

WORLD BANK AND INTERNATIONAL  
MONETARY FUND

**Applying the Debt Sustainability Framework for Low-Income Countries  
Post Debt Relief**

Prepared by the Staffs of the World Bank and IMF

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**ABBREVIATIONS AND ACRONYMS**

CAS	Country Assistance Strategy
CG	Consultative Group
CIRR	Commercial Interest Reference Rate
CPIA	Country Policy and Institutional Assessment
DAC	Development Assistance Committee of the OECD
DRS	Debtor Reporting System
DSA	Debt Sustainability Analysis
DSF	Debt Sustainability Framework
ECA	Export Credit Agency
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
HIPC	Heavily Indebted Poor Countries
ICOR	Incremental Capital-Output Ratio
IFS	International Finance Statistics
JEDH	Joint External Debt Hub
LIC	Low-Income Country
MDG	Millennium Development Goal
MDRI	Multilateral Debt Relief Initiative
MTDS	Medium-Term Debt Strategy
NPV	Net Present Value
ODA	Official Development Assistance
PEFA	Public Expenditure and Financial Accountability
PRGF	Poverty Reduction and Growth Facility
PRS	Poverty Reduction Strategy
PSI	Policy Support Instrument
TA	Technical Assistance
TFFS	Inter-Agency Task Force on Finance Statistics
TFP	Total Factor Productivity

## EXECUTIVE SUMMARY

In April 2006, the Executive Boards of the Bank and the Fund reviewed the debt sustainability framework (DSF) for low-income countries (LICs) and the implications of the multilateral debt relief initiative (MDRI). Directors thought that the DSF was broadly appropriate and that no major changes were warranted, but saw scope for additional guidance on the application of the framework in a context where the apparent borrowing space created by debt relief raises new challenges in terms of policy advice. Most Directors supported a case-by-case approach for assessing the appropriate pace of debt accumulation in countries with debt below the DSF thresholds, but requested the development of specific recommendations on the implementation of such a case-by-case approach.

Debt relief has led to the perception of a large borrowing space in some LICs. Simultaneously, the emergence of new creditors and the rising importance of domestic debt have led to an expansion in the volume and sources of funds available to these countries. These developments, while welcome, raise new risks. To address them, this paper proposes to improve the *rigor and quality* of debt sustainability analyses (DSAs) as well as their *effectiveness*.

### Improving Further the Quality and Rigor of DSAs

*To ensure that the case-by-case approach provides a rigorous and consistent treatment of debt accumulation issues across countries* while still taking into account country-specific circumstances, staffs propose:

- Guidance for designing more solid baseline macroeconomic and growth scenarios, taking into account the country's policy and institutional setting, the external environment, and the likelihood of external shocks—and in this context assessing the impact of increased borrowing to finance additional public expenditures.
- A reinforcement of the precautionary features already built into the DSF.
- A detailed review of macroeconomic assumptions (particularly relating to economic growth and borrowing) and policies when the pace of borrowing exceeds a certain threshold.

A key issue is whether a *minimum level of concessionality* remains appropriate for countries that have benefited from debt relief. Staffs argue that concessional flows remain the most appropriate source of external finance for LICs. However, consideration could be given—on a case-by-case basis—to nonconcessional finance depending on: (i) the impact on debt sustainability; (ii) the availability of concessional resources; and (iii) the overall strength of a debtor country's policies and institutions, as well as of the quality of the investment to be financed and of the overall public expenditure program.

The paper also explores two areas where the DSF could be enhanced: the rising importance of private external creditors and domestic debt.

- *Private external creditors'* interest in LICs' sovereign debt instruments, including domestic debt instruments, has increased. This could provide opportunities, but may also give rise to new vulnerabilities that need to be monitored carefully. In such cases, staffs suggest that additional vulnerability analyses focusing on short-term debt-related vulnerabilities could be used on a more systematic basis in conjunction with the DSF.
- *Domestic debt* clearly matters for the risk of debt distress. The integration of domestic debt into the DSF poses conceptual challenges, because domestic debt is different from external debt in several important dimensions. While there appears to be no simple way to incorporate domestic debt into the existing thresholds, staffs see scope, and make specific suggestions, for integrating domestic debt more systematically into the assessment of debt sustainability and the risk of external debt distress.

### **Towards More Effective DSAs: Fostering Use by Borrowers and Creditors**

*The effectiveness of the DSF ultimately depends on its broader use by debtors and creditors*, including as a device for better communication and coordination between creditors and borrowers, and among creditors. The use of the DSF is expanding but is still limited. Further outreach by the staffs to all official creditors is needed, in particular towards emerging creditors. In addition, the link between DSA results, Bank and Fund policy advice, and, where relevant, program conditionality, should be further strengthened.

The paper also suggests how the DSF combined with capacity building in public debt management can help countries develop their own *medium-term debt strategy* (MTDS) in support of their development objectives, including the Millennium Development Goals, while containing risks of debt distress and macroeconomic vulnerability. The MTDS can also help in guiding creditors' decisions.

Finally, the Boards asked staffs to consider *possible refinements to the existing scale of debt distress risk ratings*, including subdividing the moderate risk category. Staffs believe that there is no need for revising the existing debt distress categories at this point, particularly because the incidence of moderate risk ratings has declined owing to MDRI relief and more conservative growth projections. Staffs suggest, however, using a three-year moving average Country Policy and Institutional Assessment (CPIA) score to determine the appropriate indicative threshold for debt distress, and thereby avoid undue volatility in the IDA grant share for a country.

## I. INTRODUCTION<sup>1</sup>

1. **In April 2006, the Executive Boards of the Fund and the Bank reviewed the debt sustainability framework (DSF) for low-income countries (LICs), which had been endorsed by the Boards in April 2005, as well as the implications of the multilateral debt relief initiative (MDRI).**<sup>2,3</sup> Directors thought that the DSF was broadly appropriate and that no major changes were warranted, but asked for further consideration of three issues: (i) the scope for using the framework to assess the appropriate level of new borrowing in LICs, especially from nonconcessional creditors; (ii) further integration of domestic debt in DSAs; and (iii) refinement of the existing scale of risk categories for debt distress ratings.

2. **The apparent borrowing space created by debt relief—and the extent to which it should be filled—poses new policy challenges.** Debt relief frees up resources that LICs may wish to use to make faster progress toward achieving the Millennium Development Goals (MDGs). Meanwhile, the emergence of potential new lenders, both public and private, presents new opportunities. Such lending, however, if in excessive volumes or on unfavorable terms, could contribute to the re-emergence of debt vulnerabilities in these countries and create risks to development. The increasing tendency of some governments to borrow domestically—and the impact on overall debt risks—adds to the complexity of assessing these risks. The ultimate objective of the DSF is to help countries themselves identify debt-related vulnerabilities so that they can be adequately taken into account in policy formulation.

3. **During the April 2006 Board discussions, most Directors supported a case-by-case approach to assessing the pace of debt accumulation for countries with debt below the DSF thresholds.** They agreed that a rules-based approach was not desirable, notably because it was not possible to find a rule with adequate empirical foundations which would apply across countries with different circumstances. An arbitrary rule constraining borrowing can entail costs in terms of missed investment and growth opportunities. It can also undermine the credibility and acceptability of the DSF and reduce the effectiveness of Bank

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<sup>1</sup> This paper was prepared by Patricia Alonso-Gamo, Birgir Arnason, Bergljot Barkbu, Christian Beddies, Gabriel Di Bella, Andy Berg, Christina Daseking, Martine Guerguil, Mumtaz Hussain, Samir Jahjah, Hervé Joly, Carlos Leite, Adnan Mazarei, Mauro Mecagni, Perry Perone, Bjoern Rother, Gabriel Sterne, Ben Umansky, Felipe Zanna (IMF) and Frederico Gil Sander, Aart Kraay, Vikram Nehru, Gaobo Pang, and Mark Roland Thomas (World Bank).

<sup>2</sup> “DSF” refers to the new framework for joint debt sustainability analyses in LICs. “DSA” refers to an analysis of debt sustainability in a particular country. At times, the DSAs performed under the DSF are referred to as “low-income country DSAs” or “joint DSAs,” in order to differentiate them from the debt sustainability analyses conducted prior to the introduction of the framework.

<sup>3</sup> See [Review of Low-Income Country Debt Sustainability Framework and Implications of the Multilateral Debt Relief Initiative](#). The Bank’s Executive Board reviewed the DSF on April 18, 2006. For additional information on the DSF, see the following joint Fund-World Bank staff papers: [Review of Low-Income Country Debt Sustainability Framework and Implications of the MDRI](#), [Operational Framework for Debt Sustainability Assessments in Low-Income Countries—Further Considerations](#), [Debt Sustainability in Low-Income Countries—Proposal for an Operational Framework and Policy Implications](#), and [Debt Sustainability in Low-Income Countries—Further Considerations on an Operational Framework and Policy Implications](#).

and Fund advice in this area. On that basis, Directors requested the development of specific recommendations on the implementation of a case-by-case approach.

4. **In this paper, staffs propose practical guidelines that have two main objectives.** The first is to enhance the *rigor and quality* of DSAs by strengthening the application of the DSF itself, reinforcing its built-in precautionary aspects, and providing clearer guidance on the design of critical aspects of underlying growth and macroeconomic scenarios. The aim is to ensure that existing and potential debt-related vulnerabilities are identified and assessed in a thorough, disciplined, and consistent manner across countries, while still taking into account individual circumstances. The second main objective is to increase the *effectiveness* of the DSF through its more active use by a broader group of debtors and creditors. Incorporating debt sustainability considerations in an open and coordinated manner in borrowing and lending decisions could go a long way to prevent the emergence of new debt difficulties.

5. **The structure of this paper is as follows.** Section II describes in more detail the new challenges faced by LICs, particularly those that have benefited from debt relief, in determining an appropriate pace of borrowing and debt accumulation. Section III provides guidelines for a more rigorous application of the DSF in this new environment, and its implications for the appropriate pace of borrowing, degree of concessionality, and treatment of private capital inflows and domestic debt. Section IV discusses the scope for making the DSF an effective tool to inform medium-term borrowing and lending strategies and foster information exchange and coordination between debtors and creditors. Section V suggests refinements to debt-distress risk ratings. Section VI discusses resource implications, and Section VII summarizes key issues for discussion.

## II. THE DSF AND THE POST-MDRI CHALLENGES

6. **The financial situation of many LICs has recently improved substantially thanks to debt relief under the HIPC Initiative and MDRI.** Debt relief has reduced the debt burden of some LICs to levels that are now well below their policy-dependent thresholds under the DSF. With low debt ratios and high export prices, many LICs may wish to accelerate borrowing to address their development needs.

7. **At the same time, the universe of potential creditors has expanded, with export credit agencies (ECAs) and commercial banks in particular playing an increasingly active role.** Lower debt levels, strengthened macroeconomic fundamentals, and improved prospects in LICs have increased their attractiveness for ECAs. In addition to the ECAs of developed countries, emerging economies are stepping up their lending to LICs (Box 1).

### Box 1: The Growing Importance of Official Emerging Creditors in Financing to LICs

**Over recent years, a number of emerging creditors have increased their official bilateral aid flows to LICs.** According to debtor data, the share of these creditors in total official assistance to LICs is still small (around 10 percent) but is increasing steadily. In several cases, official loans from a single emerging creditor represent a large share of the recipient's GDP, but in most cases are still well below the share from traditional creditors. (The table below shows the countries with the highest debt outstanding and disbursed from emerging creditors in percent of GDP. The data is derived from IDA's Debtor Reporting System and, as explained in paragraph 64 below, may be incomplete or uneven. In some cases, large claims may correspond to the existence of protracted arrears and accrued late interest, and not necessarily recent disbursements.)

**Emerging creditors are numerous.** The six largest non-Paris Club bilateral creditors to LICs are Brazil, China, India, Korea, Kuwait, and Saudi Arabia. (Some of them have provided aid for many years, and therefore "emerging creditors" is used for them as a shorthand.) Available data indicate that China has become, by a large margin, the largest creditor in this group, with claims of US\$5 billion as of end-2004 (compared with US\$2.5 billion in 1994). Kuwait, the second-largest creditor in this group, had claims of US\$2.5 billion. Although precise data are not yet available, there is evidence that lending by emerging creditors, and particularly China, has increased very sharply in 2005 and 2006.

**The terms of emerging creditors' credits to LICs are not well known.** Many have non-traditional financial structures (including implicit or explicit collateralization, foreign exchange clauses, and variable fees) that hamper the assessment of their impact on debt sustainability. Given the size of these loans, more extensive information from creditors on their modalities and the terms of their lending to LICs would enhance the quality of DSAs.

Debt Outstanding and Disbursed from Non-DAC and DAC Creditors in Selected LICs  
(averages over 2000-04) 1/

Selected low-income countries	Main emerging (non-DAC) creditor	Debt outstanding and disbursed (in percent of recipient's GDP)			Share in total official bilateral debt (in percent)	
		from the main emerging creditor	from all non- DAC creditors	from DAC creditors	of the main emerging creditor	of all non- DAC creditors
Sao Tome & Principe	China	48	160	88	19	65
Mauritania	Kuwait	13	47	19	19	71
Mauritania	Saudi Arabia	11	47	19	16	71
Eritrea	Kuwait	9	20	7	33	73
Belize	China	9	29	21	18	58
Comoros	Kuwait	9	17	1	48	94
Gambia	China	9	22	5	32	81
Angola	Brazil	8	23	38	13	38
Eritrea	Saudi Arabia	8	20	7	29	74
Solomon Islands	Taiwan Province of China	8	11	4	53	76
Sudan	Saudi Arabia	8	30	24	14	56
Comoros	Saudi Arabia	7	17	1	38	94
Lesotho	South Africa	6	8	7	38	53
Guinea-Bissau	Kuwait	5	36	69	5	34
Guinea-Bissau	Brazil	4	36	69	4	34
Congo, Republic	Brazil	3	19	72	4	21
Seychelles	South Africa	3	12	19	10	39
Mauritania	Brazil	3	47	19	4	71
Swaziland	South Africa	2	3	8	19	28
Uzbekistan	South Korea	2	4	28	6	12
Mongolia	South Korea	2	6	29	5	17
Ghana	South Korea	1	3	16	6	16

Source : World Bank Debtor Reporting System

1/ 5-year averages are used to smooth-out GDP fluctuations.

With abundant global liquidity and compressed spreads in emerging markets, private external creditors have also extended their activities in LICs to a number of Sub-Saharan African countries.<sup>4</sup>

**8. This expansion in the volume and sources of funds available to LICs, while welcome, carries a number of risks:**

- The terms of the new financing may be nonconcessional, or less concessional than official development finance. This could burden poor countries with market interest rates and short maturities they cannot afford and raise concerns about creditor harmonization.
- New loans from a single official creditor may sometimes represent a large share of the recipient's GDP. Financing, by its sheer volume, may raise sustainability concerns.
- Given the relatively short maturities involved, foreign portfolio investment in public domestic debt instruments carries the risk of abrupt reversals in market sentiment that could complicate exchange rate and monetary management and raise balance sheet vulnerabilities.

**9. Adding to the risk of debt distress is the substantial and rising share of domestic debt in some LICs** (Appendix 1). Data for a sample of 66 PRGF-eligible countries indicate that, over 1995-2004, domestic debt averaged about 19 percent of GDP. The somewhat lower median (about 15 percent of GDP) indicates the presence of a number of outliers having high levels of domestic debt, in excess of 50 percent of GDP. Domestic debt carries vulnerabilities of its own, as interest rates tend to be much higher, and maturities much shorter, than those on external debt.<sup>5</sup>

**10. As Directors have recognized, the DSF is well suited to assess and monitor debt burdens and the risk of debt distress.** The framework offers a number of precautionary features that help detect current or emerging vulnerabilities. Most notably, the DSF is:

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<sup>4</sup> For instance, there has been increased foreign investor interest, including in domestic public debt, in Cameroon, Ghana, Kenya, Malawi, Nigeria, Tanzania, Uganda, and Zambia. Investment using other financial instruments, including public-private partnerships, has also become increasingly common. Recent investment has been particularly strong in Zambia, where the share of government securities held by foreigners increased from a negligible amount in April 2005, the time of the HIPC completion point, to over 20 percent of the total stock by April 2006. In addition to financial institutions, bondholders may emerge as a creditor group to LICs.

<sup>5</sup> While domestic debt carries specific risks, it also has positive features. In addition to raising funds for the government, such borrowing can have ancillary benefits, such as fostering financial sector development, and lead to a more competitive setting of interest rates, including through increased transparency in treasury auctions and lower risk premia on government debt.

- *Proactive and forward-looking*: rapid debt accumulation will lead to breaches of the indicative debt burden thresholds down the road, with direct implications for current assessments;
- *Self-regulating and country-specific*: projections are scrutinized through stress tests that are automatically calibrated to historical economic performance, including GDP growth, export growth, foreign direct investment (FDI), financing terms, and other factors relevant for debt sustainability;
- *Repeated*: the DSA is updated every year, allowing any incipient problems deriving from the pace of new borrowing or optimistic economic forecasts to be addressed as they arise; and
- *Transparent*: DSAs must explain all the main assumptions underlying the projections (and hence reasons for optimism where this is the case) and how these drive projected debt ratios and thus risk ratings, giving the opportunity to modulate these assumptions over time as circumstances dictate.

An assessment of debt trends under stylized baseline lending scenarios (Appendix 2) illustrates how the DSF effectively identifies the risk of too rapid debt buildup under current policies.

