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The Choice Between External and Domestic Debt in Financing Budget Deficits: The Case of Central and West African Countries

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Abstract

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The paper reviews the principles and practical considerations involved in the choice between foreign and domestic financing of fiscal deficits, and derives a series of recommendations broadly applicable to Central and West African countries. The paper develops a simple analytical framework and shows that highly concessional external debt is usually a superior choice to domestic debt in terms of financial costs and risks, even in the face of a probable devaluation. The paper stresses the importance of the availability and terms of financing, and of overall long-term debt sustainability. It concludes that these countries need to take a gradual approach to domestic debt financing, beginning with the issuance of short-term bills, and ensure a solid track record of meeting their debt-service obligations.

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I. INTRODUCTION

In the face of public deficits, governments are confronted with the choice between external and domestic financing. If options are available, then the choice boils down to cost and risk. This choice is not straightforward, as governments usually pursue various objectives, such as low inflation; stable exchange rate; low interest rates and favorable yield curves; an adequate foreign reserve cover; and active domestic capital markets. Because of its actual or potential magnitude, meeting the government's borrowing requirement has significant effects on the economy. Moreover, public sector financing instruments and mechanisms help to develop financial intermediation, and thus foster sustained growth.

The objective of government financing is to mobilize financial resources, taking into account elements of cost and risk, as well as any macroeconomic and monetary implications. Typically, government officials in charge of debt management aim primarily at minimizing the financial burden, i.e., the direct cost of government debt. However, choosing between various options to meet the government's borrowing requirements should be based on numerous considerations. In practice, this requires close coordination among the departments responsible for macroeconomic management, in particular the ministry of finance and the central bank.

This paper reviews the principles and practical considerations involved in financing the government, particularly as regards the choice between domestic and external debt, and derives a series of recommendations broadly applicable to Central and West African countries, with special emphasis on the CFA franc zone. From the outset, it should be pointed out that any decision on how to meet the government's borrowing requirement² depends in large part on its magnitude, especially in countries where access to financing is extremely limited. Available financing is often a binding constraint, as it sets a ceiling on the government's ability to borrow and thus cover a borrowing requirement. At the same time, every financing operation entails substantial costs, which will in turn affect subsequent financing requirements. This point justifies the "orthodox" approach that stresses the overriding importance of limiting fiscal deficits and establishing a good public debt management system, so as to minimize financial costs.

The paper develops a simple analytical framework to assess the financial implications of choosing between domestic and foreign debt. The framework shows that, as a rule, highly concessional foreign debt is usually a superior choice to domestic borrowing at market rates in terms of financial costs and risk, even in the face of a probable devaluation. The paper underscores that the choice needs to take into account both the availability and terms of financing. More important, the overall sustainability of domestic and foreign debt is critical in deciding whether a country should become more indebted in the first place.

² The "borrowing requirement" comprises the sum of the budget deficit and amortization falling due, i.e., the requirement resulting from current operations and that needed to refinance existing debt.

This paper is divided into three main sections. Section II presents the public debt situation of some Sub-Saharan African countries. Section III reviews the analytical framework and looks at debt management in the overall macroeconomic context, noting its links to monetary policy and the international reserve position. Section IV examines practical considerations for the public debt management in sub-Saharan countries, with reference to a select group of countries.³ Finally, Section V presents recommendations regarding debt management in sub-Saharan Africa, the development of financial markets, and enhanced coordination between monetary and fiscal policies.⁴

II. PUBLIC DEBT: SITUATION OF SELECTED SUB-SAHARAN AFRICAN COUNTRIES

Guinea, Mauritania, Rwanda and the countries of the CEMAC and WAEMU share a number of features that make them a relatively homogeneous group. With the exception of Gabon and Equatorial Guinea, they are low-income IDA eligible countries.⁵ Based on IMF staff estimates, GDP per capita in the second half of the 1990s ranged from US\$250 in Rwanda to US\$400 in Mauritania and WAEMU and US\$670 in CEMAC (Box 1). Gabon and Equatorial Guinea had much higher incomes than the other countries, given their high oil production in relation to their populations.⁶ However, the latter countries had a relatively undeveloped non-oil private sector, fiscal management difficulties, and widespread poverty.⁷

All 17 countries under review have experienced difficulties servicing their debts in the recent past. This has led to the accumulation of substantial domestic and external arrears and repeated restructuring of the external debt. With the exception of Gabon and Equatorial Guinea, these countries are classified as heavily indebted poor countries and are eligible for

³ The countries selected were those represented at the Abidjan seminar in October 2001, i.e., the six countries in the Central African Economic and Monetary Community (CEMAC), comprising Cameroon, the Republic of Congo, Gabon, Equatorial Guinea, the Central African Republic, and Chad; the eight countries in the West African Economic and Monetary Union (WAEMU), comprising Benin, Burkina Faso, Côte d'Ivoire, Guinea-Bissau, Mali, Niger, Senegal, and Togo; Guinea; Mauritania; and Rwanda.

⁴ Numerous related topics have been examined in in-depth studies by staff at the International Monetary Fund and the World Bank. See, in particular, *Guidelines on Public Debt and Developing Government Bond Markets—A Handbook* (IMF/WB, 2001a and 2001b).

⁵ IDA loans have an interest rate of 0.75 percent (including service charges), with amortization over 35 or 40 years, and a grace period of 10 years. For the 2002 fiscal year (July 2001—June 2002), the eligibility threshold is a per capita GNP of less than US\$885.

⁶ Following major oil finds, per capita income in Equatorial Guinea rose sharply in the 1990s, to US\$2,000 by 1999.

⁷ Using purchasing power parity estimates for 1999, the UNDP ranked Gabon and Equatorial Guinea, respectively, at the 65th and 79th place in per capita income, and at the 109th and 110th place in human development index (out of a total of 162 countries). See UNDP (2001), p. 143.

Box 1. Gross Domestic Product Per Capita

(Averages 1995–99, in U.S. dollars)

CEMAC	668	WAEMU	392
Cameroon	625	Benin	381
Central African Republic	292	Burkina Faso	220
Congo, Republic of	838	Côte d'Ivoire	709
Gabon	4,493	Guinea-Bissau	216
Equatorial Guinea	1,066	Mali	247
Chad	231	Niger	200
Guinea	524	Senegal	510
Mauritania	382	Togo	325
Rwanda	246		

Source: IMF, *World Economic Outlook* database.

exceptional debt relief under the HIPC Initiative.⁸ For its part, Gabon has on several occasions restructured its external debt with the Paris Club, while Equatorial Guinea accumulated large arrears with foreign creditors but could not secure a rescheduling agreement in the second half of the 1990s.⁹ At end-1999, the outstanding external debt stood at 70 percent of GDP in Rwanda, about 90–100 percent in Guinea, WAEMU, and CEMAC, and 220 percent in Mauritania (Box 2).¹⁰

Few African countries have access to international financial markets, and their borrowing capacity on commercial terms is restricted to very specific cases.¹¹ As a result, the majority of the African countries have relied heavily on foreign financing from official bilateral creditors and multilateral organizations, and less on commercial borrowing. During the 1980s

⁸ Of these countries, ten (Benin, Burkina Faso, Cameroon, Guinea, Guinea-Bissau, Mali, Mauritania, Niger, Rwanda and Senegal) have already reached their decision points and are benefiting from interim assistance (see IMF 2001c).

