the stock.

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<sup>1</sup> Whether or not a central bank issues its own bills for enacting monetary policy is a policy matter and the decision may be influenced by the degree of central bank independence and its capitalisation. However, central bank independence and the issuing of its own bills do not necessarily go hand in hand.

<sup>2</sup> Bonds or stock can be issued as *registered* whereby the issuer, the government or the company, maintains a register of ownership of each bond and this is changed each time ownership of the bond or stock changes in trading. Alternatively, it may be issued as a *bearer instrument* which means there is no register of who owns the stock; instead it is the physical possession of the certificate or bill which constitutes primary evidence of ownership.

### 2.3 Portfolio Review

A portfolio review of the domestic debt is designed to analyse its evolution over time as well as providing a snapshot of the current situation. In carrying out a domestic debt portfolio review it is important to analyse both the stock and trends in:

- the size and growth of the domestic debt portfolio and its relationship to total debt;
- the structure of the portfolio, by instrument type and maturity (short-term vs medium to long-term debt);
- the issuers of debt by instrument type. In most countries the main issuer is the government; however, public enterprises can borrow and/or issue debt instruments;
- the composition of holders by instrument type. The main holders are commercial banks, insurance companies, pension funds, the central bank and the public;
- the terms of new issues - the type of interest rate (fixed or floating) and the maturity;
- interest rates (nominal and real rates) and yield curves. These terms are discussed in Box 1;
- secondary market pricing and volume of trading by type of debt instrument. A *primary market* deals in issues of new instruments, that is when a Treasury bill or bond is first offered for sale by auction or tender offer or subscription (see Box 3 for discussion of methods of Treasury bill issues). The *secondary market* is where instruments are subsequently traded by investors;
- arrears outstanding and arrears clearance. The government may have payment arrears of interest and/or principal on instruments issued or to suppliers. It is important to note what action has been taken in the past to clear such arrears;
- restructuring of the portfolio. It is useful to note past action undertaken for restructuring and how this achieved;
- policy regarding Treasury bill rollovers. It is common practice for the government to roll over Treasury bill issues and not make any repayments of principal. However, there may be limits on how much the government can roll over. Alternatively, the government may have established a policy regarding rollovers. It is important to note whether rollovers include the capitalisation of interest payments. High interest rates can be one of the main reasons underlying a significant increase in short-term Treasury bill issues.



### Box 1: Interest Rates and Yield Curves

The *nominal interest rate* is the rate of interest to be paid to the holder of the debt.

The *real rate of interest* takes inflation into account and is usually calculated as the nominal rate minus the inflation rate.

The *simple yield to maturity* on a bond or traded instrument provides a measure of the anticipated return taking into account the current market price of the instrument, its interest or coupon rate and the remaining number of years to maturity. It is calculated as

$$Y = \frac{C}{P} + \frac{(100 - P)}{(T \times P)}$$

where Y = yield to maturity, (multiply by 100 to obtain as a percentage)  
 C = interest or coupon payment  
 P = current market price  
 T = number of years to maturity.

For Treasury bills issued at a discount to face value (and having no interest payment), the yield calculation is different. The annualised yield (Y) of a Treasury Bill is calculated as (assuming a 360-day year):

$$Y = \frac{D}{P} \times \frac{360}{t}$$

where Y = annualised yield  
 D = discount to face value (i.e. the difference between the price and face value at time of issue)  
 P = current market price  
 t = number of days remaining to maturity.

The *yield curve*, also referred to as the *term structure of interest rates*, maps the relationship between years to maturity and yield to maturity for a group of bonds or instruments with the same degree of risk. It is usually calculated for Treasury bills as these are issued with differing maturities and discounts (or interest rates) and hence provide differing yields to investors. The yield curve plots the return to the investor of these instruments on a particular date.

In theory, there are hypotheses for explaining the shape of the yield curve<sup>3</sup>:

- (1) expectation of future interest rates - an upward sloping yield curve means interest rates are expected to rise in future years, whereas a downward sloping yield curve means interest rates are expected to fall in the future.
- (2) liquidity premium – investors pay a higher price (resulting in a lower yield) for shorter maturities to avoid the risks associated with longer maturities, and therefore an upward sloping yield curve is considered normal.
- (3) market segmentation - rates tend to be determined independently by supply and demand for segments of the yield curve, as different types of investors focus on specific maturity ranges to match assets/liabilities and for legal and regulatory reasons.

<sup>3</sup> Based on J. C. Francis, *Management of Investments*, 3<sup>rd</sup> edn, McGraw-Hill, New York, 1993.

For HIPC countries, the cost of borrowing externally tends to be creditor-determined and the government, as borrower, does not have much influence on the interest rate or maturity of the loan. However, in the domestic market, the government may be able to influence the cost of borrowing through its implementation of interest and monetary policies (see Section 3.1).

It is useful to analyse the grant element<sup>4</sup> and the effective cost of borrowing and to assess how these have changed over time. Since most domestic debt is issued at market-related interest rates, and much of it, particularly Treasury bills, is relatively short-term, there is little concessionality in the portfolio. Hence the grant element is usually low and the effective interest rate tends to be considerably higher than that for external debt.