**11. However, the challenges raised by debt relief and other recent developments warrant a strengthening of application of the DSF to ensure that its potential is fully exploited.** There are three reasons for this:

- The new borrowing room created by debt relief highlights important analytical issues that have not been resolved, such as the impact of increased debt-financed public expenditures on growth;
- New types of lenders mean new opportunities but also new risks, such as a rapid debt buildup, a return to the levels of debt distress prevailing prior to HIPC Initiative and MDRI relief, and rising rollover and liquidity risks; and
- Only a small number of creditors (the Bank, the Fund, and certain multilateral and bilateral creditors) use the DSF actively. Other creditors and most debtors have little familiarity so far with the instrument and little incentive to use it now, limiting its overall effectiveness. In the absence of coordinated action by creditors and debtors, the benefits from debt relief could be undone.

The following section attempts to respond to the first two of these concerns. It proposes to improve the *rigor and quality* of assessments by strengthening the precautionary aspects of the DSF, as well as the guidance to staff on the conduct of DSAs and the design of critical elements of growth and macroeconomic scenarios. The subsequent section suggests ways to increase the *effectiveness* of the DSF through broadening its use among debtors and creditors.

### III. FURTHER IMPROVING THE QUALITY AND RIGOR OF DSAs

12. **There is scope to strengthen the application of the DSF to ensure that it captures the risks raised by the new financing environment for LICs**—particularly those related to new debt accumulation, concessionality, and the treatment of private capital inflows and domestic debt.

#### A. Assessing the Scope for Debt Accumulation

13. **This section provides practical recommendations on how to assess the scope for debt accumulation on a case-by-case basis.** The approach relies on: (i) guidance in the design of more solid baseline growth and macroeconomic scenarios, specifically on the critical relationship between public investment and growth;<sup>6</sup> (ii) a more rigorous application of the precautionary features already built into the DSF; and (iii) a detailed review of scenarios that involve rapid borrowing, or which avoid breaching the debt burden thresholds in large part because of projected growth accelerations.

#### Strengthened Guidance on the Impact of Debt-Financed Investment on Growth

14. **A critical analytic challenge in the design of realistic growth and macroeconomic scenarios arises with debt-financed growth-oriented investment,** which is generally made with the expectation that it will generate the growth, export proceeds, and fiscal revenues needed to repay the additional borrowing. Thus the baseline and alternative scenarios in the DSF necessarily incorporate a view about the effects of public investment on both GDP and export growth. If investment is scaled up, a scenario based on historical experience may under-estimate future economic prospects. Correctly incorporating the impact of increased investment in the baseline scenario is then critical. Too much optimism about the growth effects of public investment can lead to over borrowing and a return to debt distress, even if these investments are financed on concessional terms, as in the past. On the other hand, too much pessimism can lead to missed opportunities to use external resources to promote growth, reduce poverty, and achieve the MDGs.

15. **The relationship between public investment and growth is hard to generalize, in part because major determinants of growth are connected to the quality of policies and of institutions, the quality of decision-making, and the management of exogenous shocks.**<sup>7</sup> At the operational level, Bank and Fund staffs are gaining experience in developing scaled-up aid scenarios using different methodologies. Empirical studies, as well as practical experience, suggest that the relationship between public investment and growth is complex, cannot be reduced to a simple rule of thumb, and ultimately needs to be investigated country by country (Appendix 3). A DSA itself is clearly not the prime locus for this analysis.

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<sup>6</sup> This guidance is not specific to the growth and macroeconomic scenarios used in DSAs and should be applied in other contexts as well.

<sup>7</sup> See Gupta et al (2006), Bourguignon and Sundberg (2006), and [Public Investment and Fiscal Policy—Lessons from the Pilot Country Studies](#).

However, the assumptions that feed into DSAs will influence the projected path of debt-burden indicators and thus the reliability of the risk assessment.

16. **Careful country-specific analysis is the critical first step in assessing the likely impact of public investment on growth and hence debt sustainability.** Such analysis involves examining a number of complex channels through which public investment may raise growth, notably: the expected rates of return to public investment, including the potential for crowding in (and crowding out) private investment; and the alleviation of structural and macroeconomic absorptive capacity constraints (Box 2). In addition, an assessment of the assumed aggregate effects of increased public investment, including any assumed growth in total factor productivity (TFP), is an important check on the plausibility of the assumptions underlying a DSA<sup>8</sup> The value of combining microeconomic and macroeconomic approaches underscores the need for both Bank and Fund staff to cooperate in this analysis.

17. **Box 3 suggests a list of indicators that should be taken into account, subject to availability and reliability of data, when trying to assess the potential impact of public investment on growth.** Their applicability will depend on the circumstances of each case, and other indicators may be important in some countries. The box does not provide quantitative benchmarks on the grounds that false precision will provide only false comfort.<sup>9</sup> Rather, the relevant measures should be examined relative to country and regional experience, in order to reach an overall assessment.<sup>10</sup>

18. **Because of the difficulties of establishing a reliable relationship between public investment and growth, it is important to use “reality checks” to scrutinize baseline projections.** As discussed above, empirical research so far has not brought to light any simple and stable relationship between public investment and growth. Nevertheless, some conclusions can be drawn to guide and to scrutinize baseline projections, including, in particular, the following:

- *Caution about prolonged growth accelerations that make debt-led scaling up feasible.* Even with improved policies, it is difficult to forecast persistent growth accelerations with confidence. Sustained high levels of growth tend to be difficult to maintain, and even more difficult to improve upon. Such a pattern argues against very optimistic projections, particularly when these call for a substantial deviation from the historical

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<sup>8</sup> Studies on the sources of growth, which are already conducted regularly on a number of countries, are useful in this regard.

<sup>9</sup> The use of the incremental capital-output ratio (ICOR) to assess the investment “required” to generate a particular growth objective is a useful cautionary example of the dangerous attractions of convenient but uninformative benchmarks, as Easterly (2001) has convincingly shown.

<sup>10</sup> While country teams would be expected to base their analyses on these indicators, the latter would not be expected to be shown in all DSAs. These indicators could inform discussions in the review process and in DSA write ups, particularly when GDP growth is projected to increase significantly.

precedent. Relevant indicators from Box 3 that are substantially out of line with regional or other pertinent comparator groups would call for particular scrutiny.

**Box 2. Analyzing the Relationship  
Between Public Investment and Growth**

**There is evidence of potentially high rates of return for public investment made in the right environment.** Cost-benefit analyses carried out by World Bank staff suggest typical (ex post) rates of return on individual projects in a broad range of countries of the order of 15 percent globally. However, these estimates are averages across large numbers of countries and time periods and may not necessarily apply to particular country cases. Whether a particular public investment will bear similar fruit will depend on the quality of the particular investments, the overall economic environment (including susceptibility to shocks) and the institutional and policy framework. It is also important to consider the expected timeframe for the payoff of the expenditure. Some projects can be expected to lead to higher national income well within the 20-year time-frame of the DSF. Others may serve primarily to achieve other objectives. Public investment can also generate productivity spillovers, though the evidence is mixed.

**Improving structural absorptive capacity increases the productivity of both the public capital stock and new investment.** The link between public investment and growth depends on the skilled labor, managerial capacity, and other factors required to convert investment spending into productive capital. This underlines the importance of linking public investment to a well-designed and costed medium-term expenditure framework, in order to ensure the necessary complementary inputs, including those related to maintenance, throughout the life of the investment.

**In addition to structural factors, macroeconomic absorptive capacity constraints may affect the marginal productivity of additional investment.** These economy-wide interactions include the possibility of Dutch disease, crowding out, and crowding in. Dutch disease refers to the adverse effect on a country's tradable sector of large resource windfalls and the additional spending that these windfalls finance. The risk of Dutch disease may raise the stakes: if the associated investments do not pay off by increasing productivity in both the tradable and nontradable sectors, not only is aid wasted, but growth may suffer, too. However, the overall empirical evidence on Dutch disease is inconclusive and a case-by-case approach for assessing this risk is therefore necessary. Crowding out occurs when external financing is limited (whether by economic policy or by supply) and public investment uses scarce domestic savings that would have otherwise financed private investment. Crowding out is associated with domestically financed public investment and is not a concern for externally financed investment *per se*. But when it is reasonable to expect that reducing domestic debt would spur credit to the private sector, this may be a more productive use of external financing than scaled-up public investment. Crowding in refers to complementarities between public and private capital, which may cause public investment to increase economy-wide profitability and thus encourage private investment.

**Empirical evidence on the aggregate effect of all these factors, which act in different directions, is ambiguous.** While a number of studies find evidence that, on average, the net contribution of public investment to growth is positive, the robustness of most of these results is uncertain and the direction of causality remains unclear. In this context, historical growth rates, empirical evidence on TFP growth, and the results of analyses of the binding constraints on growth would all be important checks on the detailed assumptions underlying the scenario.

See Appendix 3 for a more detailed analysis and bibliographical references.

### Box 3: Indicators for Analysis of the Link Between Debt-Financed Investment and Growth

When available, the indicators listed below can help establish a link between public expenditure and growth, and ultimately define the scope for debt accumulation. Relevance and availability will vary by country. In general, a comparison with their evolution in the country's past and in relevant comparator groups would provide useful potential benchmarks.

#### Rates of Return

- Microeconomic studies on rates of return of projects
- Implementation lags/gaps for investment and recurrent budgets
- Estimates of stocks and shortfalls in public capital
- Composition of public expenditures in terms of growth impact

#### Structural Constraints

- Policy and institutional constraints as indicated by the CPIA, public governance indicators, doing business surveys, PEFA, other public expenditure management
- Level and growth rates of public investment
- Completion or implementation rate of public investment projects
- Skill shortages that can only be alleviated in the long run

#### Macroeconomic Constraints

- The cost of capital, as indicated through firm-level surveys and real interest rates
- Rate (or rate of growth) of private investment
- Excess reserves/lending capacity in banking system
- Various real exchange rate measures (unit labor costs, export market share)

#### Aggregate Trends

- Growth rate of per capita GDP
- Growth rate of TFP
- Results of “binding constraints to growth” analyses

- *Focus on overall return to aggregate public investment.* While project-specific cost-benefit analyses should play a critical role in the design of a public expenditure program, and results from such analyses are important inputs into a DSA, the DSF appropriately takes a more aggregate approach to assessing debt sustainability. The risks to debt sustainability do not generally depend on the value of one project proposed for debt financing. Ultimately, it is aggregate export proceeds, national income, and government revenue that need to be adequate to cover the aggregate debt service resulting from the entire portfolio of government expenditures—including recurrent expenditures.<sup>11</sup>

<sup>11</sup> Even ex post high rates of return on aggregate public investment are not a guarantee of debt sustainability if: (a) governments are unable to tax or charge the incremental income sufficiently; (b) countries are subject to negative shocks; (c) the real exchange rate depreciates, requiring additional domestic resources to be mobilized for the same debt-service payments stream; or (d) the marginal project does not earn foreign exchange, if the external constraint is binding.

- *Emphasis on policy reforms.* Recent research has shown that the quality of policies and institutions has a large influence on the ex post rate of return on public investment and thus on the rate of growth. More broadly, the policy and institutional environment can have a profound direct effect on private sector investment and productivity growth, which are critical for overall growth performance.
- *Caution about economic volatility and shocks.* In countries susceptible to negative growth shocks (for example, from terms of trade shifts or natural disasters), scenarios that do not incorporate their impact on expected growth for the entire forecast period are unlikely to be realistic.
- *The effects of scaling up depend on the nature of aid inflows.* Most notably, aid volatility and unreliability will hamper productive investment. Also, the extent of donor coordination could affect the quality of the aid program and its potential returns.

### Precautionary Aspects

19. **The uncertainty associated with the public expenditure-growth relationship may warrant an emphasis on the precautionary features built into the DSF.** Some of these aim to bring more discipline to the forecasts by detecting atypical elements in the baseline scenario. As a general rule, scenarios that require *sharp* shifts to fiscal policy, the investment rate, the financing mix, productivity growth, or other key policy variables deserve particular scrutiny and a convincing justification. *Large* shifts spread over longer periods also require justification.

20. **Historical scenarios could be used more actively to detect undue growth optimism.** DSAs include a comparison of the assumptions underlying the baseline scenario with historical trends, and show the evolution of debt indicators if those trends were maintained over the forecast horizon. Large differences between the baseline and historical scenarios should generally be avoided unless they can be backed by strong justifications.<sup>12</sup> In addition, DSAs should include a critical look at the realism of staffs' previous forecasts. In situations where the previous DSA proved too optimistic—particularly, if debt ratios are already high or rapidly rising—macroeconomic and growth assumptions should be subject to an extra degree of scrutiny, and may need to be revised downwards.

21. **When projected growth rates are higher than historical rates and borrowing plans appear ambitious, an additional precaution will be to include an alternative scenario exploring the impact of a more muted growth response.** The inclusion of this alternative “high-investment, low-growth-payoff” scenario should be mandatory for countries where large, foreign-financed investment is included in the baseline scenario and assumed to lead to a sizeable growth acceleration (such as, for example, those implying

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<sup>12</sup> Such justifications include, inter alia, a recent improvement in performance which is not fully reflected in the historical averages, a change in the political mandate which could result in future fiscal outcomes very different from historical outcomes, or the end of a period of unusually high volatility due to civil conflict.

growth rates that are about, or more than, one standard deviation above historical patterns). This alternative scenario should be explicitly taken into account in the assessment of the debt distress risk.

22. **When the “high-investment, low-growth-payoff” scenario breaches or approaches the DSF thresholds, the DSF will call for a robust justification of the growth dividend.** In some cases borrowing may be projected to be very rapid in the first few years of the scenario, and only a growth acceleration would keep the country from reaching excessive debt ratios, but it would be too late to scale back borrowing if the growth acceleration does not materialize. In such cases, it is essential that the DSA send the right signal to the borrower and lenders about any risks associated with the borrowing strategy. There is no room for a significant error on the growth impact. High-growth scenarios involving a significant turnaround in performance would be acceptable as baselines for DSAs only if supported by compelling evidence that the likelihood of the growth dividend emerging is very high, notably based on a detailed analysis along the lines suggested above.

23. **Special attention will be given to cases where the baseline scenario includes very large upfront borrowing.** Empirical work conducted by staffs for this paper (using the same data set and regression framework that was used to develop the DSF thresholds themselves) shows that countries in which debt has grown rapidly (as a share of the previous year’s GDP) are significantly more likely to suffer debt distress. “Rapidly” can be considered as an annual change in the NPV of debt of about 5-7 percent of GDP or more.<sup>13</sup> This simple and cautious definition rests on a model with relatively high economic and statistical significance and recognizes the stochastic nature of the problem, the quality of the underlying data, and the relatively preliminary stage of the investigation.<sup>14</sup> Thus, as a general rule, scenarios that include an annual increase in the NPV of public external debt or total public debt in the 5-7 percent of GDP range or above would require a detailed discussion and justification of

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<sup>13</sup> Whether a particular pace of borrowing is risky depends on a number of considerations, including the distance from the DSF thresholds, the quality of debt management and related institutions, as well as the specifics of the investment and the policy framework considered in the scenario. The “alert” level could vary as a function of these factors, but this would make the procedure unnecessarily complicated, particularly since debt accumulation in the 5-7 percent range or above would require a careful and cautious consideration of these and other relevant factors.

<sup>14</sup> Countries in which debt grew by more than 7 percent of GDP subsequently suffered debt distress in 61 percent of cases. Countries in which debt grew by more than 5 percent of GDP went on to experience debt distress in 23 percent of cases. The use of any particular threshold implies a set of signals about which countries are at higher risk. Because many factors besides debt growth contribute to debt distress, such signals will inevitably be prone to forecasting errors: sometimes a country with slow debt growth will subsequently experience debt distress (a “missed crisis” or type-I error) and sometimes high debt growth will not be followed by a crisis (a “false alarm” or type-II error). The appropriate choice of threshold depends on the weight attached to each type of error. Attaching equal weights to both types of error would sound alerts that balance the risk of incurring each type. Attaching relatively more weight to the type-I error would imply a lower threshold and to a type-II error would imply a higher threshold. Note that the analysis reported here is an advance on the work mentioned in the previous review of the DSF discussed by the Boards in April 2006. This research is continuing and will be refined in the coming months.

the expected growth dividend in the DSA write-up (for instance, in a box).<sup>15</sup> In the Fund, this discussion should also be included in any report to which the DSA is appended. This “caution flag” would increase transparency, strengthen accountability, and reduce the risk of growth over-optimism.

## **B. External Borrowing on Nonconcessional Terms**

24. **The risk of an excessive recourse to nonconcessional external finance has increased post debt relief and thus deserves special consideration.** The LIC DSF, by focusing on debt in NPV terms, explicitly takes into account the degree of concessionality of different external loans. LIC DSAs quantify the higher debt service associated with nonconcessional external debt, and stress tests capture the higher risks associated with nonconcessional external debt relative to concessional. However, the uncertainty surrounding the growth effects of public investment, and the overall poor growth and debt record of many LICs, call for caution when dealing with nonconcessional external debt, even more than with concessional debt. Partly in light of these considerations, the Boards have already indicated that nonconcessional borrowing should generally be discouraged and requested that staffs clarify when case-by-case exceptions could be considered.

25. **PRGF arrangements and Policy Support Instruments (PSIs) with the Fund have limits on nonconcessional external debt.**<sup>16</sup> External debt limits were introduced in the Fund in 1979 for all upper-credit-tranche arrangements to (i) prevent the build-up of external debt during the period of the Fund arrangement to levels that may lead to debt-servicing problems in the medium term; (ii) ensure that restraint on domestic demand is not threatened by unanticipated recourse to external financing; and (iii) limit a member’s external vulnerability. Concessional external financing, defined as loans with a minimum grant element of 35 percent or more in some cases, is usually excluded from external debt limits, to help balance the need for adequate financial support with the need to control future debt-service burdens (Box 4).