⁹ The latest Paris Club rescheduling for Gabon was agreed in December 2000, on nonconcessional terms. The last Paris Club rescheduling for Equatorial Guinea was in December 1994.

¹⁰ Comparable data on domestic debt are not available for all the countries, mainly due to uncertainties regarding the measurement of domestic arrears. However, IMF staff estimates (See *The Enhanced HIPC Initiative and the Achievement of Long-Term External Debt Sustainability*, SM/02/92) show that in countries for which data for total domestic debt are available, the level of domestic debt is fairly low. At end-2001, the outstanding domestic debt stood at 15.6 percent of GDP in Cameroon, about 10.4 percent in Niger, 1.0 percent in Rwanda and 9.9 percent in Senegal. Public debt should also take into account guaranteed debts of government enterprises or agencies, which often end up being serviced by the government.

¹¹ Since the end of the 1980s, the only syndicated private sector loans in sub-Saharan Africa have involved pledging export receipts, especially from oil, as in the case of Republic of Congo or Angola.

Box 2. External Public and Publicly Guaranteed Debt Disbursed and Outstanding

(End-of-period, as a percentage of GDP)

	<u>1995</u>	<u>1999</u>		<u>1995</u>	<u>1999</u>
CEMAC	112	102	WAEMU	118	88
Cameroon	106	94	Benin	81	58
Central African Republic	78	77	Burkina Faso	51	58
Congo, Republic of	263	246	Côte d'Ivoire	161	100
Gabon	79	81	Guinea-Bissau	372	362
Equatorial Guinea	135	28	Mali	115	106
Chad	57	69	Niger	85	79
Guinea	83	95	Senegal	77	74
Mauritania	220	218	Togo	111	85
Rwanda	83	68			

Source: IMF, database of the *World Economic Outlook*.

and 1990s, worsening world economic environments, inappropriate domestic policies, and poor debt management led to the accumulation of unsustainable levels of external debt in these countries (see Brooks and others, 1998). Recognizing that the traditional debt relief mechanisms would not be sufficient to address the problem, the World Bank and the IMF launched in September 1996 the Heavily Indebted Poor Countries (HIPC) Initiative.¹² Under the circumstances, most new borrowing contracted by the HIPCs is with international financial institutions and certain bilateral creditors on highly concessional terms.¹³

Within sub-Saharan Africa, currency zones such as the CEMAC and WAEMU are atypical insofar as the distinction between domestic and external debt is blurred in some cases. From a legal point of view, external loans are those that are contracted with non-resident lenders (rather than those denominated in foreign currency). From an economic point of view, however, debt instruments denominated in local currency underwritten by nonresident investors within the same currency zone have the features of domestic debts, given that any

¹² The HIPC initiative was enhanced in late 1999 to provide faster and deeper debt relief. The Initiative aims at reducing the stock of existing debt to make these countries more creditworthy, and thus more attractive to export credit agencies. Also, the Initiative helps the HIPCs to achieve a lasting exit from unsustainable debt and thus to eliminate a key constraint to economic growth and poverty alleviation.

¹³ As a rule, in countries with programs supported by the IMF under the Poverty Reduction and Growth Facility (PRGF), the authorities undertake to refrain from contracting loans on nonconcessional terms. (Exceptions have been made under special circumstances, for instance in the case of the Chad-Cameroon pipeline.) While this requirement severely limits external financing options, the authorities also need to manage the currency composition of their external debt, in order to limit any asymmetrical effects of exchange rate fluctuations on export receipts and debt service.

financial and monetary impacts are felt within an economic entity covered by a single central bank.¹⁴

The scarcity of data prevent any in-depth analysis of the magnitude of domestic debt problem in the countries under study. However, limited access to foreign aid and borrowing, and the introduction of securities markets in the countries under study would probably lead these countries to resort more and more to domestic financing. Given that public debt sustainability depends both on the level of the budget deficit as well as the way it is financed, it appears crucial to review and analyze the principles and theoretical considerations involved in the choice between foreign and domestic financing of fiscal deficits.

III. THEORETICAL ISSUES

Any government deficit entail costs, regardless of its financing. The choice of financing means should aim at minimizing costs and risks for the overall economy. The government's overall financing requirement may be covered by money creation, borrowing from the domestic banking system and the private sector, including accumulation of arrears, or external debt (concessional and non concessional). The main objective in choosing a particular method is to minimize the costs and risks to the economy. There is no single optimal approach for all circumstances, as it depends on the availability of financing, the economic environment, the institutional framework, and the degree of development of domestic financial markets. This section presents some theoretical issues that should be taken into account when deciding how to finance the deficit. Three main factors may help decision-makers to choose among various financing options: (i) the macroeconomic repercussions, notably with respect to private investment and the external current account; (ii) the cost and the interest rate, foreign exchange and other risks; and (iii) the impact of the proposed borrowing on debt sustainability.

A. Macroeconomic Aspects of the Choice Between External and Domestic Debt

The macroeconomic impact of government deficits can be analyzed in the context of two main views. In the Ricardian view, it has been argued that government deficits have no macroeconomic impact in the long run (Barro, 1974). The budget deficit, in this view, affects neither investment nor the external current account. The Ricardian equivalence theorem stipulates that, in principle, an increase in government expenditure or a reduction of taxes results in an identical increase in private saving and consequently has no lasting impact on the real economy. The reason is that an increase in current public sector debt implies a future increase in the tax burden. Rational and forward-looking economic agents are bound to

¹⁴ The use of a common currency and the development of regional interbank markets in the CEMAC and WAEMU facilitate the transmission of economic and monetary phenomena within each zone. In that way, excess supply or demand for goods and services, and mismatches in the supply and demand for loanable funds, tend to be more balanced over the region than within individual countries.

anticipate increased taxes and, therefore, raise their current rate of saving. However, Ricardian equivalence presupposes *inter alia* the absence of constraints on borrowing and the neutrality of the tax system,¹⁵ situations which are unlikely to be found in practice. A number of empirical studies have denied the practical relevance of the Ricardian equivalence theorem, especially as regards developing countries (Haque and Montiel, 1989; Veidyanathan, 1993).

In the traditional view, government deficits have a large impact on the economy, especially on private investment and the external current account. For a given overall saving rate, an increase in the government deficit entails a drop in private investment. Likewise, at a given private saving rate, and in a setting in which domestic borrowing opportunities are scarce, there is a close relation between the budget deficit and the external current account. However, this relation is not always direct, as it depends in part on the level and composition of government expenditure, the stance of monetary policy, and related changes in interest rates and the real exchange rate (see Fischer and Easterly, 1990). The macroeconomic consequences of the borrowing requirement depend also on the method of financing.