## 2.4 Calculation of Present Value

One of the key ratios for assessing the sustainability of domestic debt is based on the 'present value' of the debt and relating it to domestically generated budget revenue. The rationale for using present value, rather than nominal value, is that present value takes account of the terms and concessionality of the debt portfolio, and therefore reflects more accurately the costs of servicing the debt in today's money. An explanation of the present value calculation is presented in Box 2.

As is the case with external debt, this involves two sets of calculations:

1. the present value of the existing debt, that is, before any debt relief or restructuring and new borrowing simulations, and hence all future disbursements are excluded;
2. the present value of the debt after relief and new borrowings, when service on new disbursements and new issues is included (for further discussion of new borrowings, see Section 4.2).

For the first calculation, the present value will be calculated accurately only if projected debt service payments on any undisbursed amounts are excluded. However, this is unlikely to arise in the case of domestic debt as it will usually be fully disbursed.

A second, and more crucial, issue in calculating the present value of domestic debt revolves around the interest rate to be used to discount the stream of projected debt service payments. In principle, the *discount rate* is the alternative cost of borrowing in financial markets. However, for many governments there is no realistic alternative source of domestic financing, particularly for Treasury bill or loan issues. In addition, it is quite common for the commercial banks and other financial institutions to base their key lending rates on the short-term Treasury bill rate. And so there may not be a truly independent alternative cost of borrowing to use as the discount rate.

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<sup>4</sup> The grant element is a measure of concessionality and is calculated as (original loan amount – present value of loan) as a % of the original loan amount. The effective cost of borrowing is similar to the internal rate of return for a payment stream and measures the interest rate which yields a zero grant element (or net present value).

### Box 2: Present Value Calculation

The present value of the debt is the stream of future debt service payments, discounted for the time value of money. The idea underlying the present value calculation is that money paid today is more burdensome than money paid in the future because of the opportunity cost and inflation. This means that a debt service payment of \$100 today will in 'real' terms cost less next year.

The general formula for calculating the present value of a payment stream is:

$$PV = \frac{C^1}{(1+r)} + \frac{C^2}{(1+r)^2} + \frac{C^3}{(1+r)^3} + \dots + \frac{C^n}{(1+r)^n}$$

where      PV = present value of the stream of future payments  
                $C^n$  = debt service payments in time period n  
               r = discount rate

An example: if the debt service payments of a loan are \$10,000 per annum for three years, the nominal value of these payments at the end of the three years is \$30,000, whereas the present value of the payment stream, assuming a discount rate of 10%, is:

$$PV = \frac{10,000}{(1+0.1)} + \frac{10,000}{(1+0.1)^2} + \frac{10,000}{(1+0.1)^3} = 24,869$$

The Bretton Woods Institutions refer to Present Value (PV) of debt as Net Present Value (NPV)

In such a situation, it will be necessary to review domestic lending rates by maturity of loans and to assess which ones are most representative of domestic lending costs and use these as the discount rate for Treasury bills and loans, based on maturity of issue.

In general, the PV of domestic debt is relatively higher than that for external borrowings because there is less concessionality; that is, domestic debt interest rates tend to be market-related and the overall maturity structure is shorter-term.

## III. ANALYTICAL ISSUES

### 3.1 Reasons for Domestic Borrowing

One of the key issues to consider in analysing government debt is the reason for borrowing. This is important because it not only influences the stock and terms of the domestic debt, but it can also affect the scope for debt relief and/or restructuring.

In general, there are three main reasons for government domestic debt:

- The first is for ***budget deficit financing***. If the government is unable to meet its expenditure commitments from domestically raised revenue, such as taxes and duties, and externally sourced grants and borrowings, then it may seek to borrow domestically.

- The second is for ***implementing monetary policy***. The government can implement monetary policy by altering the supply of money in the economy. It does this by buying or selling Treasury bills, that is, by *open market operations* (sometimes referred to as OMO). Government sales of Treasury bills reduce the money supply and mop up liquidity as people and institutions buy Treasury bills and hence hold less money; whereas government purchases of Treasury bills pump money into the economy as people sell Treasury bills and hold more cash.
- The third is for ***developing the financial sector***. To develop and deepen the financial sector markets, there needs to be a steady supply and range of financial instruments to be traded. At the beginning of this process the government usually offers short-term Treasury bills which provide a secure return and boost investor confidence in government debt instruments. Thereafter, financial market deepening can be achieved by offering longer-dated instruments with different interest rate structures, i.e. fixed and floating rates.

In analysing government debt it is necessary to analyse the proportion of the debt stock being used for budget financing and for open market operations. In addition, it is important to focus on the types and maturity of issues for the different purposes, as this will influence the options available for debt restructuring and debt relief. For example, it will be almost impossible to restructure outstanding Treasury bill issues, whereas it may be possible to do so for medium- to long-term stocks.

Public and private sector enterprises issue debt instruments to finance general expenditure when there is a shortfall in revenues or for specific investment projects.