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<sup>15</sup> While the NPV of debt does not capture all debt vulnerabilities, in particular those related to liquidity issues, its use is appropriate for detecting sustainability problems. Although regressions were conducted on external debt, staffs suggest applying the 5-7 percent of GDP range to public debt as well.

<sup>16</sup> These limits generally apply to public and publicly guaranteed debt, i.e., debt that is either contracted directly or just guaranteed (even if the guarantee is not called) by the government. Public enterprises that are not covered under the definition of government are generally not subject to the debt limits.

#### Box 4. Defining Concessional

**Different definitions of concessionality are used for official development assistance (ODA) and export credits.** The concept of concessionality was first introduced in 1969 by the Development Assistance Committee (DAC) of the OECD. It entailed a minimum 25 percent grant element calculated on the basis of a flat 10 percent discount rate. That definition is still used by the OECD for ODA. Over time the OECD refined the definition of concessionality for export credits. The minimum grant element was gradually raised, first to 30 percent and then to 35 percent (50 percent for the least developed countries), while discount rates calculated on the basis of currency-specific commercial interest reference rates (CIRRs) replaced the 10 percent flat rate. This definition, which reflects more accurately the opportunity costs to lenders, has been in place since 1996.

**For operational purposes, the Bank and the Fund use a definition of concessionality that closely matches that used by the OECD for export credits.** To be deemed concessional, loans should generally have a minimum grant element of 35 percent, calculated on the basis of the CIRRs published by the OECD. The only difference between the definitions used by the Fund and the OECD is that the Fund uses ten-year average CIRRs to assess the concessionality of loans with a maturity of at least 15 years, and six-month average CIRRs for loans with a short maturity, while the OECD only uses six-month average CIRRs, as export credits usually have a maturity of less than 15 years. In some Fund arrangements, the minimum grant element is higher than 35 percent. The Board of Directors of IDA recently endorsed a proposal to adopt the same method as the Fund to define concessionality in the context of IDA's new policy on nonconcessional borrowing in grant-eligible and MDRI-recipient countries. This will promote clarity and consistency across the Bank and the Fund.

26. **In practice, these limits have been applied flexibly, in line with differences in the countries' observed performance and their ability to attract and manage external financing** (Table 1)<sup>17</sup> Non-zero ceilings have been included in PRGF arrangements and PSIs for two main reasons: the financing of specific large-scale projects, sometimes involving co-financing; and support for a gradual shift from concessional to market-based finance, in the case of countries that had, or were close to, "blend" status in the Fund and IDA. Non-zero limits were further justified by a financial constraint (i.e., insufficient concessional resources), a sound debt situation, and appropriate governance structures (Box 5).

<sup>17</sup> For example, of the 34 current PRGF arrangements and PSIs in place as of end-August, eight, or about one quarter, include a minimum concessionality requirement that is higher than the standard 35 percent, largely because of a higher perceived risk of debt distress and weaker debt management capacity. At the same time, 12 (about one third of the total) include non-zero ceilings on external nonconcessional debt (Table 1). In addition, among the current PRGF arrangements and PSIs, four countries have requested waivers for breaching the performance criterion on nonconcessional borrowing. In two of these cases, the performance criterion included a non-zero ceiling, but a waiver was needed because the projects financed through nonconcessional loans differed from those initially specified.

**Table 1: Concessional Requirement for New External Borrowing for Countries with PRGF Arrangements and PSIs  
(Current PRGF arrangements and PSIs as of end-August 2006)**

Country	Concessional requirement	Non-zero limit on non-concessional borrowing <sup>1/</sup>	Waiver of non-observance of limit on non-concessional borrowing
Afghanistan	60		
Albania	35	X	
Armenia	35		
Bangladesh	35	X	
Benin	35		
Burkina Faso	35		
Burundi <sup>2/</sup>	50	X	
Cameroon	35		
Cape Verde <sup>3/</sup>	35	X	
Chad	35		
Congo, Republic of <sup>2/</sup>	50	X	X
Dominica	35	X	
Georgia	35	X	
Ghana	35		X
Grenada	35	X	
Guyana	35	X <sup>4/</sup>	X <sup>4/</sup>
Honduras	35	X	
Kenya	35		X
Kyrgyz Republic	45		
Madagascar	35		
Malawi	35		
Mali	35		
Moldova	35		
Mozambique	35		
Nepal	35		
Nicaragua	35		
Niger	50		
Nigeria <sup>3/</sup>	35		
Rwanda	50		
Sao Tomé & Príncipe <sup>2/</sup>	50	X	
Sierra Leone	35		
Tanzania	35		
Uganda <sup>3/</sup>	35	X	
Zambia	40		

1/ Indicates the occurrence of a non-zero limit at any test date during the period of the PRGF arrangement or PSI.

2/ While these countries have high concessional requirements, the non-zero limits represent small working credits for government use in Burundi and Sao Tomé & Príncipe. For the Congo, the non-concessional loan reflects investment by the national oil company.

3/ PSI.

4/ Following a waiver granted to Guyana for non-observance of the zero ceiling on non-concessional borrowing due to a credit letter, the ceiling was revised to incorporate the amount of the credit letter in subsequent reviews.

**Box 5. Non-Zero Ceilings on Nonconcessional External Debt  
in PRGF Arrangements and PSIs**

Non-zero ceilings on nonconcessional external borrowing have been included in PRGF arrangements and PSIs for the following reasons:

**Funding of specific priority projects.** The PRGF arrangement for Grenada allowed for limited nonconcessional bilateral financing to help rebuild the country after two devastating hurricanes. In Uganda, an exception was granted for investment in hydroelectric power project, and in Guyana for a project to improve productivity in the sugar sector. In Sri Lanka, exceptions were made to rehabilitate a children's hospital, rebuild bridges, and finance rural development.

**Preparing for graduation to market-based finance.** In Cape Verde, exceptions were initially related to specific projects, but following satisfactory program implementation, the exception ceiling has been raised and projects are no longer identified ex ante. Sri Lanka had large exceptions for commercial borrowing, in addition to the funding tied to social projects mentioned above. Exceptions in countries preparing for graduation tend to provide some additional borrowing space, or make up for a shortage of concessional external financing sources, and are typically not linked to specific projects (Albania, Georgia, and Pakistan). The PRGF arrangement for Vietnam allowed for a pilot bond placement to test access to international capital markets.

**Debt management and debt sustainability prospects.** In Bangladesh and Cape Verde, exceptions were approved based on the authorities' track record of prudent debt management and Fund staff's finding that the new borrowing would be consistent with debt sustainability. In Azerbaijan, modest contracting of nonconcessional debt for investment projects was accepted in the PRGF arrangement in light of the low debt burden and the expected improvement in debt sustainability (anticipated rapid development of the oil and gas sectors).

27. **IDA's recently approved policy on nonconcessional borrowing in grant-eligible and MDRI-recipient countries extends the notion of minimum concessionality (and the monitoring of nonconcessional borrowing) to all such countries.** IDA will examine, case by case, instances of nonconcessional external borrowing by these countries. Where such borrowing is judged to be unwarranted on the grounds of the new policy, IDA may propose the application of its disincentive measures, such as a volume reduction or hardening of terms. Whenever action in an individual country is proposed, management will return to the Board of IDA.<sup>18</sup>

<sup>18</sup> [\*IDA Countries and Non-concessional Debt: Dealing with the 'Free Rider' Problem in IDA14 Grant-Recipient and Post-MDRI Countries\*](#), June 2006.

28. **Following the Boards' guidance, the presumption should remain that concessional flows are the most appropriate source of external finance for LICs.** HIPC Initiative and MDRI relief have significantly lowered debt ratios in beneficiary countries, but other economic circumstances remain unchanged. In particular, their project and debt-management capacities remain generally weak. They face large MDG-related needs, yet most of the related expenses (for example, in health and education) do not immediately generate the cash flows required to service commercial debt. A minimum concessionality requirement can help borrowers obtain more suitable credit terms by raising awareness among lenders of their financial vulnerabilities.

29. **This presumption should continue to be applied flexibly, however, allowing for exceptions on a case-by-case basis.** These exceptions will be discussed by Bank and Fund staffs to avoid any potential inconsistencies between the two institutions. The following elements should be taken into account when considering exceptions:

- **Debt sustainability.** The DSF should be the primary means of assessing the impact of alternative financing strategies and recommending the minimum concessionality for new lending. Countries that are close to, or over, the relevant debt burden thresholds should consider nonconcessional external finance only in very exceptional circumstances. In addition, there should be a presumption that the recommended minimum grant element would increase with the risk of debt distress.
- **The availability of concessional resources, and the quality of the investment to be financed.** Borrowing on nonconcessional terms may be justified for projects with high expected risk-adjusted rates of return that would otherwise not be undertaken, provided that the overall expenditure program is also judged to be well-designed. However, LICs should exhaust all avenues of access to concessional resources before considering borrowing on nonconcessional terms. In a Fund-supported program context, multilateral and bilateral lenders have sometimes increased the concessionality of their offers by combining their loans with grants from other multilateral or bilateral sources. Although this can sometimes work to meet countries' needs, care should nevertheless be taken to avoid encouraging complex financial packages designed merely to circumvent the minimum grant element through hidden fees, non-transparent pricing, in-kind grants, and other side deals. Countries with weak governance and poor debt management capacity should generally stay away from highly structured deals, including collateralized loans.<sup>19</sup>
- **The overall strength of the borrowing country's policy environment and its susceptibility to economic shocks.** Projects with potentially high returns may fall short of expectations in a distorted or unstable policy context, or in an economy that is subjected periodically to exogenous shocks. Policies affecting the efficiency of public

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<sup>19</sup> Defining and measuring the concessionality of such loans may be particularly difficult. Resource-rich LICs may represent a distinct challenge, as many are already accumulating large amounts of nonconcessional debt, backed, implicitly or explicitly, by future export receipts. Aid recipients should also be aware that borrowing on nonconcessional terms may reduce their access to concessional resources, particularly under IDA's policy on nonconcessional borrowing in grant-eligible and post-MDRI countries.

investment, including the quality of the debtor's public expenditure and debt management capacity, should figure prominently in the assessment.<sup>20</sup> In addition, the economy's ability to absorb shocks, and the government's capacity to handle them, should also be an important consideration.

30. **When relevant, DSAs could discuss more explicitly the vulnerabilities created by an increase in nonconcessional external debt.** DSAs include a stress test assuming financing under less concessional terms. DSAs also show explicitly the grant element of new borrowing. In cases where the grant element is found to fall markedly, DSAs could include a discussion of the reasons for this decline and its impact on debt-distress risks.

### C. Taking Private External Creditors Into Account

31. **Increased private sector capital flows into both domestic and external sovereign debt instruments could provide opportunities for LICs, but may also give rise to new vulnerabilities that require careful monitoring.** The widening of the investor base may help LICs increase financing options for projects with high returns, particularly in cases where concessional financing is not available on a sufficient scale and risks to debt sustainability are low. Moreover, investment in domestic instruments could foster the development of domestic debt markets and help reduce interest rates on domestic debt (see footnote 5). However:

- Short-term private capital flows could expose LIC recipients to abrupt reversals in market sentiment, not a typical feature of official financing. In turn, sudden capital outflows could complicate exchange rate and monetary management.
- Balance sheet problems may arise, particularly when foreign investment in domestic paper crowds out domestic banks, leading them to lend to higher risk projects, possibly including unhedged foreign currency loans. Where there are significant currency, maturity, or interest rate mismatches, such balance sheet problems may migrate across sectors, potentially giving rise to contingent liabilities for the sovereign.
- Finally, the outlook for medium-term debt sustainability may weaken when liabilities are collateralized with future export receipts.

The scale of these risks depends on the degree of capital account openness, the exchange rate regime, the currency denomination of debt, and the soundness of financial intermediaries and policy institutions.

32. **In countries where borrowing from private external creditors becomes significant, a number of policy actions could be taken to alleviate the increased risks.** These actions mainly involve improving debt-monitoring capacity; the assessment of reserve

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<sup>20</sup> The ultimate responsibility for assessing the potential economic, financial and social impact of given projects, especially large ones, rests with the authorities.

adequacy; and the quality of debt-management institutions more generally. Moreover, the experience with recent crises in emerging market countries shows that the sequencing of liberalization reforms will be important. In particular, the framework for banking supervision and prudential regulation would typically need to be strengthened prior to undertaking steps to liberalize the capital account.<sup>21</sup>

**33. In such cases, additional analyses focusing on short-term debt-related vulnerabilities should be used more systematically in conjunction with the DSF.** For most LICs, the external and fiscal debt sustainability templates included in the current DSF provide for adequate monitoring of a sovereign's debt situation, in particular of its longer-term solvency conditions. Where private capital inflows become significant, however, the additional indicators suggested in Table 2, subject to data availability, could contribute to capture better: (i) risks to the sovereign's liquidity position stemming from the composition of debt, including those related to its maturity structure and nonresident holdings of debt originally issued domestically; (ii) external liquidity and rollover risks, and the adequacy of reserve cover, which may need to be increased given the possibility of reversals in market sentiment;<sup>22</sup> and (iii) weaknesses in the financial sector that may give rise to contingent liabilities for the sovereign.<sup>23</sup> Where these factors are found to create significant debt-related vulnerabilities, they should be taken into account in the overall risk assessments under the DSF.

**34. In many LICs, improvements in public debt management are necessary prior to borrowing from private external creditors on a significant scale.** In particular, a desirable debt-management framework should assign the legal authority to borrow, and identify permissible instruments and accountability mechanisms. Portfolio management should be facilitated through an effective recording of the debt stock; an adequate framework for liquidity forecasting; and the availability of critical indicators to monitor the benefits, costs, and risks associated with borrowing from private sources. In practice, this could imply a substantial need for technical assistance (See Section IV.B).

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<sup>21</sup> The case for substituting domestic financing with nonconcessional external finance requires scrutiny. Given the recent compression in spreads, market-based external financing may entail a lower apparent debt-servicing burden than domestic resources, as domestic debt markets in most LICs remain underdeveloped and thus relatively costly. However, the benefits of such a substitution should be balanced against the risk of a sudden drying up of external sources or a reversal of flows, exchange rate risks, and the more general benefits of developing domestic debt markets through sovereign issuance.

<sup>22</sup> In particular, reserve targets originally aimed at providing sufficient foreign exchange to meet the country's import requirements may need to be adapted to provide sufficient cover also for the country's short-term external debt obligations (at remaining maturity) and for nonresidents' holdings of domestic government paper.

<sup>23</sup> Relevant indicators of liquidity risks could be shown in a separate text table and discussed in the DSA write up.

Table 2. Suggested Indicators for Vulnerability Analysis

Indicator	Source	
	Current DSF	Additional Indicators
<b>Indicators of public sector stock imbalances (solvency risk)</b>		
NPV of public sector debt-to-GDP (public sector revenue)	✓	
NPV of external public sector debt-to-GDP (exports)	✓	
NPV of foreign-currency denominated public sector debt-to-GDP	✓	
NPV of contingent liabilities (not included in public sector debt)	✓	
Public sector debt-to-GDP ratio	✓	
<i>Of which:</i> External	✓	
<i>Of which:</i> Foreign currency denominated	✓	
<i>Of which:</i> Foreign currency linked		✓
<i>Of which:</i> Indexed to the CPI		✓
Primary deficit that stabilizes public sector debt-to-GDP	✓	
<b>Indicators of external sector stock imbalances (solvency risk)</b>		
NPV of external debt-to-GDP (exports)	✓	
External debt-to-GDP	✓	
Non-interest external current account deficit that stabilizes external debt-to-GDP	✓	
<b>Indicators of public sector flow imbalances (liquidity, rollover risks)</b>		
Public sector debt service-to-revenue 1/	✓	
External public debt service-to-exports	✓	
Public sector gross financing need (in percent of GDP) 2/	✓	
Short-term public debt-to-total debt (at remaining maturity) 3/		✓
Domestic public debt held by nonresidents-to-GDP		✓
<b>Indicators of external sector flow imbalances (external liquidity, rollover risks)</b>		
External debt service-to-exports (revenue)	✓	
External gross financing need (billions of U.S. dollars) 4/	✓	
Gross official reserves-to-short-term external debt (at remaining maturity) 5/		✓
Extended reserve cover 6/		✓
Gross official reserves-to-broad money (M2)		✓
Foreign currency deposits-to-foreign assets of the banking system		✓
<b>Indicators of financial system soundness</b>		
Regulatory capital-to-risk-weighted assets		✓
Nonperforming loans-to-total loans (gross and net of provisions)		✓
Claims on the Government and Central Bank-to-total banking sector claims		✓
Private sector credit growth		✓
Foreign currency loans-to-total loans		✓
Foreign currency deposits-to-total banking sector deposits		✓
Share of foreign currency deposits held by nonresidents		✓

Source: IMF.

1/ The sum of interest and amortization of medium- and long-term debt.

2/ Defined as the primary deficit plus debt service plus the stock of short-term debt at the end of the last period.

3/ Amortization of medium- and long-term debt plus stock of short-term debt at the end of the last period.

4/ Defined as the current account deficit adjusted for net FDI inflows plus total external amortization due plus the stock of short-term debt at the end of the last period.

5/ External short-term debt includes amortization of medium- and long-term debt plus stock of short-term debt at the end of the last period.

6/ Gross official reserves in percent of the current account deficit adjusted for net FDI inflows plus total external amortization due plus the stock of short-term debt at the end of the last period plus foreign currency deposits in the banking system.