B. Central Bank Borrowing

The budget deficit can be covered directly by money creation by the central bank or, more generally, by increased credit of the banking system.¹⁶ The direct cost can be minimal, or even nil, but macroeconomic risks are substantial. Excessive monetary financing results in excess overall demand, which, in turn, translates into inflation or, under a fixed exchange rate, pressure on the balance of payments.

Nevertheless, the relation between monetary financing of the budget deficit and inflation is neither direct nor linear, especially in the short run (Fischer and Easterly, 1990). The unstable nature of this link is generally attributed to several factors: (i) private saving may change as a result of changes in inflation expectations; (ii) the composition of budget financing may change over time; (iii) the demand for money is sometimes unstable; and (iv) expectations may be shaping future government policy (Sargent and Wallace, 1981).¹⁷

¹⁵ The theory also assumes an infinite time horizon, certainty as to future tax pressure, perfect capital markets, and rational expectations.

¹⁶ A rapid increase in money supply is not necessarily indicative of a large budget deficit. Conversely, money creation to finance a budget deficit may not result in macroeconomic imbalances if money demand increases at a fast pace.

¹⁷ Under certain circumstances, especially when economic agents anticipate the future repercussions of budget policies, deficit financing through monetary creation may turn out to be less inflationary than nonbank borrowing. Covering the government's borrowing requirement by resorting to domestic debt leads to increased interest charges, a larger budget deficit, and a heavier debt burden. Eventually, the difficulty of mobilizing domestic funds reaches a point where the authorities are forced to resort to monetary creation. By then, inflationary pressures are stronger than they would have been if monetary creation had been chosen from the outset (because of the higher stock of debt).

C. Borrowing from the Domestic Banking System or the Private Sector

Domestic borrowing from the banking system (excluding the central bank) and the private sector requires a relatively well-developed financial intermediation system. It reduces inflationary pressures and the risk of external debt crises. However, it tends to have a crowding-out effect on private investment (above all when there are restrictions on capital flows) and thus penalize growth.

The government's recourse to domestic (excluding central bank) financing reduces the supply of loanable funds. In countries where interest rates are relatively flexible, the upward pressure on real interest rates leads to a decline in private investment. If the exchange rate and interest rates are subject to government control, resorting to domestic financing has a more direct crowding-out effect on private investment by reducing the amount of credit available to the private sector, and translates into credit rationing.¹⁸

D. External Borrowing

External borrowing¹⁹ often appears attractive because of lesser crowding-out effects on private investment, and reduced risks of inflationary pressures. Moreover, resorting to external financing can induce greater fiscal and monetary discipline, since it eliminates any incentive the government might have to generate inflation in order to reduce the real debt burden.²⁰ However, theory needs highly restrictive conditions to establish these advantages, while empirical studies suggest that external financing is not a panacea for governments (see de Fontenay, Milesi-Ferretti, and Pill, 1995; Gray, 1996; and Gray and Woo, 2000).

Although government external borrowing does not directly affect domestic interest rates and the supply of loanable funds, it may also crowd out private investment through its impact on prices or the nominal exchange rate (in a flexible or managed exchange rate regime). When the budget deficit stems from expenditure on locally-produced goods, external borrowing brings about an appreciation of the real effective exchange rate (under a fixed or managed exchange regime) that has a crowding-out effect on certain local producers (Gray and Woo, 2000). Under similar circumstances, domestic financing would have led to an increase in interest rates and a reduction in domestic private investment, which could be partly offset by increased foreign private investment.

¹⁸ Crowding out may not occur, or may be minimal, when the budget deficit reflects an increase in government investment, insofar as public and private investment complement each other.

¹⁹ External financing refers here to borrowing in foreign currency from nonresident creditors.

²⁰ In other words, contracting foreign currency debt (or indexed domestic debt) helps to resolve the time consistency problem of economic policies, because the government can no longer escape through inflation and devaluation. See Calvo and Guidotti (1990), with reference to the seminal work of Lucas and Stokey (1983).

External financing aimed at building up foreign exchange reserves may, if the local counterpart is fully sterilized, turn out to be more costly than domestic borrowing (taking into account the cost of the central bank's open market operations). In other words, sterilization of external funds induces the same effects as domestic financing, i.e., an increase in interest rates and the crowding out of private investment. If the funds are not sterilized, external financing is accompanied by excess domestic demand, and therefore results in pressure on inflation or the balance of payments.

A rising external debt tends to weaken the economy. First, foreign borrowing increases vulnerability to external conditions. When debt is contracted at a floating rate, higher foreign interest rates lead to an increase in debt-servicing costs. This raises budgetary outlays, which may translate into a larger deficit or a reduction of nondebt outlays. Likewise, a depreciation of the currency leads to increased debt servicing (in domestic currency terms), and has the same effects as those mentioned earlier. Second, when the government borrows to cover a growing deficit, foreign borrowing leads to an unsustainable level of debt, an excessive share of debt service in overall government expenditure, and substantial use of foreign exchange to service the debt. In the long run, this may lead to a debt crisis.²¹ The indicators listed in Box 3 are particularly useful in monitoring the external debt situation.

Box 3. External Public Debt Indicators	
<u>Indicator</u>	<u>Comment</u>
Ratio of the NPV of the external debt to exports	Useful for analyzing a country's capacity to repay (solvency); a key variable in debt sustainability analysis.
Ratio of the NPV of the external debt to GDP	Useful for assessing the overall resource basis available to the country.
Average rate of interest on the debt	Good indicator of the terms of loans; crucial for debt sustainability analysis.
Average maturity of the debt	Makes it possible to track maturities and form an idea of potential future indebtedness.
Grant component of the debt	Facilitates analysis of the concessionality of the existing debt or new loans.
External debt service to exports	Useful for assessing the country's capacity to meet its debt service.
Short-term external debt to reserves	Useful for assessing the country's vulnerability to external shocks.

²¹ Sachs (1989) provides details on the relation between budget deficits and the foreign debt crisis.

The choice of financing must bear in mind other economic policy components, including fiscal policy, monetary policy, exchange rate policy, and trade policy. The macroeconomic consequences of the borrowing requirement depend on the method of financing, the economic situation, the institutional environment, and the degree of development of the financial market. The choice should avoid any unsustainable domestic or external imbalance.

E. Choice Between External and Domestic Financing: Cost and Risks

External financing often appears attractive because of lower interest rates. In what follows, the distinction between concessional and nonconcessional loans is crucial. Under market conditions, there should be little difference between domestic and external borrowing on nonconcessional terms. “Interest rate parity” implies that the nominal interest differential is equal to the expected rate of depreciation.

$$r = r^* + d + \lambda \quad (1)$$

Where r and r^* are domestic and foreign nominal interests rates, d is the expected depreciation of the domestic currency and λ is a risk premium.

