

An Insight into Debt Portfolio Benchmarks and Targets

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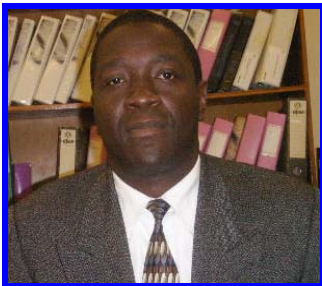
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An Insight into Debt Portfolio Benchmarks and Targets

1. Introduction

The aim of the debt management office is to manage sovereign debt in a manner that is consistent with key pre-determined objectives, designed to guard against any potential debt servicing difficulties. Although the primary objective of the debt management office has been to meet the ongoing financing needs of the Government, minimizing the cost of financing subject to an acceptable level of risk is also considered important in all debt management functions. The objectives of debt management also include developing efficient and deep markets in government securities, facilitating the domestic financing of Government¹.

In an attempt to manage costs and risks, the debt manager often uses benchmarks to guide the debt office towards achieving debt targets. Suitably identified benchmarks can also trigger early warning signals of potential debt servicing problems, and at the same time provide information to market participants regarding the consistency of national debt policy objectives and the ability to achieve medium and long-term macroeconomic stability. There exists, however, key trade-offs while implementing benchmarks for debt management and, therefore, the role of debt managers becomes an important determining factor in benchmark implementations.

This paper outlines the importance of portfolio benchmarking and discusses a number of areas for undertaking portfolio benchmarks. It discusses some of the principles and constraints of benchmarking and the possible trade-offs associated with the selection of key debt targets.

2. The importance of portfolio benchmarking

The design of portfolio benchmarks and targets is a significant component in the debt management function, which is supposed to assist in identifying risk tolerance levels and facilitate the following:

- (i) decision making on the composition of the debt portfolio with regards to various parameters, such as currency, maturity, interest rate, and instruments choice;
- (ii) active management of the debt portfolio by allowing the debt manager to make adjustments in response to changing market conditions;
- (iii) decisions regarding the use of risk management instruments such as financial derivatives;

¹ See the Guidelines for Public Debt Management, Prepared by the Staffs of the International Monetary Fund and the World Bank, March 21, 2001.

- (iv) imposing significant discipline for the debt management officials; and
- (v) enhancing transparency and accountability in Government debt management.

3. The Principles for the Benchmark

In defining portfolio benchmarks, the debt manager should have a thorough knowledge of the country's overall macroeconomic situation interfacing with the Government's debt management objectives². While international benchmarks can serve as the starting point, country specific characteristics and interaction of macroeconomic variables in the given context become important considerations in setting portfolio benchmarks. The benchmarks and targets should limit risks and also provide the debt manager with a robust measurement of performance. For practical implementations and operational convenience, the benchmarks should have certain key attributes, as follows:

- First, the benchmark should be robust enough to act as a reliable measure of performance with as little as possible reliance on assumptions about the future economic and financial environment. Debt managers need to constantly review the selected benchmarks and targets in response to changing domestic and external environment.
- Second, the outcome of the benchmark implementation should be evaluated over the lifetime of the debt portfolio. Key benchmark indicators are subject to change in the short run from their desired levels due to temporary shocks. However if such deviation persist, a change in debt portfolio becomes imminent, for example, due to shifts in creditor composition or interest variations or changes in policy regime.
- Third, the benchmarks should provide the lowest cost to government for the chosen level of risk. The costs of maintaining benchmarks and the associated policy trade-offs should not outweigh the realizable benefits of the targeted portfolio selection.
- Fourth, to the extent possible the benchmarks should be simple, transparent and highly achievable. Selection of benchmarks based on such criteria as optimality or efficiency might appear technically sound, but would lack practical implementation, particularly in small country environment that are characterized by market inefficiency.
- Fifth, the benchmark must be achievable over the desired time horizon, as otherwise very optimistic targets can jeopardize the credibility of the debt

² See for reviews, GAO Report, "Debt Management, Insights and Tools – A case of selected Countries", November 2001; M Cassard, D Folkerts-Landau, "Sovereign Debt: Managing the Risks - Finance and Development, 1997; Johannese Leobacher (2002) "Bond Markets in the Region:- Matching Long-term Liabilities with Corresponding Assets"; Hahm, Joan-Ho, Jinho Kim, (2003), Cost-at-Risk and Benchmark for Government Debt Portfolios, International Economic Journal, Vol 17, Issue 2.

managers. Debt managers should, therefore, strike for affordable targets that will reduce the fiscal exposure to risks of their government.