#### D. Better Integration of Domestic Debt in the DSF

35. **The DSF's capacity to detect early debt vulnerabilities would be strengthened if the discussion of domestic debt were better integrated in DSAs.**<sup>24</sup> As mentioned in Section II, domestic debt is substantial in many LICs. However, while an integral part of the LIC DSF, domestic debt is not formally incorporated in debt distress thresholds. A growing number of LIC DSAs have included a discussion of public debt,<sup>25</sup> but with only limited impact so far on the overall assessment of the risk of external debt distress and risk classification. An update of the recent review of experiences in the application of the DSF to LICs finds that, in a sample of 33 joint Fund-Bank DSAs, 24 included a public debt DSA. In all but one case, the risk of debt distress classification coincided with the one that would have been derived from an assessment of external debt and debt-service indicators only.

36. **Domestic debt clearly matters for the risk of debt distress.** A preliminary empirical analysis of the relationship between both external and domestic debt and the risk of external debt distress<sup>26</sup> found that domestic debt (as a percentage of GDP) had an estimated effect on the likelihood of external debt distress similar in magnitude to the effect of external debt relative to GDP.<sup>27</sup> Moreover, the inclusion of domestic debt in the regression analysis explaining the likelihood of external debt distress increased the explanatory power of the model in a statistically significant way.<sup>28</sup> These conclusions were obtained despite the limited scope of the data, which renders the estimates less precise than those obtained on the basis of external debt alone.

37. **Analyses of the behavior of domestic debt in the period leading up to episodes of external debt distress also underscore the significance of domestic debt for debt distress.** There is no evidence that countries have substituted domestic debt for external debt prior to external distress or default. Both domestic and external debt have tended to grow rapidly relative to GDP in the two years immediately prior to the onset of external debt

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<sup>24</sup> DSAs are closely linked to balance of payments projections, and implicitly use a residency concept to distinguish external and domestic debt. In many LICs, however, the residency of holders of domestically-issued debt is not known. As a result, domestic debt may actually correspond to domestically-issued debt.

<sup>25</sup> A public debt DSA assesses the sustainability of government debt, external and domestic. Public external debt, plus private external debt where data are available, are covered in the external DSA.

<sup>26</sup> The analysis in Appendix 1 is analogous to that underpinning the DSF. See Kraay and Nehru, World Bank [Policy Research Working Paper No. 3200, Feb. 2004](#).

<sup>27</sup> Alternatively, the empirical analysis was unable to reject the hypothesis that domestic debt relative to GDP had the same impact on the likelihood of debt distress as the same ratio of external debt.

<sup>28</sup> The model with domestic debt explained 27 percent of the variation in debt distress in the sample compared with 21 percent when domestic debt was excluded.

crises. In the aftermath, however, domestic debt and external debt diverged in their behavior: domestic debt has tended to decline while external debt has surged.<sup>29</sup>

**38. The integration of domestic debt into the DSF poses many conceptual and practical challenges.** External and domestic debt are qualitatively different, making it difficult to simply add them for use in the DSF.

- First, the risks of default on external and domestic debt are different. Governments often resort to seignorage or financial repression, rather than default, in response to pressures from domestic debt.
- Second, in addition to budget financing, domestic debt is often used to conduct monetary policy, manage the exchange rate, or support the development of domestic financial markets.
- Third, the financial terms of domestic debt in LICs are significantly different from those of external debt. For instance, domestic debt generally has shorter maturities, carries higher nominal interest rates, and is denominated in domestic currency—leading to a set of risks that are different from those attached to low-interest, long-term external debt.
- Fourth, simply adding domestic to external debt also raises data issues. The coverage of domestic debt differs across countries, making standardized comparisons of debt-to-GDP ratios across countries problematic. The quality of domestic debt data is generally lower than for external debt and these data are not fully available for all countries. In addition, the inclusion of such debt into the classification system may create adverse incentives for the transparent recording of domestic debt in some cases.

**39. Explicitly linking the risk classification used by IDA (and other official donors) for its grant-share decision to domestic debt ratios also raises implementation issues.** For example, an increase in the issuance of domestic debt may bring about an increase in external grants through a higher risk classification.<sup>30</sup> Alternatively, increased grants may actually raise the risk of debt distress if they weaken incentives for domestic revenue mobilization by the government.

**40. For these reasons, it is not possible simply to incorporate domestic debt into the existing thresholds.** But domestic debt can be taken into account when assessing the risk of debt distress and designing appropriate borrowing strategies. Consider, for example, the following possibilities:

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<sup>29</sup> Among the factors that may account for this pattern are the high real interest rate and large interest bill on domestic debt, constraints on domestic financing under Fund-supported programs, the impact of currency depreciation or devaluation on the external debt-to-GDP ratio, and new external financing (see Appendix 1).

<sup>30</sup> The moral hazard issues are not specific to domestic debt—the current risk classification based on external debt can also provide governments with an incentive to contract more external debt in order to increase grants. However, these issues are more acute with domestic debt which may be easier to issue.

- *External public debt is in excess of the indicative debt burden thresholds, while domestic debt is low.* In this case, the appropriate borrowing strategy would seek to reduce external debt gradually, while keeping domestic debt in check, provided that the cost of domestic debt is not excessive compared to that of external debt.
- *External public debt is well below the indicative thresholds, while domestic debt is high.* In this case, shifting from domestic to external debt (on concessional terms) could reduce not only the present value of total debt but also market risks, assuming such a shift can be brought about.
- *Both external and domestic debt are too high.* In this case, the appropriate pace of reduction in each type of debt will depend on the relative cost of domestic and external debt as well as the risk embodied in the maturity structure and the government's ability to roll over its obligations.

41. **Staffs see scope for integrating more systematically domestic debt considerations in the assessment of debt sustainability and the risk of external debt distress.** Previous guidance to staff on the preparation of LIC DSAs was largely focused on the external DSA component and the use of the indicative debt and debt-service thresholds for assessing and classifying the risk of external debt distress.<sup>31</sup> Limited guidance was provided on how to use the public debt DSA to inform the overall assessment and classification of the risk of external debt distress. Although the ultimate assessment would continue to rely on staffs' judgment, the following key steps could be taken to clarify and strengthen the role of the public debt DSA:

- *First, all LIC DSAs should include a public debt DSA.* External and public debt DSAs need to be produced simultaneously and in a consistent manner, as they complement each another in providing inputs for the assessment of a country's debt sustainability.<sup>32</sup>
- *Second, domestic debt issues should receive a heightened attention in countries where domestic debt has an above-average weight or has increased rapidly in recent years.*<sup>33</sup> Higher levels of domestic debt should point to the need for closer scrutiny—although the conclusion could be tempered by country-specific factors, including macroeconomic performance and debt management capacity. In assessing the significance of the domestic debt, staff teams should take into consideration the circumstances under which the debt has been accumulated (i.e., whether it was the result of domestic financing of budgetary

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<sup>31</sup> This interim guidance will be updated to reflect the operational implications of the March 2006 and current Board papers, and corresponding Board discussions.

<sup>32</sup> This is the case even when domestic debt is absent or very low: in these cases, public debt DSAs will highlight whether current and expected fiscal policy is consistent with *external* debt sustainability.

<sup>33</sup> Domestic debt can be of concern even for countries with currently low or no domestic debt if the expected evolution of the primary fiscal balance would give rise to debt servicing difficulties in the future (e.g., a country where oil revenue would drop drastically, or with growing fiscal imbalances and insufficient additional external support). In these cases, the DSA should also include an extensive discussion of domestic debt issues.

spending, including the assumption of contingent liabilities, and/or the consequence of sterilization operations), and note whether such assessment is constrained by insufficient information.

- *Third, the public debt DSA should assess more thoroughly the vulnerabilities related to domestic debt.* Discussion of the public debt DSA should indicate systematically whether the primary balance in the baseline is consistent with debt sustainability, and whether it is realistic in view of historical experience. To complement the analysis, additional indicators of domestic debt-related vulnerabilities, particularly relating to the maturity of domestic debt, could be added to the public debt DSA template when the requisite information is available.
- Fourth, the DSA should explicitly flag situations whereby the inclusion of domestic debt in overall debt and debt-service prospects would lead to a different classification from consideration of external debt and debt service alone. Such situations are expected to be rare: as domestic debt constitutes only about 20 percent of total public debt in the typical LIC, in most cases the assessment of risk of debt distress would be the same as that based only on considerations of external debt only. But if such a difference were to emerge, it should be explicitly acknowledged. This would enable IDA and other multilateral donors to base their grant allocation decisions on a risk assessment unbiased by questions of moral hazard.

42. **Incorporating domestic debt into some countries' DSAs poses a data challenge that may take time to address.** Improving the quality of domestic debt reporting will be particularly challenging. In cases where domestic debt is believed to be significant but where data quality is deficient, DSAs will have to signal clearly that their results depend on assumptions. Improved debt reporting is a key objective of ongoing efforts to build debt management capacity in LICs.

#### IV. TOWARDS MORE EFFECTIVE DSAs: FOSTERING USE BY BORROWERS AND CREDITORS

43. **To be most effective, the DSF must be used widely by borrowers and creditors.** This should start at the Bank and the Fund, and the question here is whether the link between DSA results and policy advice—and, where relevant, program conditionality—should be tightened. This section explores the scope for the DSF to guide both borrowing and lending strategies in a way that will foster information sharing both among creditors and between debtors and creditors, and thus promote the efficient use of resources and minimize the risk of crises.

##### A. Strengthening Links from DSAs to Policy Advice and Conditionality

44. **The adoption of the DSF has already resulted in fundamental changes at the Bank and the Fund.** IDA's grant allocation criteria now focus exclusively on risks of debt distress as assessed in DSAs. The DSF has further integrated debt issues into Fund analysis and policy advice, through its annual frequency, the improved quality of the assessments, and

comparability across countries. In most cases with a moderate or higher risk of debt distress, the policy implications are incorporated explicitly in analysis and recommendations.

45. **However, the link between DSA results and policy advice could be strengthened further.** A higher risk of debt distress should generally be associated with a lower recommended increase (or a higher decrease) in the NPV of external debt. The variety of country circumstances and the number of factors contributing to debt-distress risk advises against the establishment of a mechanistic link between the two. For example, as discussed above, a country can have a relatively low debt-distress risk post debt relief, but still limited capacity to absorb and manage commercial debt. Rather, there should be a *presumption* that the recommended minimum grant element will increase with the risk of debt distress, and the recommended volume of new debt (including concessional debt) will decrease.<sup>34</sup> A shift to a higher risk category should trigger a comprehensive reassessment of Bank and Fund staffs' recommendations on the appropriate debt accumulation strategy.

46. **In the Fund, DSA results should be taken more closely into account for program design and conditionality, where relevant.** In September 2004, the Fund Board called for efforts to strengthen control over excessive borrowing in the context of Fund-supported programs, through the use of conditionality related to the NPV of external debt and more systematic use of limits on the overall fiscal deficit (including grants) for countries where debt sustainability is a concern. However, the impact of DSAs on program design has so far been limited. Minimum concessionality requirements exceeding 35 percent should also continue to be used when needed.

47. **The easing of limits on nonconcessional external finance for countries graduating from concessional financing should be subject to the authorities' track record and DSA results.**<sup>35</sup> In a Fund-supported program context, sub-ceilings on nonconcessional external debt could be adjusted upward throughout the program period, based on the member's debt management capacity and other criteria.<sup>36</sup> The DSF could provide the platform to assess alternative financing mixes and scaling up scenarios and their implications for external and public debt sustainability. In LICs with no Fund-supported program, the Boards would discuss the staffs' advice on an appropriate borrowing strategy in the context of Article IV consultations and Country Assistance Strategies (CASs). In countries with increased creditworthiness, IDA and Fund staffs would collaborate closely to engage the authorities in a constructive dialogue to discuss debt strategies and capacity-building issues.

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<sup>34</sup> The previous round of debt accumulation was largely driven by concessional debt.

<sup>35</sup> This graduation should in general be linked to a country's stage of development.

<sup>36</sup> This would be preferable to a gradual lowering of the 35 percent minimum grant element, which is an established definition of a concessional loan.

## **B. DSA Use by Borrowers: Towards Medium-Term Debt Strategies and Stronger Debt Management Capacities**

48. **The ultimate objective of the DSF is to identify debt-related vulnerabilities so that they can be adequately taken into account in the formulation of a country's policies.** Regular DSAs should become part of sound policy design and pave the way for the elaboration of a country-owned medium-term public and external debt strategy (MTDS). The MTDS would seek to address vulnerabilities uncovered in DSAs. It should lead to borrowing which: (i) is consistent with the country's development plans and macroeconomic program; (ii) is sustainable; and (iii) minimizes borrowing costs over the medium to long term, consistent with a prudent degree of risk. The first two points imply that an MTDS should be closely linked to the medium-term fiscal framework, while the third point implies the need to strengthen debt management capacities at the operational level.

49. **The Fund's Medium-Term Strategy emphasized the importance of debt sustainability in LICs and suggested that the Fund support low-income members in developing such debt strategies.** Similarly, the Bank's Board—and the IDA Deputies—have emphasized the importance of Bank staff support for better strategic debt management in Bank CASs.<sup>37</sup> A well-designed and operational MTDS would be an important tool for helping the authorities make informed policy decisions, avoid the accumulation of onerous debt burdens and other vulnerabilities, and coordinate with creditors. An MTDS would be particularly useful for countries that have benefited from debt relief and perceive that they now have a potentially large borrowing space.

50. **An MTDS should have a number of features.** As a pre-condition, the authorities need the capability of monitoring existing debt-service obligations so that they can make well-informed decisions about new borrowing. The contracting of new debt should be subject to oversight by the appropriate authorities and set firmly in an agreed macroeconomic framework. An MTDS should be linked to a full-fledged, medium-term fiscal framework that contains prudent revenue projections and planned expenditures consistent with the country's poverty reduction strategy (PRS). It should recognize cost and risk tradeoffs in setting sustainable borrowing limits, ensuring that debt can be serviced under a wide range of circumstances.<sup>38</sup> Once a sustainable fiscal stance has been determined, the MTDS would also address: (i) the terms of new borrowing, including the appropriate mix between fixed and variable rate; and (ii) the appropriate mix between domestic and external debt (or alternatively local currency and foreign currency debt). An MTDS should be updated

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<sup>37</sup> Substantial assistance for debt management is also being provided by other organizations to LICs. Regarding public financial management aspects of debt management, most LICs use either UNTACD's DMFAS or the Commonwealth Secretariat CS-DRMS software, both of which are supported through the respective institutions or through other regional organizations such as Macroeconomic and Financial Management Institute of Eastern and Southern Africa (MEFMI).

<sup>38</sup> The Bank-Fund debt management guidelines constitute a useful reference on best practice in the debt management area (see [Amendments to the Guidelines for Public Debt Management](#), November 2003.)

regularly, integrated into the government's decision making, and enjoy full ownership by all relevant government institutions.

51. **The design and implementation of an MTDS raises significant operational challenges.** To ensure country ownership and accountability, an MTDS should be prepared by the authorities themselves. Such an undertaking will be challenging, as debt management offices in many LICs lack adequate capacity to monitor and record debt information and new resource flows accurately, let alone manage them effectively. According to analysis by Bank and Fund staff and other organizations,<sup>39</sup> the key debt management challenges in HIPC countries include: (i) the need for comprehensive institutional and legal frameworks; (ii) the need for greater and more effective coordination across different units involved in debt management and with other areas of macroeconomic policy; (iii) the lack of public or parliamentary oversight over new borrowing, (and lack of a framework to evaluate new borrowing decisions and limited transparency and reporting requirements); (iv) the recruitment and retention of staff (and resource constraints in general); and (v) limited political support.<sup>40</sup>

52. **As a first step, the capacity to monitor existing debt should be strengthened.** This will require: (i) improving not only the monitoring of direct central government liabilities, also of a broad definition of public debt that includes public enterprises, local authorities, and publicly guaranteed debt; (ii) providing debt-management units with a clear operational mandate, accompanied by appropriate accountability arrangements; and (iii) recruiting appropriately skilled staff. The establishment of an investors relations office could also be considered. As mentioned earlier, this will likely require substantial technical assistance (TA), including a strengthening of established mechanisms and close coordination with other providers of TA.

53. **Current TA provision of debt management in LICs does not comprehensively address the gaps and weaknesses that prevail.** While some aspects of debt management are addressed through TA on public expenditure management, liquidity management and monetary operations, the TA directly targeted at debt management remains largely focused on "needs identification" or on limited aspects of debt management. Some TA has been provided to help countries improve the quality of their debt statistics, although in many cases the focus has been on providing debt management software, which by itself does not guarantee high quality data.<sup>41</sup> Systematic approaches to help countries develop their debt management function and operationalize a medium-term debt management strategy are

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<sup>39</sup> See [External Debt Management in Heavily Indebted Poor Countries](#); also see *Assessing Debt Management Capacity: The HIPC Capacity Building Program Methodology*, Debt Relief International (2005, Publication No. 10). These findings have been strengthened during ongoing work undertaken by staffs to develop diagnostic tools and ultimately to build debt management capacity in low-income countries.

<sup>40</sup> These challenges will be discussed in greater detail in a forthcoming Bank-Fund Board paper on strengthening debt management practices.

<sup>41</sup> Capacity building in this area has in recent years gathered momentum through the coordinated efforts of the Inter-Agency Task Force on Finance Statistics (TFFS) that is led by the IMF with representatives from several other international organizations. The TFFS facilitates the availability of external debt data, coordinates methodological work, and promotes quality in external debt data.

needed. TA for staff training in central banks or debt management units often focus mainly on creating a cadre of trained "debt recorders" rather than on building capacity to undertake more comprehensive debt management functions. Senior level policy makers are also not fully sensitized to the importance of debt management and may lack a proper understanding of the interlinkages between debt management, monetary and fiscal policies, and financial market development. Consequently, debt management capacity building is rarely anchored by political commitment or broader institutional reform in LICs.