### **3.2 Legal Considerations**

There may be a statutory limit on the level of domestic debt the government can issue. Usually this limit, which is specified as a percentage of government revenues or as a nominal amount, is set out in a Loans Act. It is important to assess the current level of debt in relation to any legal limits as this will indicate how close to or how far away the government is from breach of its statutory limits.

The other legal issue to consider is the issuance of government guarantees for public enterprise borrowings. Does the government guarantee domestic debt issues by public enterprises, and if so on what terms? Have such guarantees had to be invoked, and if so how much of its current debt stock and servicing obligations are accounted for on this basis?

### **3.3 Institutional Considerations**

#### *3.3.1 Relationship of central government and central bank*

If the government is issuing debt instruments to finance expenditure, then the cost of servicing this debt will be included in the budget. In addition, if the government is responsible for open market operations, then the servicing of this element of the government debt will also appear in the budget.

In some countries, however, it is the central bank, and not the government, which is responsible for open market operations. In this case the cost of servicing the debt used for open market operations is not budget-financed. Instead, the service costs are borne by the central bank and

the cost of open market operations appears only indirectly in the budget via the profits or losses remitted by the central bank to the government.

If the central bank is issuing its own bills for open market operations and the government is issuing Treasury bills for budget financing, the following need to be considered:

- What procedures exist for co-ordinating the timing, amounts, and pricing of debt instruments, so as to ensure the same signals are being transmitted to the markets and the market is able to absorb the amount of debt being issued? If there are no formal or informal procedures then these will need to be established.
- What is the extent of market acceptance of central bank and central government debt? Depending on a country's experience, investors may prefer central bank bills to government bills if the central bank has a better record of servicing or paying higher interest rates.
- Is the central bank sufficiently capitalised to service its own debt instruments, and if not how is it to be recapitalised? If the central bank is not sufficiently capitalised, then it may not have sufficient income or resources to be able to meet the debt service on bills it issues. The government may decide to issue a recapitalisation bond to strengthen central bank finances.

In most countries the central bank acts as banker to the government and provides the government with an overdraft facility for managing day-to-day transactions. However, if the government experiences serious shortfalls in revenue, then the central bank may be called upon to extend the government's overdraft facility and the amounts involved can be large. The degree of independence of the central bank can affect the government's leverage in borrowing this way. In addition, it can also affect the cost of domestic borrowing. For example, if the government has sufficient leverage then it may be able to convert a large overdraft, at market-related interest rates, into a long-term stock, at lower interest rates, and thereby reduce the budgetary cost of debt servicing.

### *3.3.2 Financial sector developments*

The development and health of the financial sector are a major influence on the government's ability to issue and manage domestic debt. The issues to be analysed should include the following:

- Is the banking sector competitive? Or is there lack of competition, due to the dominance of state-owned banks? If the banking sector is uncompetitive, then there is more opportunity for banks to collude when purchasing Treasury bill stocks by submitting similar bid prices and hence influence upwards the interest rates which the government pays on its borrowings.
- Are the banks adequately capitalised? Do they have high levels of non-performing loans? Banks that are not adequately capitalised and/or have high levels of bad debts may be relying on income and profits from Treasury bill operations to keep themselves solvent and so any significant reduction in interest rates and/or Treasury bill dealing could affect solvency.
- Is there a wide range of non-bank financial institutions and are they competitive? The more competitive the financial sector is, the more likely it is that interest rates will reflect the cost and availability of capital. Hence, the presence of non-bank financial institutions increases competition.
- How dependent are the banks and financial institutions on Treasury bills for income generation? Are the banks holding Treasury bills in excess of reserve requirements? As noted

above, banks and financial institutions may depend on Treasury bills for income generation and hence reductions in interest rates can have a substantial impact on their solvency. One way to determine this is by analysing banks' Treasury bill holdings in excess of what they are required to hold by the central bank for reserve purposes. For prudential purposes it is common for the central bank to require commercial banks to hold a percentage of their assets in safe instruments – usually Treasury bills.

- Is there a secondary market in government debt instruments and how active is it? An active secondary market means more competitive pricing and, therefore, yields on government debt. In addition, it should also mean a greater demand for government stock as investors are able to sell whenever they want and are not locked into their investments.
- Do the banks offer a wide range of competitive savings instruments? A greater supply of savings products should result in a more competitive interest rate structure as the spread between borrowing and lending rates is lower, resulting in lower interest rates. On the other hand, it can also mean that investors have more choice and hence there is a lower demand for Treasury bills by the public.
- How do the banks set lending and savings rates and how are these rates related to Treasury bill rates? If the banks tend to use the Treasury bill interest rate as the basis for determining their savings and lending rates, then interest rates are not really reflecting the cost and availability of capital. However, it does provide the government with leverage for changing the general level of interest rates.
- What is the mechanism for Treasury bill sales? Is it by auction or competitive tender? Does the method of sale favour the banks? Do the banks act as agents for the public and earn commission on such sales? The methods by which government stock can be issued are set out in Box 3. Tender issues tend to favour the banks, particularly if they are able to collude in setting their bid prices. Auctions are usually more open and competitive, assuming there is not significant collusion by banks and other investors. If the banks act as agents for all public purchases of government securities, this may enable them to earn commission on all trades. However, if the public can buy government stock directly from the central bank or a government agency, the banks lose out on this form of income.