The immediate incentive to borrow in foreign currency—a lower interest rate—may be offset by a subsequent depreciated exchange rate, in the case of flexible exchange rate regime. In rare circumstances, it is possible that foreign investors’ perception of the risk premium (covering both the risk of default and expected depreciation) differs from that of domestic investors, which would explain an “uncovered” interest differential. However, developing countries have usually access to concessional loans, i.e., at interest rate lower than the market rate. In this case, “interest rate parity” does not hold.

The key objective of the simple model presented below is to examine the conditions in which there is financial equivalence between domestic and foreign concessional debt burdens. The key variable that the model examines is the domestic interest rate at which there is inter-temporal equivalence in the overall debt burden, as measured by the net present value (NPV) of debt.²²

$$NPV_D = NPV_F \quad (2)$$

where:

NPV_D = the NPV of domestic debt service—principal (P) plus interest (I); and

NPV_F = the NPV of foreign concessional debt service—principal (P) plus interest (I).

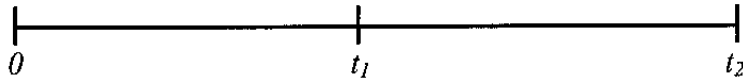
There are several key general assumptions in the model that follows.

²² The NPV of a debt is defined as the discounted value of all future debt service due on this debt. The NPV of debt depends on the terms of borrowing (interest rate, grace period, number of years of maturity) and the discount rate.

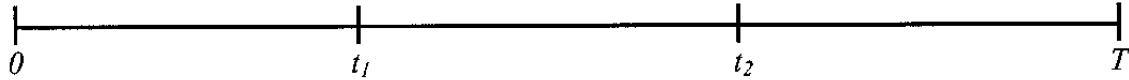
- First, it is assumed that foreign financing is readily available and at terms much more favorable than that on domestic debt;
- Second, we assume a fixed exchange rate regime;²³ however, attached to foreign debt is a nonzero probability of risk (q) of a devaluation of the domestic currency of magnitude d ; and
- Third, several parameters are exogenously given, in particular the terms of the foreign loan, the discount rate and the repayment period of the domestic loans.

We compare two loans (A, A^*) of equivalent nominal amounts (expressed in domestic currency terms) but with different conditions (in term of interest rates, grace period, and repayment period). The foreign loan is repayable over time T , where T is longer than the repayment period for the domestic loan, t_2 . For the foreign loan, we distinguish between three periods, $0-t_1$, t_1-t_2 , and t_2-T , during which $A1^*$, $A2^*$ and $A3^*$ are the respective amortization payments. During the second period, we assume that there is a devaluation. The domestic loan has a repayment profile over time equivalent to the first two periods of the foreign loan, and the respective amortizations are $A1$ and $A2$.

Domestic debt:



External debt:



The NPV of domestic and external loans are given by relations (4) and (5):

$$A = A^* e_0 \quad (3)$$

$$NPV_D = \sum_{t=0}^{t_1} \frac{A_{1t}}{(1+\rho)^t} + \sum_{t=0}^{t_1} \frac{r(A - \sum_{i=0}^{t_1} A_{1i})}{(1+\rho)^t} + \sum_{t=t_1}^{t_2} \frac{A_{2t}}{(1+\rho)^t} + \sum_{t=t_1}^{t_2} \frac{r(A - \sum_{i=t_1}^{t_2} A_{2i} - \sum_{i=0}^{t_1} A_{1i})}{(1+\rho)^t} \quad (4)$$

²³ This assumption is mainly made to simplify the algebra and to be in line with the exchange rate regime of the CFA franc zone. The results are thus mainly for CFA franc zone countries, but the underlying approach could be generalized to other exchange rate regimes.

$$\begin{aligned}
 NPV_F = & e_0 \sum_{i=0}^{t_1} \frac{A_{1i}^*}{(1+\rho)^i} + e_0 \sum_{i=0}^{t_1} \frac{r^*(A^* - \sum_{t=0}^{t_1} A_{1t}^*)}{(1+\rho)^i} + e_1 \sum_{i=t_1}^{t_2} \frac{A_{2i}^*}{(1+\rho)^i} + e_1 \sum_{i=t_1}^{t_2} \frac{r^*(A^* - \sum_{t=t_1}^{t_2} A_{2t}^* - \sum_{t=0}^{t_1} A_{1t}^*)}{(1+\rho)^i} \\
 & + e_2 \sum_{i=t_2}^T \frac{A_{3i}^*}{(1+\rho)^i} + e_2 \sum_{i=t_1}^{t_2} \frac{r^*(A^* - \sum_{t=t_2}^T A_{3t}^* - \sum_{t=t_1}^{t_2} A_{2t}^* - \sum_{t=0}^{t_1} A_{1t}^*)}{(1+\rho)^i} \quad (5)
 \end{aligned}$$

where:

ρ = discount rate;

A, A^* = domestic and foreign loan;

A_i, A_i^* = amortization on domestic and external borrowings during period i ;

r, r^* = domestic and foreign interest rate;

e_i = exchange rate (domestic currency/foreign currency) during the period i .

It is assumed that during the period t_2-T , the exchange rate from the previous period is maintained, i.e., $e_1=e_2$. In order to take into account the possibility of a devaluation d , the exchange rate for the second period is given as:

$$e_1 = (1+dq) \quad (6)$$

In order to determine the appropriate domestic interest rate (\bar{r}) at which the NPV of domestic debt is equivalent to that of foreign debt, given different states of nature (i.e., different levels of parameters and of exogenous variables), we use the different equations, and solve for r for given t_1, t_2, t_3, T, ρ , and r^* :

$$\bar{r} = \frac{NPV_F[e(d, q)]}{NPV_D^I} - NPV_D^P \quad (7)$$

where:

NPV_D^P = the NPV of principal repayments on domestic debt; and

NPV_D^I = the NPV of interest payments on domestic debt.

It can be seen from (7) that r is a linear function of the key parameters, d and q —for given levels of the exogenous variables and parameters, which determine the NPV of the debt. A numerical illustration of this result is presented in annex I. The example compares the debt service cost in NPV terms of the two loans of equivalent nominal amounts, but quite different terms. The foreign loan is highly concessional but is accompanied by a non-zero probability of devaluation while the domestic loan is nonconcessional. The main conclusion of the

simulation is that concessional external financing is considerably more advantageous than domestic financing. In the example given, for a probability of devaluation of 50 percent, a devaluation of 200 percent entails a *positive* domestic interest rate of 2.2 percent in order to have a cost equivalence between the two types of borrowing. In other words, there is still considerable potential for less concessional external loans before one can reach equivalence at domestic interest rates that would normally obtain in the countries under study (over 10 percent).