54. **IDA's Board has repeatedly stressed that public debt management is a core mandate of the Bank.** Recognizing the broad scope of the challenge, the need for a harmonized approach among donors, and the importance of technical assistance and capacity building to address deficiencies in debt management in LICs, the Bank is proposing that, in addition to the preparation of MTDSs, a diagnostic tool and reporting framework also be developed and applied to assess debt management capacity in LICs.<sup>42</sup> IDA staff, in collaboration with others, would establish a partnership with other stakeholders to assess capacity and identify needs, in order to guide the design of reforms and the provision of technical assistance and capacity building, and to monitor debt management performance over time. The proposed approach would be firmly embedded in country programs to ensure client ownership, donor coordination, and continuous tracking. It is also critical that these new activities fit within country strategies and available operational budgets. The high resource costs associated with diagnosing and addressing shortcomings in public debt management will imply difficult tradeoffs at the country level unless additional resources are made available to fund this mandate.

55. **Given the time needed to develop capacity in many countries, having an MTDS in all LICs can only be a medium-term goal.** More advanced LICs could have an MTDS in place over the medium term. Fund- or IDA-supported programs would be expected to include a detailed plan for developing an MTDS or at least making significant progress during the program period, depending upon initial conditions. Such progress could, on a case-by-case basis, be an element of either Fund or Bank conditionality, although in considering this the importance of government ownership of the MTDS should be a key consideration.

56. **Meanwhile, a more intensive use of the DSF by country authorities can help pave the way to a homegrown MTDS.** To allow for a transfer of know-how, the authorities would need to be involved more closely in the preparation of DSAs.<sup>43</sup> The results of the DSA should also be discussed systematically at a high level to ensure adequate involvement of decision makers. Such activities are likely to entail additional resource costs to country

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<sup>42</sup> Such a tool could draw on the *External Debt Statistics Data Quality Assessment Framework* developed by the Fund and the TFFS.

<sup>43</sup> The review of recent experience with the DSF showed that the authorities were involved in the preparation of the DSAs only in a few cases (see [Review of Low-Income Country Debt Sustainability Framework and Implications of the MDRI](#)).

teams, particularly when the administrative capacity of the country is limited. DSAs (and eventually MTDSs) could serve as a basis for discussions with creditors and donors in consultative group (CG) meetings.<sup>44</sup>

### C. Fostering Creditor Coordination Around DSAs

57. **The DSF, and ultimately an MTDS, can also be a useful tool to inform and guide all creditors' decisions.** DSAs can be used to disseminate concerns about risks to debt sustainability and in some cases guide recommendations on the appropriate level of concessionality in new borrowing. Broad acceptance by all creditors of the results of DSAs would contribute to enhance creditor coordination and minimize the risks of crises.

58. **The use of the DSF by creditors is expanding but still limited.** The recent review of the DSF showed that it is actively used by a few multilateral creditors and donors, but to a much smaller extent by others, in particular export credit agencies (ECAs) and commercial creditors. Nonetheless, early feedback from creditors indicates that, despite their limited use of the DSF, they value the informational and analytical content of DSAs. There is thus scope for the Bank and the Fund to disseminate DSAs more broadly among creditors and for creditors to seek to use these DSAs in their own lending decisions.

59. **The use of the DSF and of its results is an individual choice for each creditor.** The DSF has no institutional or contractual basis and does not seek to bind creditors around a given course of action such as an overall lending envelope for a borrowing country, the appropriate degree of concessionality, or the relative priority of investments. Its main objective is to allow creditors and borrowers to make informed decisions about the preferred financing strategy. The ultimate responsibility for such decisions rests with borrowing governments, and it is therefore most important that governments understand DSAs and use them to define their borrowing strategy. Nonetheless, broadening awareness among creditors of the concept of debt sustainability and of the results of Bank-Fund assessments in specific countries can facilitate creditor coordination through a shared understanding of the impact of individual lending decisions on a debtor's overall debt outlook.

60. **Since the last Board meeting, staffs have intensified outreach on the DSF with traditional official lenders, including ECAs.** Staffs have attended meetings of the export credit group of the OECD, of European ECAs, and of the Paris Club, where the implications of the DSF for ECA lending in a post-MDRI context were discussed. Contacts with

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<sup>44</sup> The UNDP and World Bank have proposed to reinvigorate CGs and to make them the forum to discuss, on a country-by-country basis, scaling up of aid with all major creditors, and not only donors as is now generally the case. Such "Resources and Results" meetings could help improve donor and creditor coordination and facilitate the assessment of whether lending/borrowing intentions are consistent with the PRS and debt sustainability. Such an approach is being implemented in Ghana.

multilateral development banks have also continued with a view to fostering their more active use of the DSF.<sup>45</sup>

61. **Contacted creditors were generally aware of the risks of excessive debt buildup in LICs.** Many ECAs acknowledged that, although officially-supported lending to LICs represents a small part of their total portfolio, it can be large in relation to the recipients' budgets. Therefore, increasing nonconcessional lending to LICs could put debt sustainability at risk. DSAs could inform ECAs' country risk analysis and provisioning decisions. Some ECAs are making efforts to develop "responsible lending" practices that take into account the results of DSAs. An informal group of 16 ECAs from OECD countries has also been established to develop their own framework along similar lines. This group is expected to present a proposal at the OECD export credit group meeting in November 2006, with a number of non-OECD countries invited as observers.

62. **Efforts are underway to broaden public access to existing DSAs.** Outreach confirmed the interest of many creditors in increased and easier access to the conclusions and underlying assumptions of joint Bank-Fund DSAs. DSAs will shortly be easy to locate on dedicated pages in the Bank and Fund websites. A grant element calculator is available on the IDA website to facilitate calculation of the level of concessionality of new loans under consideration for the purposes of IDA's policy on nonconcessional borrowing. Information on concessionality as well as a concessionality calculator developed by Fund staff will soon be posted on the Fund's website. Posting of a given DSA remains subject to the consent of the authorities. There would be merit in allowing web access to the templates themselves, as well as fostering more regular exchanges between the staffs of the Bank and Fund and those of other creditors. In addition, staffs could post on the web a summary table listing the countries for which a LIC DSA has been undertaken, their dates, and, whenever the authorities have consented to publication, a direct link to the document.

63. **Further outreach, particularly to emerging creditors, is planned.** These creditors are generally not represented in existing donor-coordination organizations such as the OECD or the Paris Club, and in part for this reason there is little information on the amount and terms of the financial support they provide, which in some cases can significantly complicate the preparation of DSAs.

64. **Efforts are also ongoing to improve the information available on overall lending to LICs.** The only comprehensive source of loan-by-loan data now available is the World Bank's *Debtor Reporting System* (DRS). But approximately half of the LICs expected to report public external debt data to the DRS do not submit at all or have moderate to major problems with the information they submit. Efforts are underway to strengthen and tighten countries' adherence to quarterly and annual reporting requirements. Since annual data are obtained with a lag and coverage can be uneven, these data need to be complemented with detailed information from creditors' records. Staffs of the IMF and the World Bank, together

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<sup>45</sup> Participants at the annual meeting of the MDBs held in Washington in June 2006 welcomed the use of the DSF to improve creditor coordination.

with staffs of the OECD, the BIS, and the Berne Union, are trying to develop reporting mechanisms to measure official lending to LICs, which could be used to validate and supplement data collected through the DRS. Eventually this information could be integrated into the web-based *Joint External Debt Hub* (JEDH). However, this would still not cover financing flows from emerging and private creditors that are not members of the OECD or the Berne Union. As mentioned above, outreach efforts towards these emerging creditors should aim, *inter alia*, to improve the information available on their lending activities.

## V. REFINING THE DEBT-DISTRESS RATINGS

65. **In their April 2006 discussions, the Boards asked staffs to consider possible refinements to the existing debt-distress risk ratings, including the possibility of subdividing the moderate risk category.** Indeed, of the 21 DSAs that were completed in time to be included in the review and that had given a risk rating, nine (43 percent) had received a moderate risk rating. This frequency led the Boards to request further reflection on the risk categories used in the DSF and in particular whether the moderate risk category should be split so as to allow a more nuanced risk assessment. A related concern is whether the risk classifications allow IDA and other lenders sufficient precision in tailoring the proportion of grants to countries' debt sustainability.

66. **The implementation of the MDRI, among other factors, has reduced the incidence of moderate risk ratings.** Since the first DSF Review, DSF implementation has evolved. The main change has been the provision of MDRI stock debt relief to 20 countries, with more expected to follow.<sup>46</sup> Although a country's initial debt burden is only one factor in the risk assessment—six MDRI recipients<sup>47</sup> still receive IDA grants—the effect has been to reduce risk in many cases, and to move certain countries (e.g., Benin, Cameroon, Uganda and Zambia) from IDA-grants recipients to countries that receive 100 percent loans from IDA.

67. **Revising the risk category definitions thus appears unnecessary at this point.** A recent review of existing DSAs found that existing DSF guidelines were being applied appropriately. In addition, increasing the number of risk categories would entail refining the DSF guidelines on assigning risk ratings. This could implicitly overstate the precision of the underlying 20-year forecasts. A higher number of categories would also increase the frequency with which the grant share for a given country was altered over time, placing greater administrative burdens on country authorities.

68. **A related concern is that CPIA fluctuations—as opposed to secular improvement and deterioration—may translate into undue volatility in the IDA grant share of a given country.** There are several instances in which changes in CPIA ratings resulted in changes in performance category which were only temporary. This occurred when seemingly lasting reforms or deteriorations in policy or institutions were reversed, or simply

<sup>46</sup> 22 countries have actually received MDRI relief from the Fund (20 HIPC's, plus Cambodia and Tajikistan).

<sup>47</sup> Ethiopia, Guyana, Malawi, Nicaragua, Niger, and Rwanda.

as a result of inevitable “noise” in the rating process. Such occurrences, if translated directly into the DSF, may introduce undesirable uncertainty regarding the country’s financing terms from IDA (and possibly other donors), hindering efficient planning in the country.

69. **To mitigate this problem, a three-year moving average CPIA score to determine the performance category is recommended.** Basing performance categories on a three-year moving average of the CPIA, in conjunction with the same two CPIA cutoff values between categories,<sup>48</sup> will smooth out undue fluctuations in grant share.

70. **Staffs recommend that the DSF should be allowed to build a longer track record before revisiting the question of the risk categories.** Even if the categories remain unchanged, clearance and review functions in the Bank and the Fund must continue to be used carefully to ensure that the guidelines for assigning the risk rating are applied appropriately and consistently. In particular, given the role of the risk rating in setting IDA grant allocations, IDA will look to staff from the Bank’s Economic Policy and Debt Department to execute a standardized approach to the ratings and, *inter alia*, to ensure that moderate risk ratings do not over-proliferate.

## VI. RESOURCE COSTS

71. **TA aimed at helping governments develop capacity and preparing MTDSs will entail large resource costs.** Given the generally weak capacity in most LICs to manage even existing debt, a substantial, multi-year, multi-institution TA effort would be required. Developing the MTDS and capacity building will be an evolutionary process. Ideally, it would be preceded by a short phase of some developmental work in the headquarters, followed by an initial mission to determine the state of institutional and operational arrangements in the identified country. Key priority areas would be decided in consultation with the authorities, and followed up with a series of shorter, more focused missions. In some cases, substantial capacity building engagement will be needed. At different stages this might involve collaboration with other agencies and the private sector, with some technical assistance contracted out. Preliminary estimates suggest that this could require, on average, 1-1.5 Fund staff-years,<sup>49</sup> as well as significant recourse to external experts and additional travel costs. Bank staff and travel costs over the next three years are estimated at about US\$6 million. Such an effort would require a major reallocation of existing resources away from current activities.

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<sup>48</sup> A CPIA score of 3.25 is the cutoff between weak and medium performance; 3.75 is the cutoff between medium and strong performance.

<sup>49</sup> This would cover: (i) the cost of developing the required MTDS, templates, and capacity building frameworks; (ii) outreach activities and collaboration with other agencies, and internal staff dissemination; and (iii) backstopping including review work. However, this does not factor in the costs associated with direct delivery of capacity building activities. These will be best determined after further consultations with other agencies who will potentially partner in the capacity building exercise.

72. **Expanding outreach activities on the DSF will also require resources, but to a much smaller extent.** Such activities would consist of Fund and Bank staff regularly participating in various ECA meetings and extending outreach to emerging creditors.<sup>50</sup> In the case of the Fund, this would involve additional travel costs that could be covered from the Fund-wide budgetary contingency for implementation of the Fund’s Medium-Term Strategy. In the case of the Bank, such costs will need to come from additional budget allocations for the relevant departments. Other proposals made in this paper, such as designing more solid baseline macroeconomic and growth scenarios or taking account of domestic debt more systematically, will have staff resource implications, but these could be covered within the existing budget.

## VII. CONCLUSIONS AND ISSUES FOR DISCUSSION

73. **This paper proposes practical guidelines to enhance the rigor and quality of DSAs and the effectiveness of the DSF.** The challenges raised by debt relief and the emergence of new types of lenders warrant a strengthening of the application of the DSF to ensure that its potential is fully exploited. The limited number of creditors currently taking into account DSAs in their lending decisions poses additional challenges to ensure that the benefits from debt relief are not rapidly undone.

74. **To improve the quality and rigor of DSAs and ensure that the case-by-case approach provides a thorough and consistent, but flexible, treatment across countries of issues associated with debt accumulation, staffs make the following proposals:**

- Guidelines to design more solid baseline macroeconomic and growth scenarios.
- Reinforcement of the precautionary features already built into the DSF, including through an active use of historical or other alternative scenarios.
- Where a debt buildup is expected to be sudden and rapid, the DSF will call for a robust justification of the expected growth dividend.
- Concessional flows remain the most appropriate source of external finance for LICs, but consideration would continue to be given—on a case-by-case basis—to nonconcessional finance. This should, however, take into account explicitly (i) the impact on debt sustainability; (ii) the availability of concessional resources; (iii) the overall strength of a debtor country’s policies and institutions, including the overall quality of the public expenditure program; and (iv) the quality of the investment to be financed.
- The increasing interest of private external creditors in LICs’ sovereign debt instruments requires careful monitoring. Additional analyses focusing on short-term debt-related vulnerabilities should be used on a more systematic basis in conjunction with the DSF.

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<sup>50</sup> These outreach activities would take place at the global level, not at the LIC level, and therefore would only affect marginally the workload of country teams.

- All LIC DSAs should include a public debt DSA, produced simultaneously and in a consistent manner with the external DSA. Particular attention is required in cases where domestic debt has an above-average weight or has increased rapidly in recent years.

75. **The effectiveness of the DSF ultimately depends on its broader use by debtors and creditors, including as a device for better communication and coordination.**

- **Borrowers:** countries need to develop their own MTDS in support of their development objectives and the MDGs while containing risks of debt distress. At the same time, renewed efforts will be needed to help build capacity in public debt management among borrowers.
- **Creditors:** further outreach by the staffs is needed. The link between DSA results and policy advice should be strengthened further.

76. **There is no need for revising the debt distress categories at this point.** Instead, a three-year moving average CPIA score to determine the appropriate indicative threshold for debt distress could be used to avoid undue volatility in the IDA grant share for a country.

77. **Resource costs to provide TA for capacity building, particularly to help countries develop their own MTDS, would be substantial.** Given budget constraints, this would require a reduction in current activities.

78. **Do Directors agree that:**

- The DSF is well suited to assess and monitor debt and the risk of debt distress but the challenges raised by debt relief and the emergence of new types of lenders warrants strengthening its application?
- Improving the quality and rigor of DSAs as proposed by staffs would allow for a satisfactory case-by-case approach to debt accumulation, the more careful use of nonconcessional financing, and the more systematic consideration of vulnerabilities related to private creditors and domestic debt?
- Outreach is needed to foster the use of DSAs by creditors and debtors? For the former, efforts could foster the wider application of the DSF and similar exercises? For the latter, substantial capacity building is needed to help them develop their own MTDS?
- A refinement of the debt distress ratings is not warranted at this time, but introducing a three-year moving average CPIA score would avoid undue volatility in IDA grant allocation?

## Appendix 1: Domestic Debt in LICs and Links to External Debt Distress

### A New Database

79. **The availability of data on public domestic debt in LICs has been quite limited.**<sup>51</sup>

To fill this gap, Fund and Bank staffs have collaborated to compile a joint database on domestic debt in low-income countries that, while still incomplete and very much work in progress, represents an important step forward and allows the undertaking of preliminary analyses.

80. **The new database is an improvement over others previously used by the Fund and Bank.** Coverage has been increased through consultation with country desks, government publications, unpublished disaggregated IFS money and banking data, and country statistical appendices. Data for the domestic debt stock includes 66 countries for the period 1998-2004, though for most countries, the time series cover the period 1995-2004.<sup>52</sup> In addition, longer time series data exist for 30 countries covering the period 1980-2004.<sup>53</sup> Public sector debt coverage captures as broad a definition of the public sector as possible. The definition of gross public domestic debt is consistent with coverage at country reporting level, but excludes contingent liabilities, central bank advances to the central government, and central bank debt. Country and period coverage for other variables vary, but are similar to that for total debt. For instance, domestic debt as a share of total debt was analyzed for 66 LICs, while domestic interest (both as percentage of revenues and of total interest) is available for 65 countries. Coverage was slightly lower for real interest rates (64 countries). The lowest level of coverage among the variables analyzed is for domestic debt maturity, with 44 countries and 384 annual observations (Table 1).

### Characteristics of Public Domestic Debt in Low-Income Countries

81. **A good starting point is to consider the magnitude of LICs' domestic debt relative to GDP during the period 1995-2004.** The distribution of the average domestic debt (as percentage of GDP) for such period is positively skewed with a mean and median of about 19 and 15 percentage points of GDP, respectively. However, a number of countries (e.g., Eritrea, The Gambia, Malawi) have significantly larger domestic debts, contributing to a relatively large standard deviation (16.5 percent). Two-thirds of the countries analyzed have average domestic debts below 21 percent of GDP (Table 1 and Figure 1).