It is also important to review the policies currently in place for developing and strengthening the financial sector by increasing competition and solvency. The questions above will provide guidance on the types of issues to consider.

**Box 3: How Treasury Bills Are Issued<sup>5</sup>**

*Public issue* – the stock is offered at a fixed price and the financial institutions and investors are expected to purchase it at this price.

*Tender Issue* – a minimum price is determined and bids are invited at or above this minimum price. Investors bid for an amount of stock and the price they are prepared to pay for it and on this basis the minimum sale price of the stock is calculated. Those who bid above this minimum price are entitled to a full allocation and the remainder of the issue is distributed on a pro rata basis at the relevant bid price.

*Auction issue* – no minimum price is set and investors are asked to bid. The issue is sold to those bidding the highest prices until all the stock is sold.

*Direct placement* – negotiations are conducted directly with institutions to buy stock at an agreed price.

**3.4 Correlations and Econometric Analysis**

It is useful to analyse past interest rate and maturity trends to assess the factors that have influenced interest rates by looking at the correlation between interest rates and the level of Treasury bill or stock issuance, inflation, foreign interest rates and the demand for credit. Econometric analysis is an alternative method of analysing the determinants of interest rates. However, given the short time series of data on liberalised markets available in most countries and many less quantifiable structural problems in the financial sector which influence interest rates, it is usually almost impossible to do any meaningful analysis or draw any firm policy conclusions.

**IV. DEBT RELIEF AND NEW BORROWING OPTIONS****4.1 Which Debts to Restructure?**

The portfolio review and analysis of legal, institutional and financial sector issues should highlight the main issues regarding domestic debt and point to the way forward in order to achieve sustainability.

However, the choice of instruments (e.g. Treasury bills or stocks) and elements (stock or service) of domestic debt is complex. So the choice is among different time profiles of debt relief (for example, immediate or gradual reductions) and different methods (trust funds, cash payments, securitisation). Conventionally, the choice is analysed in terms of market perceptions of different risks and government credibility. However, the most important factor is the cost of each debt, as measured in present value terms, and whether or not the debt needs to be repaid.

<sup>5</sup> Based on K. Pilbeam, *Finance and Financial Markets*, Macmillan Press, Basingstoke, UK., 1998

In addition, other factors, which fall into three groups, have been identified:

*Fiscal and monetary impact*

- **net budget flows:** to what extent has the service (or arrears clearance if applicable) envisaged under the operation been factored into the budget projections and programmes agreed with the IMF and World Bank, and therefore how much will the operations increase the net flows to the budget?
- **monetary policy:** what will be the direct and indirect liquidity effects of the operation (for both the government and the private sector) and is there any resulting inflationary risk?
- **cost of new borrowing in domestic financial markets:** what will be the effects of the operation on interest rate trends and therefore on the fiscal cost of future domestic borrowings?

*Impact on private and financial sectors*

- **domestic savings and investment:** to what degree will the debt relief promote private sector investment directly by removing overhangs of debt owed to the private sector?
- **financial markets:** how far will the operation improve the willingness or ability of financial sector institutions to provide other savings instruments or to fund investment projects, thereby encouraging financial deepening? What will be the effects on financial institutions that are currently holding or trading in existing debt either directly or on behalf of individual clients?
- **private sector development:** will the operation encourage private sector development? For example, would reducing Treasury bill issues promote private sector equity investment as an alternative?
- **distributional effects:** what will be the distributional effects of the operation (insofar as they change flows to different sectors of society)?

*Wider effects*

- **dialogue with donors:** how will the structure and duration of the operation affect the dialogue between government and its donors? To what degree will it mobilise sufficient funding?
- **relationship between government and the private sector:** will the operation contribute to enhancing government credibility with the markets and therefore to wider economic stability? Or will it provide a risk of 'moral hazard' for either government or debtor (i.e. of irresponsible future borrowing) or for domestic creditors (e.g. increasing future interest rate demands) because they know they will be bailed out if things go badly wrong?



## 4.2 Theory and Practice

An analysis of fiscal sustainability in Ghana and Tanzania has raised major questions about two key theoretical hypotheses on which domestic debt reduction scenarios in many countries are based and which must be taken into consideration in designing debt and new borrowing scenarios.

### 4.2.1 *Are projected falling real interest rates realistic?*

The theory indicates that, provided inflationary expectations are falling and the government is able to reduce the amount of paper issued (due largely to a smaller budget deficit), falling real interest rates should be feasible. However, the evidence from many low-income countries shows that there are many other factors to take into account, namely:

- the competitiveness of the domestic financial markets,
- the financial position and motivation of commercial banks, non-bank financial institutions and individual savers,
- the impact of the government's prudential regulations and reserve requirements of financial sector developments,
- the availability of competing investment and savings opportunities,
- and, for foreign investors in domestic debt instruments, the de jure and de facto openness of the capital account and the scope for return flight capital or non-resident investment.

As a result, it may be extremely difficult to decrease real interest rates below about 10%, or to create an upward sloping yield curve.