In choosing between domestic or foreign borrowing, the principal risks are those associated with interest rates, exchange rates, and rollovers. These risks have to be weighed, with particular attention to the foreign currency composition and other terms of foreign loans (maturity, grace period, floating interest rate). The government must also consider the medium- and long-term repercussions of a possible default on debt servicing.

Despite the potential cost associated with the exchange risk, access to loans on concessional terms argues in favor of resorting to external financing—and limiting the budget deficit to the amounts of such financing available. Nevertheless, the government may also seek to borrow from domestic sources, even at a higher cost, to foster the development of financial markets, with the expectation that in the medium and long term the development of these markets will lower the cost of access to domestic financing for the economy as a whole. As indicated above, the cost assessment should not look only at the interest rate but also consider all other transaction costs. More important, the level of the budget deficit itself should be determined in terms of overall sustainability of the level of total debt (see annex II). The choice of the method of financing is also a function of the impact on sustainability of the debt (whether external or domestic), which will depend on the various factors discussed above and on the country's debt strategy. Given the interdependence of the level of the budget deficit and the way it is financed, financial costs also establish an opportunity cost of expenditure. Thus, at the margin, debt sustainability analysis should induce a reassessment of the opportunity of government expenditure and of the level of taxation.

IV. CHOICE BETWEEN EXTERNAL AND DOMESTIC FINANCING: THE CASE OF CENTRAL AND WEST AFRICAN COUNTRIES

A. Potential for Domestic Debt Financing

Factors such as the country's size, the level of government revenue, and the track record in servicing debt play a major role in determining possible government financing options. In practice, under the circumstances prevailing in most sub-Saharan African countries, debt management strategies usually need to focus on short-term cash management. Given their low creditworthiness, sub-Saharan African countries will have difficulty, in the short run, to diversify budget deficit financing sources. On market terms, the risk premium demanded by

possible foreign investors to underwrite government medium- and long-term paper could be prohibitive, which makes it an unrealistic option at present for most sub-Saharan countries.²⁴

The financial systems of sub-Saharan African countries are generally undeveloped and lacking in diversity. Apart from the central bank, the basic structure consists of a traditional banking system offering brokerage services for international transactions and showing little inclination to engage in financing more risky investments. Some of the countries, such as Cameroon and Benin, have a fairly extensive cooperative credit sector, but none so far has an active market in financial instruments. Although regional institutions are introducing securities markets (Abidjan for WAEMU and Libreville for the CEMAC), these initiatives are still at an early stage.

Domestic budget financing in sub-Saharan Africa still mainly consists of bank loans. Governments have long resorted to advances from the central bank and, to a lesser extent, from commercial banks to cover their short-term cash needs. Although numerous countries have a medium- or long-term domestic debt, in most cases it stems from loans imposed on terms that were incompatible with market conditions.²⁵ Moreover, loanable funds are very limited, given the low saving rate relative to the requirements of the nonfinancial private sector²⁶. In principle, insurance companies and the social security system were supposed to generate financial surpluses, some of which could naturally be invested in government securities. However, experience with such institutions in the 1980s and early 1990s turned out to be disastrous.

Given the limited options for these countries, the approach taken so far consists of developing alternative short-term financing options. Issuing government securities, either directly by the treasury or through the central bank, is one way to diversify financing sources to cover short-term cash requirements and to minimize direct central bank financing. Outside the CFA franc zone, this policy is justified by the desire to curb inflation and stem exchange rate depreciation (Guinea, Mauritania, Rwanda). In the CEMAC and WAEMU countries, the authorities have agreed to eliminate gradually direct central bank advances to governments,

²⁴ Secondary market quotations for African bank or commercial debt paper are usually low, at around 10 to 25 cents on the dollar, and few transactions take place.

²⁵ The domestic medium- or long-term debt, at an artificially low interest rate, arose out of the securitization of domestic arrears and the consolidation of irrecoverable bank loans, especially on public enterprises. However, some West African countries such as Benin, Mali and Senegal recently succeeded in placing medium-term bonds, mostly through banks and local public enterprises.

²⁶ Excess liquidity in the banking system is not in itself indicative of an abundance of funds that could be available for the government or the private sector. Rather it usually stems from an inefficient interbank market, the absence of short-term instruments, and a general lack of bankable assets.

which would not only help protect the international reserve position but also adhere to the current approach in the European Union.²⁷

The blueprints for issuing government securities in the CEMAC and WAEMU zones are summarized in Box 4. A major difference between the two approaches is the guarantee that the BEAC intends to provide on government securities, during a transition period of at least three years. Such a guarantee would seem to defeat the purpose of the reform, which is to shift responsibility for treasury financing to national governments. In practice, however, the room for maneuver is likely to be very limited. At present, few governments in the CFA zone can get access to private sector financing, and most—especially in the CEMAC zone—would probably be unable to raise voluntary loans irrespective of the conditions offered. Given that treasury bills will be eligible for refinancing, even the WAEMU could well be seen as providing an implicit guarantee to government security issues.²⁸ Nevertheless, differing perceptions of the creditworthiness of national governments are likely to result in interest premiums for some of them.

The leveling off or (in the case of the CEMAC and WAEMU) the gradual repayment of direct central bank loans to governments should make it possible to strengthen money market management mechanisms—especially by adding to the instruments at the disposal of the monetary authorities for indirect liquidity management—and to provide short-term instruments for private investors. Experience in Guinea (which, in the 1990s, began using treasury bill issues to support central bank interventions) shows that this approach involves higher direct costs than resorting to central bank advances. Moreover, the provision of an income-earning asset (at market rates), with little risk (since it comes with an implicit central bank guarantee) provided commercial banks with an attractive investment opportunity, which crowded out private borrowers.

²⁷ Article 101 of the founding charter of the European Community, as amended by the Maastricht Treaty on European Union, prohibits direct financing of governments by national central banks or the European Central Bank (European Communities, 1999, p. 161). The schedule for settling statutory (or current account) advances to national governments was established at ministerial meetings in December 1998 in Dakar for the WAEMU, and in December 1999 at N'Djaména for the CEMAC. While this approach was not formally required for the CFA franc zone, since the arrangement with the French treasury is fiscal rather than monetary (Hadjimichael and Galy, 1997), it should help the Central Bank of West African States (BCEAO) and the Bank of Central African States (BEAC) to pursue policies that better support the fixed parity with the euro.

²⁸ Both the BCEAO and BEAC are in a strong position to offer such guarantees: like many other central banks, they manage treasury accounts and can thus deduct any amount owed at source.