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<sup>51</sup> The Fund is working on improving *public debt statistics* in collaboration with the Task Force on Financial Statistics (TFSS). Common debt reporting templates have been developed and are being piloted in a number of countries. Also, countries reporting monetary data in the format of the new Standardized Report Forms are providing greater detail on the public sector debt held by the financial sector.

<sup>52</sup> The LIC group was defined as the 78 PRGF-eligible countries, though some countries were omitted either because no domestic market existed, data was unavailable, or judged by the desk team to be unreliable.

<sup>53</sup> This subsample is used later for regression analysis that relies to a large extent on within-country variation over time.

**Table 1. Domestic Debt in LICs**

	% of GDP	%of Total Debt	Interest Bill (% of Revenues)	Interest Bill (% of total Interest Bill)	Short Term (% of total Domestic Debt)	Ex-Post Real Annual Interest Rate
Mean	18.7	21.3	7.8	42.3	67.2	3.2
Median	15.0	17.2	4.9	42.2	85.3	3.1
1/3 Percentile	9.8	13.2	2.9	35.8	47.2	1.9
2/3 Percentile	20.7	24.6	7.3	51.4	100.0	5.0
Standard Deviation	16.5	16.4	8.4	23.2	37.2	5.9
Max	80.9	87.6	31.9	93.7	100.0	19.8
Min	0.8	0.8	0.0	0.1	0.0	-17.9
Number of Observations	627	619	615	609	384	579
Number of Countries	66	66	65	65	44	64

Source: Bank and Fund staffs

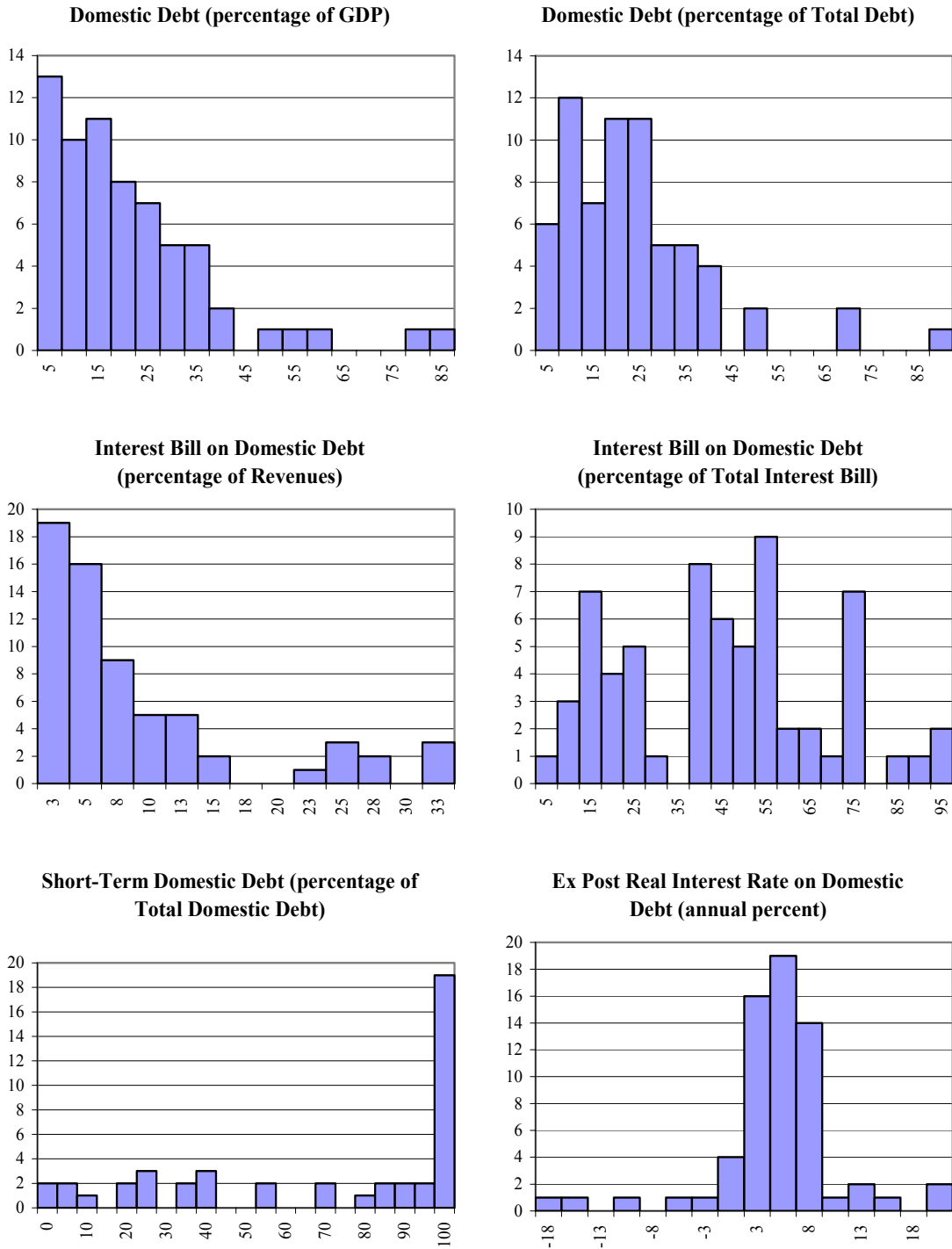
82. **Domestic debt represents about one-fifth of LICs total public debt** in the period under analysis, with two-thirds of countries having domestic debt that is less than a quarter of total public debt. The distribution is also positively skewed, with a median of about 17 percent and a number of outliers at the high end (e.g., Eritrea). This analysis points to domestic debt stocks that are significant in LICs, even as external debt represents the largest part of total public debt.

83. **The importance of domestic debt increases in light of its cost, relative both to total public revenues and to the total interest bill.** The typical LIC paid, on average, about 8 percent of public revenues to cover the domestic interest bill. This represented more than 40 percent of total interest, or more than twice its relative share of the public debt stock.

84. **The less favorable terms associated with domestic debt (compared with concessional external debt) are reflected in both shorter maturities and higher ex-post real interest rates.** For the average LIC in this sample, about 67 percent of domestic debt has a maturity of one year or less (median about 85 percent). The ex-post real interest on domestic debt for the typical LIC in the sample was about 3 percent (the median real rate was very similar).<sup>54</sup> However, the standard deviation of the distribution is almost twice the mean, reflecting a number of countries at both ends of the distribution (some paying very high real interest rates and some paying negative real interest rates on domestic debt).

<sup>54</sup> The higher cost of domestic debt might reflect an appropriate insurance premium against the exchange rate risk.

Figure 1. Domestic Debt in LICs  
(period averages, in number of countries)



Source: Bank and Fund staffs

85. **The distribution of the domestic-debt-to-GDP ratio is similar distribution for HIPCs and non-HIPCs.**<sup>55</sup> Within HIPCs, those which have already reached the completion point have higher domestic debt, possibly reflecting more room for debt accumulation but also lower interest costs underpinned by more developed domestic financial markets. In contrast, pre-decision point HIPCs show lower levels of domestic debt (Table 2). Countries with higher CPIA ratings also have higher domestic debt (Table 3).

Table 2: HIPC Status and Public Domestic Debt  
Domestic Debt (period average, percent of GDP)

HIPC Status	Low	Medium	High	Grand Total
HIPC	10	13	9	32
CP	3	8	5	16
DP	2	2	3	7
PDP	5	3	1	9
Non-HIPC	12	9	13	34
Grand Total	22	22	22	66

Source: Bank and Fund staffs

Table 3: CPIA rating and Public Domestic Debt  
Domestic Debt (count based on period average, percent of GDP)

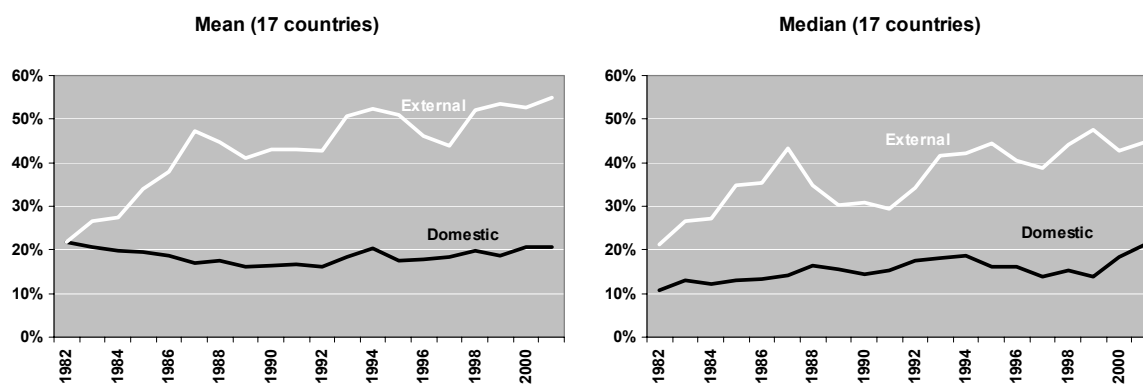
2005 CPIA rating	Low <10% of GDP>	Medium 10%–20%>	High <20% of GDP>	Total
Weak (<3.25)	12	2	5	19
Medium (3.25-3.75)	7	15	11	33
Strong (>3.75)	3	5	5	13
Grand Total	22	22	21	65

Source: Bank and Fund staffs

86. **For a limited set of countries for which lengthier domestic debt series are available, there is little evidence of a secular rising trend in domestic debt.** For 17 countries with uninterrupted data from 1982-2001, the mean domestic debt to GDP ratio was 22 percent in 1982 and 21 percent in 2001 (over the same period the median rose from 11 percent to 21 percent). External debt for the same sample showed a more marked rise (Figure 2).

<sup>55</sup> The null hypothesis of an identical distribution of domestic debt across both categories cannot be rejected.

Figure 2: Trends in Domestic and External Debt (percent of GDP)



### Domestic Debt and Joint Bank-Fund DSAs

87. **A number of joint DSAs have not included a public debt DSA even when domestic debt was relatively important.** Between the inception of the joint DSF in April 2005 and early June 2006, 33 DSAs were published, of which only 24 included a public debt DSA. Of these joint DSAs, 30 corresponded to countries that are included in the domestic debt database used in this appendix.<sup>56</sup> In some cases where a public debt DSA was not included, domestic debt was low (e.g., in Benin, Central African Republic, and Tajikistan it averaged less than 5 percent of GDP for 1995-2004). In other cases, countries had domestic debt burdens above 7 percent of GDP in 2004 but their DSAs did not include sustainability analysis of total public debt (Lesotho, Niger, Rwanda and Tanzania). Table 4 summarizes these patterns and Figure 3 shows average domestic debt indicators for 1995-2004 in the countries with a joint DSA and available data.

<sup>56</sup> Three countries had DSAs but insufficient data to be included in the database: Burkina Faso and Mali had a DSA that did not include a public debt DSA; Togo had a DSA that included a public debt DSA.

Table 4: Joint DSAs and Public Domestic Debt  
Domestic Debt (period average, percent of GDP)

Joint DSAs	Lo <10% of GDP>	Mediu <10% 20%>	Hig <20% of GDP>	Grand Total
Without Public	3	4	0	7
With Public	8	6	9	23
Grand Total	11	10	9	30

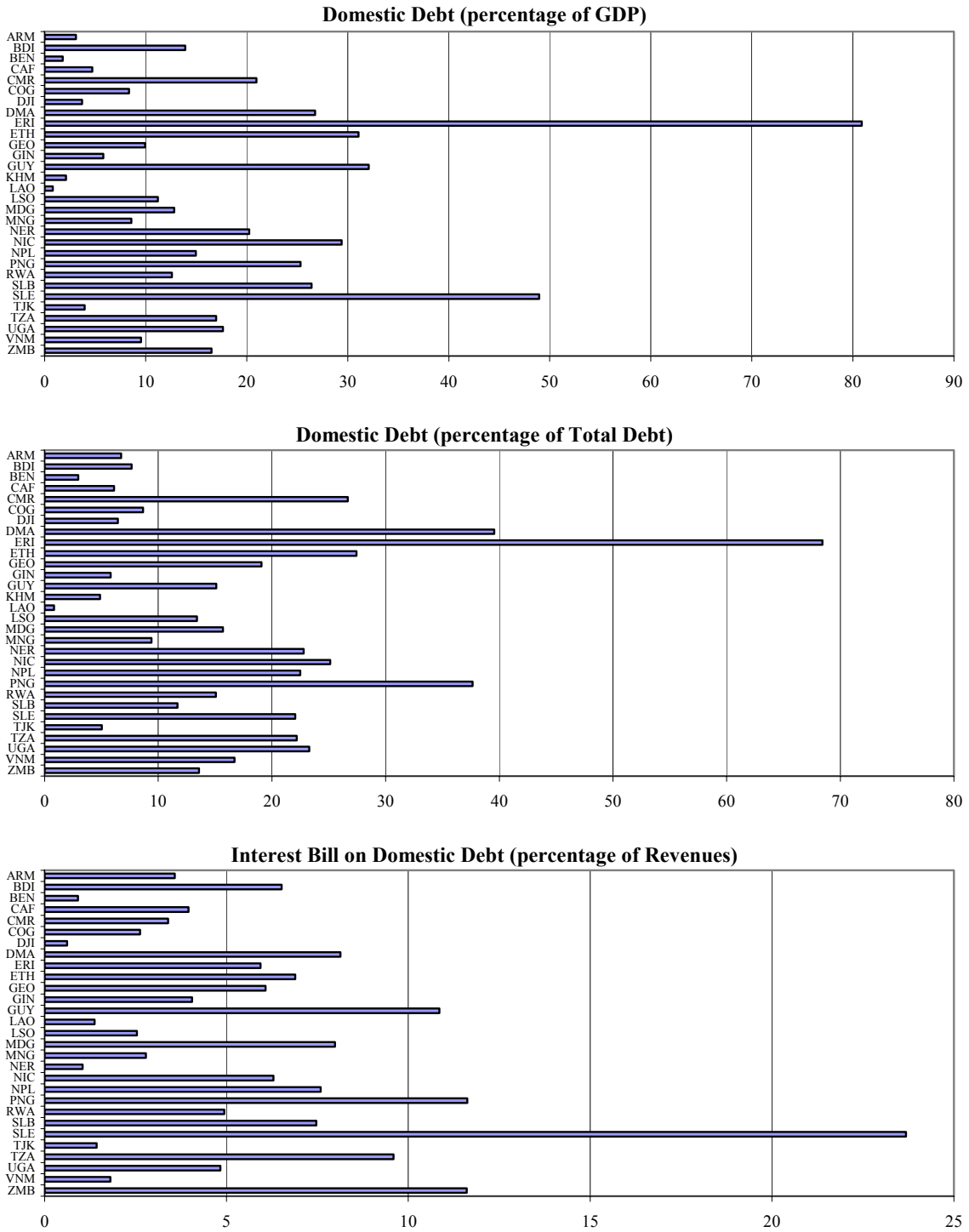
Source: Bank and Fund

Table 5: Risk of Debt Distress and Public Domestic Debt  
Domestic Debt (period average, percent of GDP)

Risk of Debt Distress	Low <10% of GDP>	Medium 10%–20%>	High <20% of GDP>	Grand Total
Low	2	1	1	4
Moderate	3	5	5	13
High	4	4	3	11
Distress	1	0	0	1
Grand Total	10	10	9	29