### 4.2.2 *How can governments lengthen the maturity structure of domestic debt?*

Again, the theory is simple; market perceptions of debt dynamics (that is, the change in debt ratios) and the solvency of government will determine the lengthening of maturity acceptable to the market.<sup>6</sup> More complex reality needs to take into account:

- private sector factors which include: government credibility; inflation and rollover risks; liquidity preferences; availability of alternative investments; return of the investment adjusted for maturity; and expectations of the exchange rate regime and associated exchange rate risks.
- government and central banks' motivations which include not just minimising the cost of borrowing adjusted for the objectives of smoothing the deficit and the public sector borrowing requirement, but also inflation and monetary targets and expectations, and financial sector development motives.

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<sup>6</sup> See Section 5 for more on this issue.

### 4.3 Restructuring Options

#### 4.3.1 *Rescheduling of terms*

One option is to reschedule the terms of existing stock issues. This usually involves lengthening the maturity structure and lowering the interest cost. If interest rates are market-determined then the scope for reducing them through bilateral negotiations will be limited. However, it may be possible to lengthen the repayment terms.

Rescheduling and refinancing of domestic loans is similar to that for external debt. Rescheduling means changing the repayment terms of an existing debt, whereas refinancing is the replacement of an existing debt with the issue of a new and cheaper instrument. Loans suitable for rescheduling or refinancing can be identified by comparing loan interest rates with current and expected market rates.

In the case of Treasury bills, the most straightforward way to lengthen the maturity profile is to change the maturity when rolling over an issue. For example, all or part of a maturing 91-day issue could be rolled over for 182 days, instead of 91 days. For medium and long-term Treasury notes or bonds, rescheduling may not be realistic if the notes and bonds are bearer issues.

To lengthen the overall maturity structure of the Treasury bill portfolio, it is suggested that this be done gradually and in line with government requirements for monetary policy and budget deficit financing. For example, short-term Treasury bill issues can be designated as being for monetary policy purposes, and their share in the total Treasury bill portfolio should be altered to match the amounts usually needed for this purpose. In countries with nascent financial markets, this will usually mean reducing the amount of short-dated Treasury bills over a number of years. In addition, it is suggested that the shares on 182-day, 1-year, 2-year and longer dated Treasury bill issues be adjusted gradually over time to lengthen the maturity structure. The proportions should reflect the government's expected budget financing needs over the medium to longer term.

#### 4.3.2 *Buyback*

The concept of buying back domestic debt is similar to that of external debt. The key questions relating to its implementation are:

- Which debts are to be bought back? Identifying the debts for possible buyback depends primarily on the reason for the liability. It is not acceptable to consider buying back Treasury bills as this will damage the market's confidence in the government's ability to repay and will undoubtedly retard the development of financial markets. Government or public enterprise loans are potential candidates. Alternatively, buybacks can be used to clear outstanding arrears.
- Who holds the debt? If the debt to be bought back is held mainly by the central bank and state-owned commercial banks, then the government may be able to 'persuade' these institutions to accept a buyback. However, if the debt is held by private sector institutions, they will have to be convinced that selling their debt back to the government is in their interest and it may be difficult to come up with good arguments.
- Is the debt to be bought back at a discount or at par? One argument that may convince commercial bank and others to sell their debts back to the government is if it is done at par or at a premium. But this would be costly. Convincing commercial banks to accept a

substantial discount for a buyback is highly unlikely and again will have a very negative impact on the financial sector's confidence in government debt instruments.

- How will the buyback be funded? Donor funds or privatisation receipts are two possible sources of funds for debt buybacks. Privatisation receipts could be used to buy public enterprise debt which the government had assumed in order to sell the enterprise. Alternatively, the government could use foreign finance, but this has additional implications as set out in Section 4.3.3.

In the case of the recently agreed domestic debt reduction operation for Cape Verde, donor funds and privatisation receipts are being used to buy back domestic debt. However, the situation in Cape Verde was considerably simplified because 90% of the domestic debt is held by the central bank and state-owned commercial banks. Therefore, it is possible for the government to exercise moral suasion to conduct such operations.

#### *4.3.3 Swapping for foreign currency debt*

This option assumes that foreign currency debt is preferred to domestic debt, which would probably be true if a country is experiencing strong currency depreciation (or high inflation) and there was 'flight into dollars' or other foreign currencies. However, at a time of relative currency stability, foreign debt is less attractive to banks and other domestic debt holders, particularly if domestic interest rates are high relative to foreign interest rates. In addition, if domestic interest and inflation rates were to fall, this could encourage greater currency stability or even appreciation in a stable macroeconomic environment, making foreign debt even less attractive to holders. So, to evaluate this option, it is necessary to assess relative interest rates and currency projections.

In addition, it will be important to analyse which debts can be swapped (again Treasury bills will not be an option for the same reasons as set out above) and which institutions hold the debt.

#### *4.3.4 Debt-equity swap*

The applicability of this option depends on the government or public enterprise being able to issue equity or alternative assets, which investors want to hold. For the government, debt swaps for equity are not appropriate unless the government can issue equity which is seen as an attractive investment by the market. Similarly, for public corporations this option depends on investors accepting equity as an alternative to debt.