Box 4. Plans for Issuance of Government Securities in CEMAC and WAEMU

	<u>CEMAC</u>	<u>WAEMU</u>
<i>Types of securities</i>	Treasury bills: maturities of 13, 36, and 52 weeks, and 2 years; Treasury bonds: maturities of 5, 7, or 10 years.	Treasury bills: maturities of 1 week up to 2 years; Treasury bonds: maturities of 5, 7, or 10 years.
<i>Face value and characteristics</i>	CFAF 50,000; dematerialized securities, book-keeping centralized at the BEAC.	CFAF 1,000,000 for bills, CFAF 10,000 for bonds; dematerialized securities, book-keeping centralized at the BCEAO.
<i>Primary market</i>	Dutch auction, open to banks and financial institutions registered with the treasury; primary market operators must guarantee liquidity on the secondary market.	Dutch auction; open to financial institutions that keep an account with the central bank
<i>Secondary market</i>	Managed by primary market operators, who commit to sell at least 70 percent of bills and bonds to the public.	Managed by primary market operators and participants in the regional stock exchange.
<i>Central bank guarantee</i>	Yes, for a 3-year transition period; ceiling equivalent to the amount of statutory advances at end-2002, penalty rate (4 percentage points at present).	No.
<i>Eligibility for refinancing</i>	Yes.	Yes.

A purely financial approach consisting of comparing the alternative costs of government financing could lead to rejection of issuance of government securities as being excessively costly. Nevertheless, as noted above, a comprehensive approach to economic management must take into account the overall cost and macroeconomic implications of domestic financing. From that point of view, domestic indebtedness—which, by its very nature, is not granted on concessional terms—should not be seen as excessively costly if it is granted on market terms. Conversely, borrowing on favorable terms from the central bank necessarily entails a subsidy element, which has to be paid for by the economy as a whole (or, the currency zone, as the case may be) in the form of additional costs (higher prices or interest rates) or else in the form of additional strains on the balance of payments.

B. Management of Short-Term Borrowing Requirements

IMF-supported financial programs generally tend to minimize recourse to domestic financing. Whenever possible, the objective pursued is to constitute domestic surpluses (except in cases where the banking system is deemed to have excess liquidity), in such a way as to foster the expansion of domestic credit to the private sector while keeping in mind key objectives with regard to inflation and the balance of payments. Under such circumstances, domestic debt management is essentially limited to mobilizing the cash flows needed to offset seasonal fluctuations in government revenue and expenditure or to handle unforeseen situations.

Even in cases where short-term cash management is the government's main priority, economic policy must nevertheless focus on developing financial intermediation and improving liquidity management. The setting up of markets for treasury bills or other short- and medium-term securities should help to mobilize private sector saving, while promoting a rational management of resources in the banking system. It will also be important to ensure a proper division of responsibilities between the treasury and the central bank, to reconcile as far as possible the various fiscal and monetary policy objectives.

V. CONCLUSIONS

Different options for financing a budget deficit have major costs and advantages. The advantages of external financing are sometimes exaggerated and their potential costs underestimated. The principal objective of public debt management is to ensure that the government's borrowing requirements are met and that the resulting obligations can be honored at the least cost in the medium or long term, with a prudent degree of risk. Focusing on short-term costs while ignoring the medium- and long-term risks is a dangerous strategy. Transactions that appear inexpensive may entail major risks for the government and thus undermine its long-term solvency.

For most developing countries, highly concessional external loans—when available—are usually the most attractive way to finance budget deficits. The paper shows that this fairly obvious result generally holds even when the domestic currency may be devalued. The framework developed here provides policymakers and technicians in the countries under study with an easy-to-use tool for deciding on different financing alternatives. Of course, in practice the most difficult assessment is the extent and probability of expected future devaluations. It should be underscored that this result does not preclude good debt-management practices which extend well beyond the financing choices presented here (see Annex III).

In general, financial costs of highly concessional loans are likely to be smaller over the long run, in spite of the risks inherent to foreign currency borrowing. Nevertheless, governments may opt to have some recourse to domestic market-based borrowing in order to help mobilize domestic savings and develop domestic financial markets. Under all circumstances, the long-term sustainability of domestic and external debt is the most binding factor to be considered.

Annex I. The Financial Choice between External and Domestic Borrowing

In order to illustrate the theoretical construct presented in the main text, we develop a numerical example using the following typical (concessional) foreign loan terms:

- $r^* = 0.5$ percent;
 - $A = 1000$;
 - $A^* = 500$;
 - $e_0 = 2$;
 - $\rho = 5$ percent;
 - $t_1 = 5$ year;
 - $t_2 = 10$ years; and
 - $T = 30$ years.
- Grace period for foreign loan = 10 years.
 The repayment profile for both loans is linear.

We calibrate the model given in (8) to estimate the value of r that obtains an equivalence between foreign and domestic rates. We present two hypothetical cases (see Table 1 below), solving for r in each case (for a graphical illustration of the same, see Figures 1–2 below). In the first case, we assume that the probability of a devaluation is 50 percent and we vary its magnitude. In the second case, we assume a 100 percent devaluation (in domestic currency terms) and vary the probabilities of devaluation.

Table 1. Financial Equivalence in NPV between Domestic and Foreign Borrowing
 (In percent)

Case 1: Changing the devaluation rate						
<i>Probability of devaluation</i>	50					
Devaluation rate	25	50	75	100	150	200
Domestic interest rate ¹	-6.6	-5.4	-4.1	-2.8	-0.3	2.2
Case 2: Changing the probability of devaluation						
<i>Devaluation rate²</i>	100					
Probability of devaluation	10	20	50	75	100	
Domestic interest rate ¹	-6.9	-5.9	-2.8	-0.3	2.2	

¹ Interest rate to be applied in order for domestic debt to yield an equivalent NPV to that of foreign debt, *ceteris paribus*.

² In domestic currency terms.