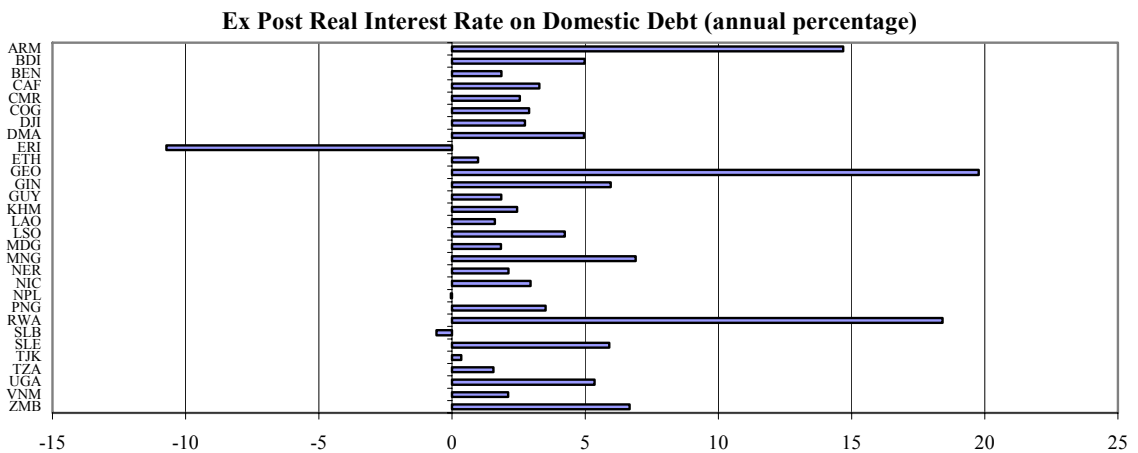
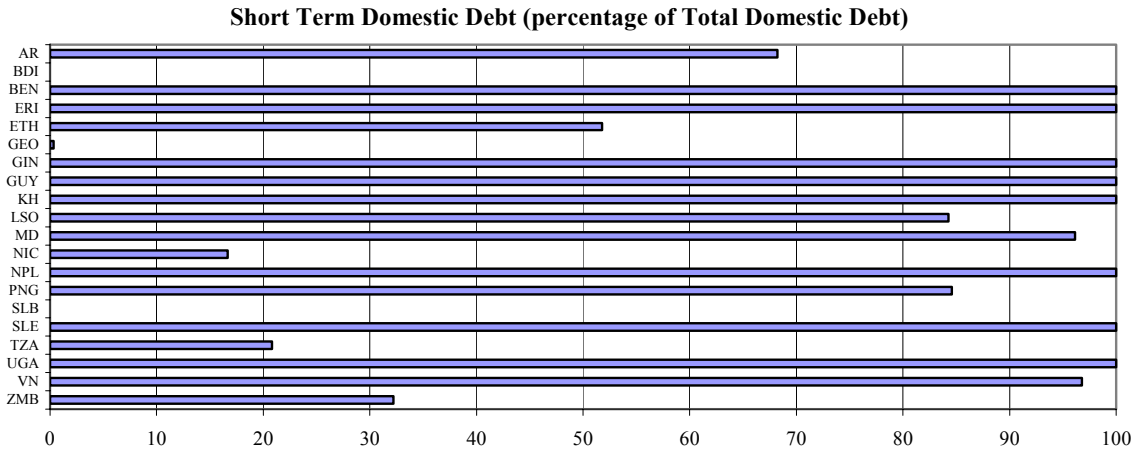
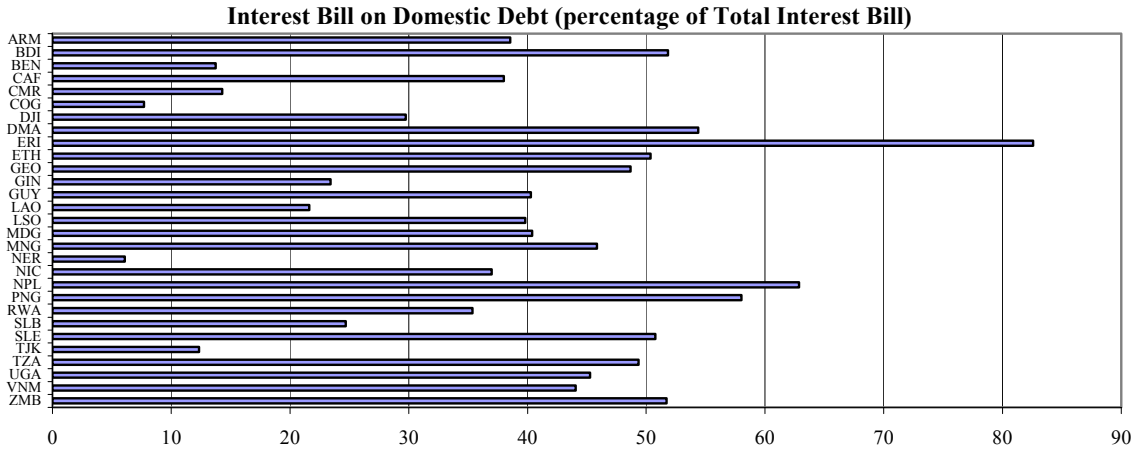
Source: Bank and Fund staffs

Figure 3. Domestic Debt in LICs  
(Joint DSA Sample Countries)



Source: Bank and Fund Staffs

Figure 3 (concluded). Domestic Debt in LICs  
(Joint DSA Sample Countries)



Source: Bank and Fund Staffs

88. **Twelve countries at low or moderate risk of debt distress are located towards the upper end of the domestic debt distribution.** This may not be viewed as surprising, as joint DSAs base risk assessments on the established guidelines, which do not refer to the use of domestic debt indicators.<sup>57</sup> Some examples are:

- **Sierra Leone** was assessed at moderate risk of debt distress. However, domestic debt was above 30 percent of GDP (slightly less than 20 percent of total public debt), and domestic interest was about 30 percent of public revenues, and two thirds of total interest.
- **Ethiopia** was also assessed at moderate risk of debt distress. Its domestic debt (excluding debt owed by public enterprises) was above 30 percent of GDP (about 30 percent of total public debt) and the domestic interest bill represented more than half of total interest (although only 4 percent of government revenues). Real domestic interest rates were negative in 2004.
- **Papua New Guinea** was assessed at moderate risk of debt distress. Domestic debt was 23 percent of GDP (about 40 percent of total public debt). Interest on domestic debt was about 7 percent of total revenues in 2004 (65 percent of total interest).
- **Cameroon** was assessed at low risk of debt distress. Domestic debt was close to 20 percent of GDP and more than 30 percent of total public debt. Domestic interest was 35 percent of total interest, although as a percentage of revenues, it was relatively low, at 2 percent. Cameroon was also on a stronger footing than the other countries discussed here, owing to its oil-related exports.

Table 6: Risk of Debt Distress and Public Domestic Debt

Risk of Debt Distress	Domestic Debt (period average, percent of GDP)	
	Medium	High
Low	Zambia	Cameroon
Moderate	Lesotho Madagascar Tanzania Uganda	Ethiopia Guyana Nicaragua Papua New Guinea Sierra Leone

Source: Bank and Fund staffs.

<sup>57</sup> See [Debt Sustainability in Low-Income Countries—Proposal for an Operational Framework and Policy Implications](#), Box 1.

## Preliminary Analysis of the Role of Domestic Debt in External Debt Distress

89. **The new data allow the extension of an earlier analysis of the determinants of debt distress to assess the role of domestic debt.** The policy-dependent indicative debt burden thresholds used by the DSF are based on a statistical analysis of the likelihood that countries will experience difficulties in repaying external debt obligations falling due (debt distress).<sup>58</sup> The following tables report a preliminary extension of the analysis of the likelihood of debt distress which covers the effects of domestic debt.

90. **The sample is restricted by the availability of domestic debt data.** The domestic debt data used for the regressions reported below come from low- and middle-income countries for the years 1980 to 2005. The data cover 30 countries, of which 18 had per-capita income below US\$1,000 (in 2004 terms) in the last year reported and 13 were PRGF and IDA eligible as of end-2004. The countries are listed in Table 12 at the end of this appendix. The analysis of external debt underpinning the design of the DSF was based on 167 country-year data points, categorized as either the onset of distress or normal (control) episodes. When the requirement of the availability of comparable domestic data for central government is added, the number of observations falls to 73. This has two serious consequences. First, the precision of the estimation falls considerably, allowing less confidence in the robustness of the conclusions. Second, the actual sample of countries and years which we are investigating changes, which needs to be taken into account when comparing the results with those of the previous analysis.

91. **This analysis focuses on a subsample of countries with lower income, compared to the original analysis underpinning the DSF.** Table 7 reports basic statistics for the main variables in the larger and the smaller datasets corresponding respectively to the original analysis using only (public and publicly guaranteed) external debt and the new analysis extended to domestic debt. It shows that the dataset restricted by the availability of domestic debt data contains a higher proportion of low-income countries (per capita income below US\$1,000: 62 percent of the smaller sample containing domestic debt, 43 percent of the larger sample).<sup>59</sup> External debt is only slightly higher in NPV terms as a ratio of GDP or exports in the restricted dataset. Probably because lower-income countries' external debt tends to be at more concessional terms, despite the difference in external debt stock ratios, external debt service is similar across the two samples as a percentage of exports. Finally, domestic debt in the restricted sample is approximately one-third of total debt, consistent with the patterns reported so far for more recent data with greater country coverage.

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<sup>58</sup> See Kraay and Nehru, World Bank [Policy Research Working Paper No. 3200, Feb. 2004](#).

<sup>59</sup> Statistical estimations are run using all the data, rather than restricting to low-income countries, to increase the precision of the estimates.

Table 7. Summary Statistics across Samples

	Larger Sample, n=167 (71 low-income)		Smaller Sample, n=73 (45 low income)	
	Mean	Standard Deviation	Mean	Standard Deviation
GDP per capita (US\$)	1,646	1,448	976	853
NPV of external debt to GDP (%)	28.2	18.6	32.4	20.1
NPV of external debt to exports (%)	132.3	140.5	153.8	144.4
Ext. debt service to exports (%)	21.0	18.3	21.5	17.0
Domestic debt to GDP (%)	..	..	14.9	14.0

92. **Domestic debt matters for the risk of external default.** Probit estimations were run to analyze the probability of a country entering external debt distress, given the level of its external debt, domestic debt, external debt service, and CPIA rating, and controlling for shocks (measured by growth in the prior year).<sup>60</sup> Table 8 reports the results using debt to export ratios. This would not be an appropriate ratio when considering domestic debt, most of which (unless it is exchange-rate indexed) does not represent a claim on the foreign currency reserves of the government. However, these results are reported first to aid comparability with the original regressions reported to the Boards in previous work.<sup>61</sup> The first three columns report the results of a simple regression that includes only the debt stock ratios. Column I reports the result analogous to the previous work focusing on external debt. Column II then restricts to the sample for which we have a measurement of central government domestic debt. The sensitivity of the likelihood of debt distress to the external debt to exports ratio is considerably higher in the smaller sample (compare columns I and II). The sensitivity to the CPIA also disappears in the smaller sample, showing that this is purely a sample effect and not owing to the inclusion of domestic debt in the analysis. Column III then adds domestic debt. The coefficient is not significant, but the point estimate is positive and not significantly different from the coefficient on external debt. Columns IV-VI repeat the pattern of columns I-III, but include the CPIA, which declines in importance in the smaller sample. Finally, columns VII-IX include external debt service. In the larger dataset debt service drove out the debt to exports ratio (compare columns I and VII), whereas in the smaller dataset debt to exports retains its significance when debt service is included (compare columns II and VIII). The result for domestic debt is broadly unchanged by the inclusion of external debt service (compare columns VI and IX): although not statistically significant, the magnitude of its effect is similar to that of external debt.

<sup>60</sup> No model has been explicitly specified to run these preliminary regressions. The basic idea is that both external and domestic public debt constitute competing claims on the same current and future fiscal resources.

<sup>61</sup> See [Debt Sustainability in Low-Income Countries—Proposal for an Operational Framework and Policy Implications](#).

Table 8. Marginal Effects (Standard Errors) on the Probability of External Debt Distress

Specification	I	II	III	IV	V	VI	VII	VIII	IX
Sample Size	167	73	73	167	73	73	167	73	73
External debt to exports	0.336* (0.076)	0.605** (0.171)	0.489** (0.185)	0.247** (0.083)	0.578** (0.177)	0.468** (0.185)	0.0945 (0.094)	0.445** (0.184)	0.391** (0.192)
Domestic debt to exports			0.342 (0.229)			0.396 (0.245)			0.299 (0.253)
External debt service to exports							3.81** (0.95)	1.93 (1.26)	1.512 (1.376)
CPIA				-0.468** (0.149)	-0.0591 (0.263)	0.0823 (0.285)	- (0.163)	-0.00753 (0.267)	0.0818 (0.282)
Growth				-6.80** (2.31)	-3.12 (4.48)	-4.39 (4.85)	-5.03* (2.63)	-3.19 (4.65)	-3.58 (4.97)
Pseudo R <sup>2</sup>	0.113	0.273	0.308	0.218	0.280	0.320	0.340	0.316	0.338

\*\*Indicates statistical significance at the 5-percent level.

\* Indicates statistical significance at the 10-percent level.

93. **A more appropriate analysis of debt distress extended to domestic debt uses debt-to-GDP ratios.** Table 9 reports results for the same analysis using debt burden ratios as a proportion of GDP rather than exports, which is more appropriate when comparing the effects of domestic debt. Accordingly, the coefficients on the domestic debt measure (columns III, VI, IX) are now significant in all specifications. This suggests that the lack of significance of domestic debt in Table 8 was mainly owing to using the inappropriate denominator for comparability purposes. Table 9 is thus viewed as the preferred set of specifications.

Table 9. Marginal Effects (Standard Errors) on the Probability of External Debt Distress

Specification	I	II	III	IV	V	VI	VII	VIII	IX
Sample Size	167	73	73	167	73	73	167	73	73
External debt to GDP	2.35** (0.60)	3.05** (0.93)	2.50** (0.94)	2.20** (0.64)	2.76** (0.93)	2.25** (0.95)	1.37* (0.72)	2.80** (1.09)	2.46** (1.08)
Domestic debt to GDP			2.97** (1.44)			2.69* (1.42)			2.78* (1.43)
External debt service to GDP							8.81** (3.84)	-0.492 (6.127)	-2.66 (6.45)
CPIA				-0.613** (0.155)	-0.321 (0.257)	-0.186 (0.272)	-0.744** (0.171)	-0.315 (0.267)	-0.146 (0.289)
Growth				-6.72** (2.36)	-4.16 (4.14)	-4.47 (4.42)	-5.68** (2.48)	-4.17 (4.13)	-4.62 (4.40)
Pseudo R <sup>2</sup>	0.091	0.177	0.247	0.238	0.214	0.269	0.267	0.214	0.271

\*\*Indicates statistical significance at the 5-percent level.

\*Indicates statistical significance at the 10-percent level.

94. **Using debt-to-GDP ratios, the effect of domestic debt on the risk of external debt distress is robust and similar in magnitude to the effect of external debt.** Columns I-III again report the simplest specification, including only debt stocks. As in Table 8, the restricted sample shows a stronger effect of external debt than the larger sample (compare columns I and II), although the difference is less marked than in Table 8. Using GDP as the

denominator, the effect of domestic debt on the likelihood of debt distress is slightly larger than that of external debt, although the difference between the two is not significant (compare columns II and III). Including the CPIA and controlling for shocks does not change this finding (compare columns V and VI). The predominant ability of external debt service to explain debt distress in the larger dataset (column VII) is absent in the restricted dataset (columns VIII and IX) and the inclusion of external debt service does not reduce the robust effect of domestic debt on external repayment difficulties (compare columns VI and IX).

95. **It is also of interest to examine the changes in the level and composition of debt around episodes of external debt distress.** To do this, we compare the path of domestic and external debt (as a percentage of GDP) in the years immediately before and after the onset of external debt distress (we do not at present have an analogous measure of domestic debt distress and this is anyway much harder to observe, since governments may implicitly default to domestic creditors in a wide variety of subtle ways). This is reported in Table 10. We also look at the behavior of debt to GDP ratios, both domestic and external, throughout episodes of debt distress and compare this behavior with normal episodes (Table 11).

Table 10. Annual Average of Changes in Public Debt (percent of GDP)

Episode	Mean		Median		No. of observations	
	Domestic	External	Domestic	External	Domestic	External
2 years before debt distress	+2.7	+3.9	+0.0	+4.3	27	27
2 years into debt distress	-1.1	+11.7	+0.6	+4.0	32	32
2 years before normal episode	+0.1	+0.9	-0.1	+0.5	101	101
2 years into normal episode	+0.8	+1.9	+0.3	+1.4	129	129

96. **Like external debt, domestic debt increases sharply before debt distress; it however behaves differently from external debt after the onset of debt distress.** Table 10 shows that both domestic and external debt increase significantly – at about 3 percent and 4 percent of GDP per year on average respectively – in the two years prior to debt distress. This is a much faster rate of accumulation than in the run-up to normal periods. But it is in the behavior after the onset of repayment difficulties where domestic and external debt behave differently: domestic debt declines on average by about one percentage point of GDP per year, whereas external debt increases by ten percentage points of GDP per year. Table 11 confirms the same pattern by looking at debt changes *throughout the duration* of debt distress episodes and normal episodes. During normal times and debt distress episodes, domestic debt grows at about the same rate. But external debt grows at a mean rate of nearly 5 percent per year (median 2 percent) during debt distress, versus a mean rate of less than 2 percent (median less than one percent) during normal episodes.

97. **There are several possible explanations for this pattern once debt distress has occurred.** First, in cases where distress is defined by a Paris Club rescheduling or financial support from the IMF, then an accompanying IMF program may preclude large domestic borrowing. At the same time, depreciation or devaluation may drive up the external debt

ratio. Finally, new lending by official creditors to alleviate the liquidity problem may also be responsible for part of the increase in the external debt to GDP ratio.<sup>62</sup>

**Table 11. Annual Average Changes in Public Debt (percent of GDP)**

	Mean		Median		No. of observations	
	Domestic	External	Domestic	External	Domestic	External
During distress episodes	+0.7	+4.7	+0.1	+2.0	89	89
During normal episodes	+0.6	+1.7	+0.0	+0.9	317	317

98. **While domestic debt can and does contribute to the risk of external default, it does not seem to act as a close substitute for external debt.** In particular, there is no evidence of countries substituting from external debt to domestic debt prior to external default or distress. Moreover, once debt distress has occurred, on average it does not appear that domestic debt serves as an outlet for government financing needs. Rather, the opposite seems to be true: external debt tends to be mobilized to address short-term liquidity needs.

Table 12. Countries Used for the Regression Analysis

IDA/PRGF-eligible in 2004	Other
Burundi	Algeria
Ethiopia	Belize
Gambia	China
Ghana	Costa Rica
Kenya	Dominica
Lesotho	Egypt
Malawi	El Salvador
Nepal	Fiji
Papua New Guinea	India
Rwanda	Jordan
Solomon Islands	Latvia
Sri Lanka	Morocco
Zimbabwe	Nigeria
	Pakistan
	Swaziland
	Thailand
	Tonga

<sup>62</sup> The switch into external debt following an event of debt distress may reduce the future absorptive capacity of the local market, with possible negative implications for the composition of domestic debt.

## Appendix 2: The Pace of New Borrowing and the DSF

99. **The main multilateral creditors will continue to make up the lion’s share of new lending to LICs.** Notwithstanding the changing landscape against which lending to low-income countries is taking place – including debt relief, emerging lenders, and “scaling up” – a useful empirical starting point for discussing the pace of new borrowing at the country level is to look at existing lending allocations from the largest creditors—the main MDBs—and ask what implications the full disbursement of these allocations would have, under conservative assumptions about economic growth.