#### *4.3.5 Debt service reduction*

If government spending plans go off-track, it may find itself having to capitalise Treasury bill interest payments by rolling them over in order to meet its short-term financing needs. When interest rates are high this process can lead to a spiralling growth in debt stock and servicing costs of short-term Treasury Bills. One option for breaking this cycle is to seek donor funding to meet a portion of the debt service costs, thus reducing the need to roll over larger and larger amounts of Treasury stock. If sufficient funding is available then the government will be able to begin reducing the amount of Treasury bills rolled over and hence the stock outstanding.

#### 4.3.6 *Clearance of arrears*

If there are payment arrears, these usually relate to payments to suppliers or on public enterprise debts assumed by the government under government guarantees or in preparation for privatisation.

The key question relating to arrears clearance is how well can this be funded? One option is to use donor aid funds, as has happened in Tanzania. Alternatively, the government could ring-fence privatisation receipts for arrears clearance. However, if there are only a limited number of privatisations expected these receipts will be small and the timing uncertain. Rescheduling arrears (sometimes referred to as securitisation) is another possibility if donor funds or other finance is not available for the clearance of arrears. If rescheduling is an option, then it should be on the best possible terms. However, this will usually mean negotiating a long maturity as interest rates will usually be market-related.

#### 4.3.7 *Domestic Debt Fund*

One way of achieving debt service reduction and/or clearance of arrears is to mobilise donor support for a Domestic Debt Fund (DDF), modelled along the lines of the Multilateral Debt Funds established in Bolivia, Burkina Faso, Guinea Bissau, Mozambique, Tanzania and Uganda. The benefits of a DDF are:

- it is a cost-effective way of mobilising and co-ordinating donor funds;
- it will enhance the government's management and analysis of total debt and ownership of its debt strategy;
- it will enable the government to take the lead in planning its financing costs;
- it will enable the government to reduce the fiscal burden of its domestic debt servicing and thereby focus its limited budgetary resources on vitally important social sector spending for poverty reduction;
- it will provide a forum for discussion with donors on issues of debt.

#### 4.3.8 *Conversion of overdraft*

If the government is running a large overdraft with the central bank, it may be possible to convert this to long-term stock, at a lower interest rate. The government may be able to use moral suasion to achieve this. However, it will affect the central bank's income and this will need to be taken into account when considering this option.

#### 4.3.9 *Index-linking government paper*

Converting a portion of existing stock to index-linked stock could theoretically allow a more rapid lengthening of maturities and reduction of interest rates (linked to inflation), due to enhanced government credibility. However, it can also bring the major disadvantages of locking in a risk premium for low government credibility when initially issuing the stock, and a premium for issuing a new instrument - both of which may mean shorter maturities and higher interest rates than are desirable.

#### *4.3.10 Exchange rate-linked stock*

Theoretically, this option provides for cover against exchange rate risk. If the government converts a portion of its debt to an exchange rate-linked stock, say the US dollar-local currency rate, then investors' capital will be maintained, irrespective of any depreciation of the local currency against the US dollar. At a time of currency instability, this type of bond would be attractive to investors; however, it could prove costly to government should there be a substantial exchange rate depreciation. Currency projections are therefore crucial to the evaluation of this option.

#### *4.3.11 Separating government debt into two instruments*

Another option which is sometimes proposed is to separate Treasury bills and central bank bills. This has the advantage of clearly signalling to the markets the motive for the borrowing - deficit financing or monetary control and financial sector development. However, there is a risk that it may further fragment a small market, and that the central bank might be unable to bear the borrowing costs associated with such policies, and would transfer them to the government.

### **4.4 New Borrowing Options**

The aim of new borrowing simulations is to calculate accurate projections of future debt service. Ideally, new disbursement assumptions will be conducted separately for any pipeline debt (loans, bonds already agreed but not yet disbursed) and possible new Treasury bill issues for implementing monetary policy and budget deficit financing, as well as new loans to finance projects and/or investments.

The parameters to be considered when projecting new disbursements include the amounts and terms and the anticipated disbursement profile. In addition, it will be necessary to take into account the following government policies and the state of the financial sector markets:

- borrowing policy, including legal ceilings;
- interest rate policy and whether rates are expected to fall or rise in the future. The relationship between nominal and real rates needs to be considered and whether the government is aiming, for example, to reduce real rates as inflation falls;
- exchange rate policy as interest rates tend to respond inversely to exchange rate changes. A weakening currency can put pressure on the government to raise interest rates and vice versa;
- monetary policy. Tightening monetary policy will mean additional new issues, while allowing more money in the economy will reduce the amount of new issues; and
- the state of the financial markets, to ascertain how much new debt the financial institutions and the public may be willing to purchase. The more developed and sophisticated the financial sector, the more likely it is that the government will be able to issue a variety of new debt instruments for both monetary policy and budget financing purposes.

It is crucial that the projections for new disbursements should be very cautious and based on recent performance. Excessively high projections can inflate the present value of the debt. Interest rate projections must also be realistic and consistent with inflation rate forecasts.