Figure 1. Devaluation Rates and Domestic Interest Rates

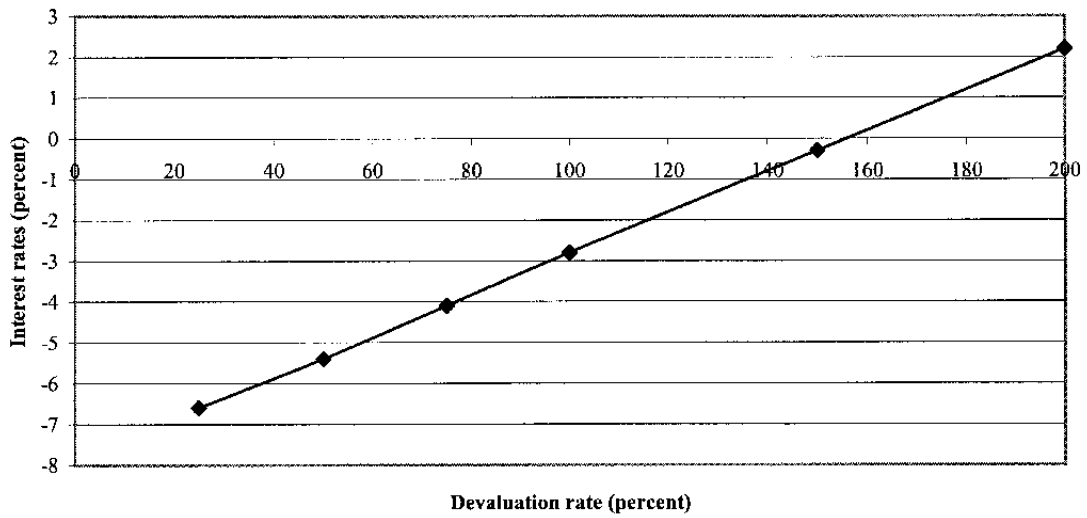
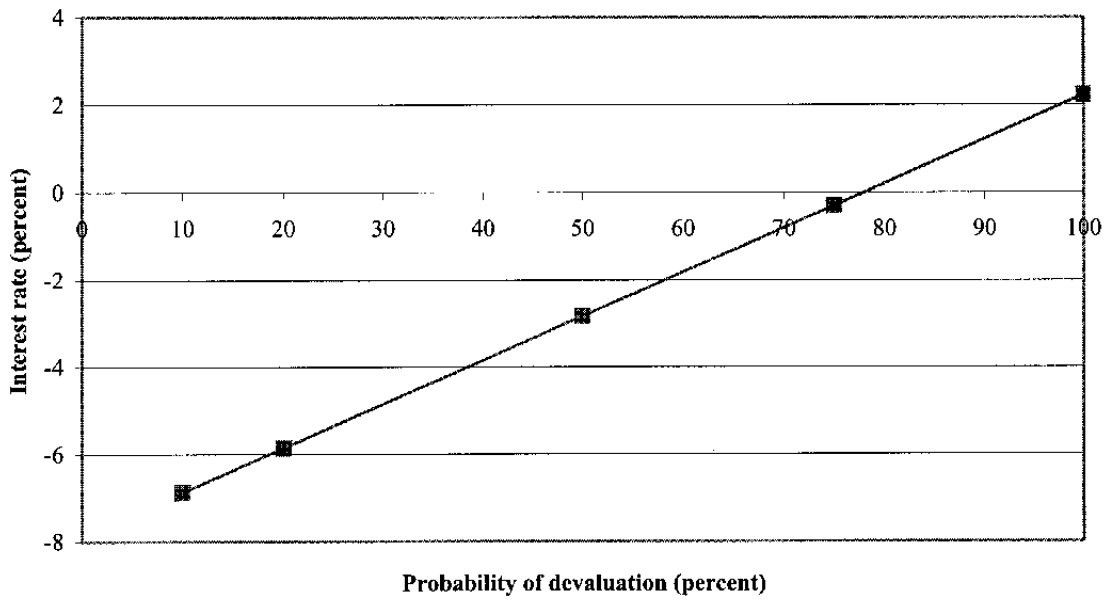


Figure 2. Probability of Devaluation and Domestic Interest Rates



The following conclusions can be derived from the above simulation exercise. First, we confirm the linear relationship between the optimal domestic interest rate and the other parameters and variables. Second, it is highly unlikely that the financial cost of domestic debt (in NPV terms) will be lower than that of a highly concessional foreign loan. In the example chosen, for a probability of devaluation of 50 percent, only a devaluation of 200 percent entails a domestic interest rate of 2.2 percent in order to have a cost equivalence between the two types of borrowing. Finally, there is a similarity in the results when either d or q are held constant.

The basic results presented here are subject to the following caveats. The discount rate in both cases is the same. First, this implicitly assumed that the domestic inflation rate is similar to the external one. Second the risk default risk premium is assumed to be the same in both cases. The first assumption is probably a reasonable one for CFA countries which have low inflation rates and thus cannot inflate away their domestic debt.

Annex II. Impact on Debt Sustainability

An analysis of debt sustainability must take into account not only the level of the deficit, but also the way it is financed. Several approaches have been used to assess the sustainability of public debt. The most common approach starts from the simple premise that high fiscal deficits eventually lead to an unsustainable level of debt. Therefore, sustainable debt requires a fiscal policy that results in a stable debt ratio.

The budget deficit (D) is defined as the public sector's expenditure in excess of its revenue:

$$D = (G_{ni} - R) + i = D_{pri} + i \quad (8)$$

where:

G_{ni} = primary expenditure (excluding interest on the debt);

R = revenue;

i = interest on the debt; and

D_{pri} = primary deficit.

The primary deficit and interest due on debt can be financed either by contracting new debt or by tapping alternative sources of finance such as privatization receipts (divestiture of assets) or the gains from seigniorage (generated by monetary creation).²⁹ If the overall deficit (including interest) is greater than the nondebt-related financing sources, the government must issue new debt (in addition to any amount needed to refinance existing debt). Everything else equal, interest on the public debt will increase in line with the volume of debt outstanding, thereby widening the budget deficit and requiring further issuance of debt. Moreover, the government will likely need to offer higher interest rates to encourage savers to hold an increasing volume of public debt. At some point, interest on the existing debt and the budget deficit itself could be such that it becomes impossible to finance the deficit by government borrowing.³⁰

The dynamics of indebtedness may be illustrated by the following relation (see Fischer and Easterly, 1990):

$$\Delta pd = (d_{pri} - nd) + (r - g)pd \quad (9)$$

²⁹ Net gains from seigniorage are normally provided by the central bank to the government in the form of dividends. In some analytical frameworks, the government and the central bank are consolidated, in which case the disposition of international reserves is also a way to cover the budget deficit.

³⁰ Ultimately, the debt buildup has "snowballing" effects, whereby financial costs continually increase the budget deficit, and hence debt-servicing costs themselves.

where:

pd = ratio of the public debt to GDP;

d_{pri} = share of the primary deficit (D_{pri}) in GDP;

nd = nondebt-related sources of financing as a share of GDP;

r = real interest rate; and

g = growth rate of GDP in real terms.

As long as the primary deficit exceeds the sum of receipts and other nondebt-related financing, and as long as the real interest rate exceeds the rate of growth of the economy, the ratio of debt to GDP will continue increasing to an unsustainable level. Public debt may be deemed sustainable in the medium and long term if the ratio of the debt³¹ to GDP does not tend to increase continually. While there is no absolute criterion for establishing the maximum tolerable level for this ratio, levels above 80 percent of GDP are likely to result in serious debt-servicing difficulty, above all if domestic saving is weak and there is little demand for government bonds.³²

The choice of the method of financing is also a function of the impact on sustainability of the debt (whether external or domestic), which will depend on the various factors discussed above and on the country's debt strategy. Given the interdependence of the level of the budget deficit and the way it is financed, financial costs also establish an opportunity cost of expenditure. Thus, at the margin, debt sustainability analysis should induce a reassessment of the opportunity of government expenditure and of the level of taxation.

³¹ From an analytical point of view, the net present value (NPV) of the debt is the key indicator, because it represents the "real" cost of the debt, especially if a substantial portion of the debt is on concessional terms.