100. **The main MDB lending allocations on their own will not generate a rapid re-accumulation of debt in most cases.** Figure 1 shows the path of (NPV) debt-to-export ratios for most countries now receiving MDRI assistance, broken down by CPIA performance category and split into regional subgroups for the numerous medium CPIA performers.<sup>63</sup> These paths are derived by applying the existing real allocations of lending (allowing for nominal inflation of 2 percent per year) at the standard lending terms of each institution, and assuming *no* grants from the main multilaterals (IDA, the African Development Fund, and the Inter-American Development Bank) and a conservative 4 percent export growth rate across the board.<sup>64</sup>

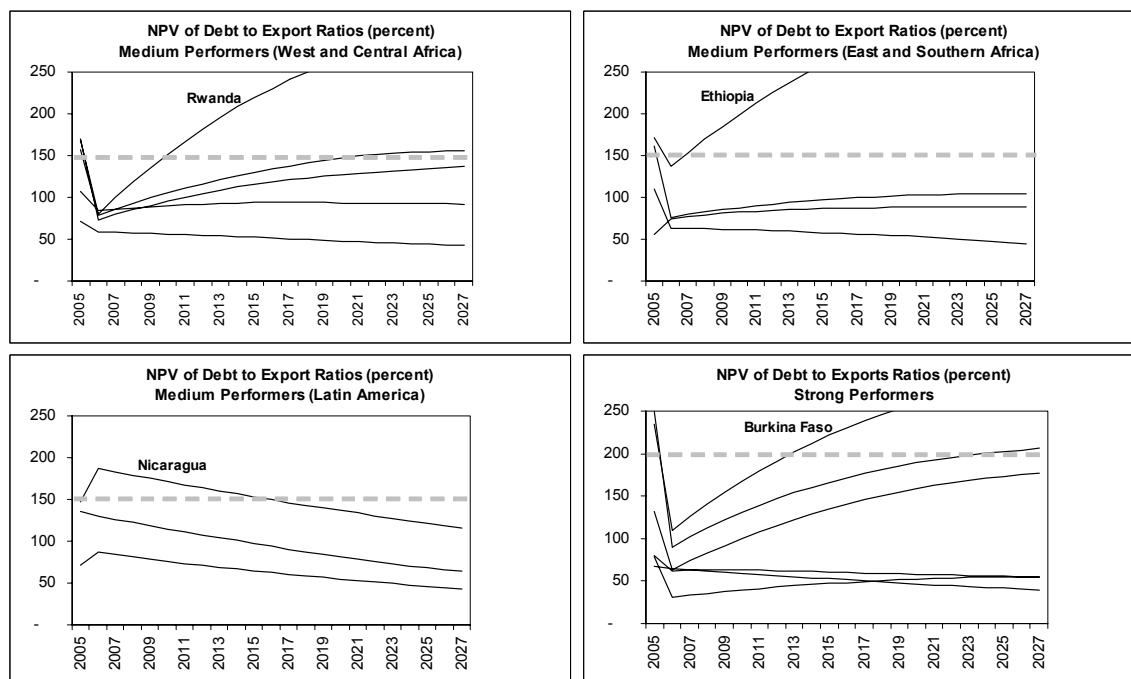
101. **More fundamentally, where potential debt problems occur, these patterns could immediately be detected by the DSF.** Four countries whose ratios would breach the threshold within ten years under the forecast assumptions are labeled in Figure 1: Rwanda, Ethiopia, Burkina Faso, and Nicaragua. Under post-MDRI risk ratings, Rwanda is a red-light country receiving only grants from IDA and the African Development Fund, and Ethiopia and Nicaragua are yellow-light countries. Burkina Faso is a green-light country post-MDRI, and its appearance in the figure requires explanation: the most recent DSA for Burkina Faso justified assumptions of export growth considerably higher than the 4 percent used for this exercise.

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<sup>63</sup> Mauritania, the only weak CPIA performer in the group of post-completion point countries is not shown. In this exercise its debt ratios were projected to remain close to its 100 percent debt-to-exports threshold throughout the forecast period.

<sup>64</sup> Obviously this is a simplification used only for illustrative purposes. The simulation is also rendered conservative in the outer years by ignoring repayments of principal once these become due, since this does not materially affect the conclusions.

**Figure 1**  
**Simple Simulations of Debt Burden Trajectories using Existing Lending Allocations**



102. **The DSF, as implemented, already provides a forward-looking and practical framework within which to analyze the pace of new borrowing.** The fact that the rising debt trajectories in Figure 1 are picked up by the DSF should not be surprising: a DSA performs similar analysis but in a far more tailored and nuanced way for each country. Given the uncertainty surrounding any country's ability to absorb new financing productively, and thus the difficulty of estimating an optimal pace of borrowing, this detection of potentially dangerous borrowing paths underlines five important characteristics of the DSF in its existing form, namely that it is:

- (a) *Proactive* – 20-year forecasts of debt burdens are used to determine the financing mix offered by the largest two creditors in most cases (IDA and the African Development Fund);
- (b) *Self-regulating* – stress tests that are automatically calibrated to historical economic performance, including GDP growth, export growth, FDI, financing terms, and other factors relevant for debt sustainability;
- (c) *Operational*: the risk rating has consequences for lending decisions that immediately address problems as they are detected, since both IDA and the African Development Bank base grant allocations on its findings;<sup>65</sup>

<sup>65</sup> Coordination with other creditors is discussed elsewhere. A growing number of creditors have expressed an interest in using the results of joint Bank-Fund DSAs to guide their lending decisions.

- (d) *Regular*: the DSA is updated every year, allowing any incipient problems owing to the pace of new borrowing or updated economic forecasts to be addressed as they arise;
- (e) *Self-correcting*: DSAs provide explanations of all the main assumptions underlying their projections (and hence reasons for optimism where this is the case) and how these drive projected debt ratios and thus risk ratings, giving the opportunity to modulate these assumptions over time as circumstances dictate.

**Scaling up and non-concessional borrowing could still be troublesome, depending on the extent to which they generate growth.** The graphs also clearly illustrate a cautionary message: debt sustainability could be jeopardized relatively rapidly under scenarios of significant increases in new borrowing by LICs from other creditors in addition to the main MDBs, particularly if this borrowing is contracted at or near market interest rates.

### Appendix 3: The Link Between Debt-Financed Investment and Growth—Some Empirical Evidence

103. **This appendix reviews some of the empirical evidence about the channels and indicators that are relevant for the link between debt-financed investment and growth.** These channels include rates of return to public investment, including the potential for crowding in private investment, and structural and macroeconomic absorptive capacity constraints.

#### *Rates of Return*

104. **Under the right overall economic environment and policy framework, there is evidence of potentially high rates of return for public investment.** Estimates from aggregate production functions imply average rates of return in the range 20-30 percent for both aid- and domestically-financed investments.<sup>66</sup> This implies that debt-financed investments would, on average, more than pay for themselves. However, there is no guarantee that these average results would apply in particular country cases. One reason for this is that the fruit of public investments will also depend on the overall economic environment and the policy framework of each country, as emphasized by a broad literature.<sup>67</sup> Aid helps most when complemented by good macroeconomic and structural policies, and specific evidence on public investment bears this out. In this sense indicators such as the CPIA governance rating and PEFA estimates of the effectiveness of public expenditure management could thus provide information on the likely efficiency of public investment.

105. **The composition of public expenditure would typically be an important indicator of the likely growth impact.** Some projects can lead to higher national income, revenues, and/or exports well within the 20-year time-frame of the DSF. Others may serve other objectives, most notably the non-poverty MDGs. Clemens, Radelet and Bhavnani (2004) provides a potentially useful classification, based on ECD/DAC data, of aid-related spending which can, or cannot, reasonably be expected to produce growth over a five year horizon.<sup>68</sup>

106. **Differences in the types of capital as well as in public investment rates across different sectors may help explain differences in rates of return.** Canning and Bennathan (2000), for example, find empirical evidence that the highest rates of return to infrastructure are found in countries with low levels of infrastructure relative to their levels of human and physical capital, and with low costs of infrastructure construction. Moreover, they find that the rate of return on infrastructure capital (electricity generation and roads) is roughly equal

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<sup>66</sup> Dalgaard and Hansen (2005).

<sup>67</sup> Subramanian and Kumar (2006).

<sup>68</sup> Care should be taken in applying this breakdown in particular country cases, because Subramanian and Kumar (2006) find these results to be econometrically fragile.

to non-infrastructure capital (including other physical capital and human capital), and that there are rapidly diminishing returns for each type of infrastructure.

107. **Public investment can generate productivity spillovers, though the evidence is mixed.** Not only can public investment raise the stock of capital and thus directly raise output, but it can improve the productivity of other factor inputs inducing “crowding in.” Firm-level investment-climate surveys can provide information on whether crowding-in is likely to be significant in a particular situation. Eiffert and others (2005) find that losses due to power outages are associated with lower levels of TFP indicating that public infrastructure directly impacts private productivity. However, the evidence on the role of public investment in attracting private investment and generating productivity spillovers is mixed. In particular, public investment is not systematically a powerful predictor of the incidence or duration of growth accelerations (see Box 1).

### *Structural Constraints*

108. **Measures of the overall policy environment may provide some indication of when decreasing returns to public capital are likely to set in sharply as a result of structural absorptive capacity constraints.** Using aggregate data, Isham and Kaufman (1999) find that, even in a strong policy environment, diminishing returns set in when public investment reaches, on average, 9.5 percent of GDP. On the other hand, firm-level studies may provide country-specific information on whether there are increasing returns to scale. For instance, Kraay and Raddatz (2005) concluded that there is some evidence of moderate increasing returns to scale at the plant level but scant evidence of any substantial increasing returns to scale external to the firm.

109. **In addition empirical studies suggest that the efficiency of investment seems to decline with its volume, as a consequence of flow capacity constraints.** Pritchett (1997) suggests that in developing regions—East Asia excepted—only  $\frac{1}{2}$  to  $\frac{3}{4}$  of investment expenditures are transformed into productive capital. To this extent measures of the completion or implementation rate of public investment projects may provide insight into the scope to increase the rate of useful investment spending. Moreover, measures of public expenditure management and governance, and sectoral balance of expenditures, may indicate where the risks of ineffective scaling up are greatest. Herrera and Pang (2005), for example, estimated inefficiencies in the health and education sectors in the range of 35-50 percent. They find that efficiency scores are negatively correlated to the size of public expenditure, the share of the wage bill in total public budget, and the proportion of the service that is publicly financed. Gupta, Verhoeven, and Tiongson (2001) find some evidence that the returns to public spending on health are higher in poor countries than elsewhere.

### *Macroeconomic Constraints*

110. **Although it is argued that scaling-up aid can induce Dutch disease, the theoretical results and empirical evidence are not conclusive.** The short-run effects of Dutch disease are claimed to be real exchange rate appreciation and loss in competitiveness. Of course, real appreciation and even a reduction in the size of the traded goods sector need

not be a “disease”, because they may be a necessary counterpart to freeing up the resources required to make critical aid-financed investments. In the long run, therefore, as the fruits of investment materialize, productivity increases in all sectors may offset the initial loss of competitiveness, reverse the effects on the real exchange rate and increase exports.<sup>69</sup> In addition while some empirical studies find that aid inflows do affect exchange rates and lead to overvaluation (Rajan and Subramanian, 2006), others find that the effects of aid on the real exchange rate are small and statistically insignificant (Bulir and Lane, 2002). Therefore, a nuanced case-by-case approach for assessing the risk of Dutch disease is necessary. In a particular case, various indicators of competitiveness, effectiveness of aid-financed investments, productivity in tradable and non-tradable sectors, and the growth rate of manufactured exports can be useful. Firm-level investment climate surveys may provide guidance on whether real wages are a binding constraint on export performance, relative to other factors such as infrastructure shortages.

111. **Establishing the presence of financial crowding out is a challenge.** The share of domestic debt in GDP as well as the common indicators such as the level of real interest rates and the rate of private investment may indicate the risk of crowding out and the scope for channeling resources towards private investment. Conversely, the level of excess liquidity in the banking system may indicate those situations in which other factors (e.g., property rights) may be limiting private investment. IMF (2005) discusses the key reasons for the difficulty in establishing crowding out, including the fact that credit markets rarely clear through changes in interest rates alone.<sup>70</sup>

### *Aggregate Analysis*

112. **Empirical evidence on the aggregate effect of all these channels, namely rates of return to public investment, and structural and macroeconomic absorptive capacity constraints, is ambiguous.** While a number of studies find evidence that, on average, the net contribution of public investment to growth is positive, the robustness of most of these results is uncertain, and the direction of causality remains unclear.<sup>71</sup> Even when the relationship is judged to be statistically significant, the estimated growth impact tends to be relatively small (Calderon and Servén, 2004). On the other hand Clemens, Radelet and Bhavnani (2004) find significant growth effects of aid directed toward growth-enhancing investments.

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<sup>69</sup> See Van Wijnbergen (1986), Yano and Nugent (1999), Torvik (2001) and Adam and Bevan (2006). Dutch disease will tend to reduce exports relative to growth. The risk that exports suffer in particular underscores the value, in the DSF, of focusing on those debt burden indicators that give the most alarming results.

<sup>70</sup> IMF, 2005; [\*Monetary and Fiscal Policy Design Issues in Low-Income Countries\*](#), p. 34.

<sup>71</sup> “... the case for increased infrastructure investment must be built on its expected macro impact on growth and ultimately poverty reduction. Yet our understanding of exactly how this linkage works remains incomplete, empirical evidence of its magnitude is not very robust, and the policy implications are unclear.” (Bourguignon, 2006).

113. **Furthermore, the factors that determine the appropriate rate of public investment, including absorptive capacity, evolve over time.** In particular, they depend on the policy environment and on the pace and nature of complementary investments, including in absorptive capacity itself. For example, stock and flow absorptive capacity will evolve with investments in managerial capacity, human capital, and other factors. Investments in governance and public expenditure management will tend to have a particularly strong impact on flow absorptive capacity. To take another example, the scope for Dutch disease depends on the productivity effects of associated investments, and the success of related competitiveness policies, such as efforts to improve the investment climate.

#### Box 1. Frequency and Determinants of Growth Accelerations

Because a successful scaling up exercise is likely to center around an acceleration in growth rates, a look at some stylized facts may be useful. Based on the historical experience of 47 low income countries across five-year periods from 1971 to 2003, the table below shows the probability that a low-income country with a certain level of growth over the last five years (rows) will grow at a particular rate over the following five years (columns). For example, a country with an average growth between 0 and 2.5 percent over the past five years could expect to have a growth rate above 2.5 percent with a 25 percent probability over the next five years (summing the fourth and fifth columns of the third row). While the probabilities in this table are unconditional—as there is no effort to control for variables such as policies or country characteristics that may affect results in a particular case - the table provides a useful check for scenario builders.

The main conclusion is that maintaining a high level of positive growth for a sustained period is quite difficult. In general, there is a tendency for regression in growth rates—and in total factor productivity growth (not shown)—following a boom period. Countries with low initial growth rates are more likely to improve their performance than to maintain low growth. However, those with high initial growth rates are more likely to experience lower growth in the ensuing period than to maintain or improve their strong performance. Furthermore, the most stable growth rates are those in the middle; very weak or very strong growth rates are less likely to persist.<sup>1</sup> These results are consistent with recent findings that while growth accelerations are not themselves uncommon, durable expansions—such as the decade-long jump in growth needed to meet the MDGs—are much rarer.<sup>2</sup>

Per Capita Income Growth Transition Probabilities						
		Average Annual Growth Rate, Second 5-year period				
		<-2.5%	-2.5-0%	0-2.5%	2.5-5%	>5%
Average Annual Growth Rate, first 5-year period	<-2.5%	0.24	0.31	0.27	0.14	0.04
	-2.5-0%	0.31	0.26	0.33	0.02	0.08
	0-2.5%	0.14	0.17	0.45	0.22	0.03
	2.5-5%	0.08	0.22	0.19	0.37	0.14
	>5%	0.38	0.08	0.08	0.31	0.15

**Box 1 (concluded). Frequency and Determinants of Growth Accelerations**

In general, the literature on growth accelerations indicates that the likelihood that an acceleration can be initiated and sustained depends on a number of factors:

Ex-ante improvements in inflation, the exchange rate, private investment, and the perception of corruption coincide with the start of longer (but not shorter) growth acceleration episodes.<sup>3</sup>

There is some Africa-specific evidence that economic liberalization and political transitions are predictors of accelerations, while debt burdens are negatively correlated with the probability of a sustained acceleration.<sup>4</sup>

The manufactured exports sector, the success of which tends to be linked with sustained growth accelerations, also benefits from a competitive real exchange rate and trade liberalization. It might be hoped that the odds of a long growth boom would be much higher when associated with a scaling up of public investment. However, while overall investment is a significant predictor of growth in a variety of contexts, public investment is less obviously so and does not seem to have been critical to most growth acceleration episodes.<sup>5</sup>

Overall, however, it is quite difficult to explain, let alone predict, most growth accelerations or their duration.<sup>6</sup> In particular, comprehensive policy reform does not seem to clearly precede most accelerations. These results broadly echo many of the results from the broader growth literature and suggest caution with respect to overly optimistic growth forecasts in scaling up scenarios.

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1/ There are few observations with very high initial growth rates (i.e., in the bottom row), so generalizations about this case need to be treated particularly cautiously.

2/ Hausmann et al. (2004).

3/ GMR 2005.

4/ Pattillo et al. (2005).

5/ Berg et al. (2006a), Jones and Olken (2005), IMF (2005).

6/ Hausmann et al. (2004), Berg et al. (2006a).

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