#### *4.4.1 Treasury bills*

Short-dated Treasury bill issues are usually used for mopping up excess liquidity in the economy and the amounts to be rolled over should reflect past requirements. Longer-dated Treasury bill rollovers and new issues should anticipate budget financing needs. Interest rates will need to be in line with projected inflation rates. Examples of how this has been done are set out in Box 4.

#### *4.4.2 Loans and bonds*

The projected amounts and disbursements of new borrowing will usually be influenced by investment and/or project financing requirements. The terms will reflect anticipated market conditions and the creditor source. Bank loans, for example, may bear floating interest rates, while bond issues will usually have fixed interest terms. A discussion of the issues relating to the more complex instruments, such as index-linked and exchange rate-linked stocks, is found in Section 4.3.

#### *4.4.3 Financing gaps*

In addition to new borrowings, it is also necessary to consider how any budget financing gap will be filled – by Treasury bill issues (short-term or longer-term), loans or bonds. As with the assumptions for new borrowings, gap-filling assumptions can have a crucial impact on the sustainability of the debt burden. The terms for any gap-filling loans can be the same as the assumptions for new borrowings, or they can vary according to an assessment of market willingness to subscribe to new debt instruments – if it is possible to assess this accurately.

## **Box 4: Domestic Debt Scenarios for Cameroon, Ghana and Tanzania**

### ***Cameroon***

#### **Maintaining existing policy**

The scenario assumes that the present policy of paying key creditors and securitising arrears is maintained. The rationale is to provide holders with a negotiable instrument and to enable the government to make orderly payments over a longer period. Bank and insurance company debts have already been securitised over 30 years and 12 years, respectively, with market-related interest rates. Salary arrears and frozen salary payments will be repaid over 1 and 3 years respectively. Other debts will be securitised with repayment over 12 years, with 3 years grace, and 3% interest.

#### **Creation of a Domestic Debt Fund**

Since the securitisation of debts proposed in the first scenario will result in an increased fiscal burden for the Treasury, this scenario evaluates the effects of using additional donor support to meet the higher domestic debt servicing costs. The fund will be used to reduce the debt stock by enabling the buyback of specified commercial and public works debts at a discount of 60%, yielding a 40% price compared with the secondary market price of 25%.

### ***Ghana***

#### **Current practice**

This scenario is designed to test the debt servicing cost on the assumption that the status quo is maintained and there is no reduction of, or change in, the structure of the domestic debt stock. It is assumed that the stock of Treasury bills increases in line with growth in government current expenditure. Interest rates are assumed to decline as inflation falls and the government is able to alter gradually the current interest rate structure and achieve higher rates for medium-term Treasury bills.

#### **Domestic stock reduction**

This scenario is designed to analyse the implications of reducing the stock of short-term Treasury bills by 10% per annum in 1999-2001 and gradually changing the structure of the domestic debt stock by issuing more longer-term 1- and 2-year Treasury notes and reintroducing 5-year issues. The rationale underlying these assumptions is that over time 91-day Treasury bills will become used almost solely for monetary policy purposes and longer-term Treasury bill issues will be used for government deficit financing. In addition, it is assumed that the government will achieve a more balanced domestic debt portfolio and introduce longer dated Treasury stocks, including 5-year issues. The 10% per annum reduction of short-term Treasury bill stock implies a modest decline of C 50 billion in 1999, reducing to C 38 billion in 2001, and will result in interest savings of C 9.5 bn (US\$4m) in 1999. In addition, it is assumed that the total stock of Treasury bills will remain constant thereafter, albeit with a lengthening maturity structure.

With regard to interest rates, it is assumed that, with the reduction in short-term Treasury bill issues, further reductions in real interest rates will be achievable and hence nominal rates will decline more quickly. It is also assumed that, with the introduction of more longer-dated issues and a more balanced debt portfolio, an upward sloping yield curve can be achieved more rapidly.

### ***Tanzania***

#### **Moderate relief**

This scenario assesses the effect of current EU support for clearance of arrears plus the mobilisation of a little more donor support for further arrears clearance over a 4-year period and a 10% reduction of longer-term Treasury bill stocks in 1998/99. The aim is to reduce the more costly stocks and bonds and to promote financial sector development. Shorter-term Treasury bills (91-day) will be maintained for monetary policy purposes and 182-day and 364-day bills will be reduced by 10% as they fall due.

#### **High relief**

This scenario builds on the first and expands the role of donor assistance to reduce the stock of 182-day and 364-day Treasury bills by 20% and to repay all other government stocks and bonds as they fall due.

## V. SUSTAINABILITY RATIOS

The key ratios for assessing domestic debt sustainability are as follows:

- **Debt service / domestic budget revenue** – this measures the government’s ability to pay debt service from domestic sources. Debt service is the sum of interest and principal, including the amount of Treasury bill principal being rolled over, as this is a liability on the government and may have to be paid, in total or in part, if the market will not agree to roll over outstanding issues.
- **Present value / domestic budget revenue** – this measures today’s cost of debt service compared with the government’s ability to repay. As most domestic debt is issued at market-related interest rates, the PV of domestic debt is usually high relative to that of external debt, which is usually more concessional.
- **Interest / domestic budget revenue** – this measures the interest cost of domestic debt.
- **Debt stock / GDP** – this measures the level of domestic indebtedness relative to the country’s economic activity. It implicitly assumes that all of GDP is ‘accessible’ for financing the domestic debt burden, which is not necessarily the case.
- **Debt stock / domestic budget revenue** – this measures the level of domestic indebtedness relative to the government’s ability to repay. It demonstrates the number of years of revenue required to repay the entire debt stock.