³² In the CEMAC and WAEMU surveillance criteria, the ceiling for the public debt to GDP ratio is 70 percent. For European Union countries, according to the Maastricht convergence criteria, the ceiling is 60 percent. In the specific case of external debt, the sustainability thresholds under the enhanced initiative for Heavily Indebted Poor Countries (HIPC Initiative) are 150 percent for the NPV of the debt/exports ratio and 250 percent for the NPV of the debt/government revenue ratio (see IMF/WB, 2001c).

Annex III. General Recommendations on Debt Management in Low-Income Countries

Recent literature on debt management has underscored the importance of debt management, quite apart from overall fiscal stability. From this literature, the following recommendations can be made. They are grouped together under five headings: (i) the coordination of monetary and fiscal policies; (ii) definition of the respective roles of different debt management institutions; (iii) development of a debt management strategy; (iv) development of a risk management framework; and (v) development of a government bonds market.

A. Coordination Between Monetary and Fiscal Policy

The importance of effective coordination of monetary and fiscal policy has been noted above. To ensure such coordination, debt managers, the central bank and the ministry of finance, need to agree on debt management objectives, taking into account any interactions with fiscal and monetary policy. In particular, the debt managers should inform budget administrators explicitly of the costs and risks involved with different forms of financing. The development of debt ceilings and sound risk management practices should thus be encouraged.

It is essential to separate debt management functions from monetary policy formulation. In most countries in the CFA franc zone, there exists a *de jure* and *de facto* separation between the institutions, but that is not always the case in other developing countries, in which the central bank tends to be involved in public debt management. Under such circumstances, it is important to distinguish precisely the roles and objectives of debt management from those of monetary policy, in order to limit the scope for conflicts. Clearly, the central bank must not construe the objective of minimizing the cost of government indebtedness as a mandate for lowering interest rates.

B. Respective Roles in Debt Management

Several institutional arrangements are possible for debt management. This function may be performed by a department in the ministry of finance or, as in many sub-Saharan countries, by an independent body (an autonomous debt management agency). Under certain circumstances, if there are capacity constraints or limited financial means, the central bank may also play this part. The debt management agency is responsible for daily debt-related operations (documentation, recording of loan agreements, etc.), servicing the debt, and running the bonds market (marketing, rules and regulations, etc.).

The debt management authority needs adequate procedures to publish debt-related information, such as debt stocks and flows. In addition, given the volumes of funds handled through this body, it is important that its activities be audited annually by an independent firm. (Likewise, the central bank should announce monetary policy objectives and clearly specify the instruments to be used, after taking into account public debt flow projections.)

Debt strategy

Devising a debt management strategy is an integral part of macroeconomic policy formulation.³³ Such a strategy includes above all, on the one hand, an assessment of the risks associated with the structure of the debt and, on the other hand, an analysis of the structure of the debt with a view to minimizing debt servicing costs. Risk identification and management presupposes sound knowledge of government revenue and expenditure flows. The key elements of a sound debt management strategy are reviewed below.

Minimizing risks

Generally, it is better to minimize financial risks even if the interest rate cost appears to be higher. Thus, it is preferable to minimize dependence on very short-term loans at variable or indexed rates, *a fortiori* if there is an exchange risk. Naturally, this approach requires an *ex ante* evaluation of the various alternatives, to ensure that the risks are correctly gauged.

Accounting for guaranteed debt

The government or the debt management agency needs to have complete accounting records not only of the public debt as such, but also of the guarantees provided to public enterprises and local governments. This will give an accurate idea of the government's commitments, including those that are contingent.

Using market instruments

There are numerous long-term advantages attached to development of a financial market, in particular a reduction in borrowing costs and greater liquidity. As a market develops, the number of participants and competition increase. Economies of scale and network effects reduce the cost (interest, publicity, etc.) to the issuer of bonds. To ensure rapid and sustained financial development, it is necessary to: (i) restrict, or even eliminate, recourse to the central bank, especially for loans on concessional terms; (ii) phase out all forced borrowing, in particular through accumulation of arrears or the obligation imposed on banks to hold government securities.

Acquiring modern management tools and developing skills

Almost all countries in the CFA franc zone have computerized debt management tools (such as the Debt Recording and Management System of the Commonwealth Secretariat—CS-DRMS—or UNCTAD's Debt Management and Financial Analysis System—DMFAS).³⁴ These tools are very powerful, not only for day-to-day debt management, but also—a point

³³ For further details on this subject, see IMF (2001a) and Bangura, Kitabire, and Powell (2000).

³⁴ See IMF and World Bank (forthcoming) "External Debt Management in Heavily Indebted Poor Countries (HIPC)".

often neglected—for sensitivity analysis or for producing certain key ratios (see Bangura, Kitabire, and Powell, 2000).

Sound debt management requires recruiting and maintaining a highly qualified and motivated staff. The potential gain a country can derive from sound debt management exceeds by far the cost of the management body's operations. The following areas of in-depth expertise are required if the debt is to be properly managed: (i) practical knowledge of debt instruments; (ii) a thorough understanding of debt restructuring (especially under the Paris Club and the London Club); (iii) sound interpretation of loan agreements; and (iv) ability to prepare debt sustainability analyses. Debt Relief International (DRI) contributes extensively to preparation of training courses and development of local expertise.

Risk management framework

The trade-off between cost and risk in debt management is a complex issue. This should be handled in the context of a management framework that takes into account both the objective of minimizing financial costs and the risk of financial crisis, were the government not to honor its commitments. Risk analysis entails conducting sensitivity tests of the debt portfolio. These tests are designed to gauge the potential effects on the debt (and, more generally, on the macroeconomic situation) of various economic and financial shocks. At the very least, each country should regularly update the usual debt indicators in the context of medium- or long-term scenarios.

Developing government securities markets

Introducing a national or regional public securities market could furnish the government with an additional financing tool and thereby limit recourse to bank financing or foreign borrowing. As macroeconomic conditions improve gradually and the overall debt burden becomes manageable thanks to debt relief under the HIPC initiative, many sub-Saharan African countries should be in a position to launch a market for government securities. Prerequisites include (i) stable and credible macroeconomic policies; (ii) a loanable funds market generally free of distortions, such as those caused by government arrears and forced borrowing; (iii) an appropriate regulatory framework; (iv) an adequate market infrastructure, especially for carrying out transactions; and (v) the establishment of a primary market and announcement of a schedule for issues.³⁵

In practice, the ability of sub-Saharan African countries to choose between domestic and external borrowing is likely to remain limited for some time. For the most part, financing is pre-determined by the availability of grants and highly concessionary loans. In the short run, most countries in Central and West Africa will need to adopt a gradual approach to raise nonbank domestic financing. Thus, governments are in the process of developing markets for

³⁵ The strategic factors for development of a bond market are described in detail in handbook written jointly by the IMF and the World Bank: *Developing Government Bond Markets—A Handbook*.

short-term treasury bill market in order to cover financing requirements associated with seasonal fluctuations and unforeseen contingencies. In time, as confidence builds up and risk premiums decline, governments will be able to issue bills and bonds with longer maturities (6- then 9- or 12-month).

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