The above ratios are all static, that is, they relate to one period of time. Therefore, it is important to look at how the debt ratios move over time – that is, the debt dynamics. This involves the relationship between the rate of interest or the effective cost of borrowing and the rate of growth of exports, in the case of external debt, and rate of growth of budget revenue, for total debt. Dynamic analysis tells us whether the relationship between these variables is increasing, decreasing or remaining constant over time. For example, if the effective cost of borrowing is higher than the growth in government revenue, then this highlights a growing debt servicing burden. Alternatively, if the effective cost of domestic borrowing is less than the rate of growth of revenue, this can point to a declining debt servicing burden.

To date, there are no internationally agreed benchmarks for assessing the sustainability of domestic debt. However, preliminary analysis of the available data for HIPC countries indicates that countries with debt ratios at, or near, the top of the threshold range set out in Table 1 have already accumulated payments arrears and are facing an unsustainably high domestic debt burden, whereas those with ratios below, or near, the bottom of the range do not have arrears and hence their debt can be considered sustainable. Countries with ratios falling within the range can be considered to have potentially unsustainable domestic debt burdens.



**Table 1: Preliminary Benchmarks for Domestic Debt Sustainability**

<b>Domestic debt indicator</b>	<b>Threshold range (%)</b>
Total debt service / revenue	28 - 63
PV of debt / revenue	88 - 127
Interest / revenue	4.6 - 6.8
Debt / GDP	20 - 25
Debt / revenue	92 - 167

Source: Debt Relief International

## **VI. HOW TO CHOOSE BETWEEN EXTERNAL VS DOMESTIC DEBT RELIEF AND NEW BORROWINGS**

The key point to note is that there are no simple ex ante indicators to define adequately the priorities for debt reduction or new issues. Many factors influence this choice, and these can be examined only in a comprehensive country-by-country analysis of total government debt.

One of the most important factors is the relative cost, in present value terms, of external and domestic debt. As well as evaluating the total burden of debt it is also important to look at the relative costs on a loan-by-loan, or creditor/holder or borrower/issuer basis. Furthermore, there are other factors, which need to be considered, including the following:

- What are the relative burdens of external/domestic debt in terms of the key debt ratios?
- What will be the impact of maximum external/domestic debt relief on the debt indicators?
- Is the classification of debt amenable to debt relief or restructuring?
- Which creditors are willing to lend anew and how might debt relief impact on this?
- What are the current levels of exchange rate and interest rate exposures and how will new borrowing affect these risks? This can be analysed using Value-at-risk (VAR) techniques.
- What are the expectations of future external and domestic interest and inflation rates and exchange rate trends?
- Will debt reduction or rescheduling have implications for financial sector development and if so what will these be?

## VII. LINKAGES TO POVERTY REDUCTION

There are two main questions to be addressed in considering the link between domestic debt and poverty reduction:

- Is the current debt burden sustainable in fiscal terms, and if not what steps need to be taken to ensure sustainability in the medium term, especially in liquidity terms, so that government spending to achieve its target for poverty reduction will be realised?
- What savings will debt relief/restructuring provide and will these savings be sufficient to meet accelerated social investment needs?

The aim is to assess the fiscal sustainability of the present debt burden and projected new borrowings within the context of the government's current spending plans and revenue projections, and to analyse the anticipated savings generated by debt relief/restructuring and to compare these savings with the government's fully costed poverty reduction programme.

More specifically for domestic debt, issues for consideration include:

- Will relief on external debt provide 'real' gains for spending on poverty reduction or will it result in the government diverting resources to service domestic debt or clear arrears?
- Will the future servicing costs of new domestic debt issues, including the rollover of Treasury bills, 'crowd out' spending on poverty reduction? New issues of short-term, variable interest rate instruments increase this risk, especially in a climate of rising interest rates.
- Will donors, individually or collectively, support the government's efforts to reduce domestic debt servicing costs and thereby release additional funds for poverty related spending? Increasing programme aid will achieve this most directly.
- Will buyback or repudiation of domestic arrears make it more difficult and expensive for government to roll over or issue new instruments in domestic financial markets? Higher domestic interest rates will mean fewer budgetary resources available for poverty reduction.
- Will debt restructuring improve perceptions of the investment climate and thereby encourage the growth in employment and income-earning opportunities of the poor? If domestic debt reduction results in more bank lending to the private sector for investment, the poor should benefit from the increased economic activity and employment demand. This effect will be greater if the reduction in domestic debt also leads to lower interest rates, thereby reducing the cost of investment lending. However the efficacy of these effects will depend to some extent on the competitiveness of the banking sector.

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