4. Framework for Portfolio Benchmarks

Drawing from the international best practices, the following broad areas can be suggested for undertaking the debt portfolio benchmarks and establishing targets:

4.1 Sustainability Benchmarks

One of the key aspects of benchmarking is to ensure that the level of debt is sustainable in the medium run. Although debt sustainability has been defined in several ways, two simple definitions are as follows: *economic debt sustainability*, which means that the debt service does not inhibit growth and the overall economic policy, and, *financial debt sustainability*, which means that a country is able to service its outstanding level of debt. A wide range of quantitative indicators could be used to assess both *economic* as well as *financial* debt sustainability: stocks versus flows (debt service) for the numerator, and GDP, exports, and fiscal revenues for the denominator³. In addition, public domestic debt should be taken into account because in countries with high public domestic debt, this is a factor that significantly affects sustainability of budget balance. Similarly, private sector debt should be given consideration if it also plays an important role. The Asian financial crisis of 1997 indicated that a high level of private debt can also accentuate debt servicing problems, with defaults by such entities and creating moral hazard problems for the system.

It is therefore prudent for the debt office to identify a set of benchmarks or targets which would ensure debt sustainability in the medium run, keeping in view the macroeconomic targets. In broader terms this would imply that the level of debt at any point of time is consistent with the overall macroeconomic targets such as maintaining stable debt-to-GDP ratio, by promoting investments and growth, and maintaining external viability. Although there is no rule of thumb that would determine the thresholds for debt sustainability, this can be measured and assessed simultaneously using a set of ratios such as follows:

Debt Service Ratio: In terms of sustainability indicators, the ratio of debt-service payments (principal and interest service) to the value of exports of goods and services indicates how much

³ See some of the studies undertaken by the IMF, Debt- and Reserve-Related Indicators of External Vulnerability, March 23, 2000; Debt Sustainability in Low-Income Countries—Proposal for an Operational Framework and Policy Implications, February 3, 2004 and Berensmann Kathrin, “How to Ensure Debt Sustainability Beyond the HIPC initiative”, 2004, CDI.

of a country's export revenues will be used up in servicing its outstanding level of external debt.

- Interest Service ratio:*** Ratio of interest payments to earning in exports of goods and services indicates the terms of external debt burden. It also indicates how much the current earnings are needed in order that the debtor remains current in servicing debt.
- External Debt/Exports:*** External debt to exports (of goods and services) ratio can be measured as an indicator of sustainability, since an increasing debt to exports ratio indicates that the country may have problems meeting its obligations in future.
- External Debt/GDP:*** The ratio of total outstanding external debt to national income, which provides an indication of the potential to service external debt, by switching resources from production of domestic goods to the production of exports.
- NPV of Debt/Exports:*** Net Present Values (NPV) of debt to current exports compares the debt burden with repayment capacity.

A number of emerging and developing country governments attempt to maintain the aggregate debt target ratio below 50 percent of GDP in the medium run. This includes both external as well as domestic debt. Under the HIPC Initiative key indicators of external debt sustainability have included the Net Present Value (NPV) of debt-export ratio, which should be below 150%; or the NPV of debt-to-fiscal revenue ratio which should be below 250%. Under this scheme, a country's debt level is considered unsustainable if debt-to-export levels are above a fixed ratio of 150 percent; or, countries that have very open economies where the exclusive reliance on external indicators may not adequately reflect the fiscal burden of external debt, the debt-to-government revenues above of 250 percent are considered unsustainable. The debt-to-government revenues would represent a country's capacity to repay if the exports were on the private accounts, and this way it implied that the debt service relevant to social spending by considering relationship with the total government revenues.

It is to be recognized here that the indicators of sustainability over time would depend upon the interaction of several important variables such as economic growth, development in the country's external sector, as well as the way the current account deficits are being financed. The later raises important issues as regards the sources of external finance, whether from multilateral or bilateral sources, or such other forms of external inflows as portfolio flows, other invisibles from tourism or remittances, or from non-debt creating flows such as foreign investments.

4.2 Liquidity Benchmarks:

Even though the debt indicators may portray a sustainable trend there are times when these would be under stress, primarily affected by short term liquidity factors. Temporary liquidity problems can intensify debt servicing difficulties, which can be triggered by factors such as a sharp drop in export earnings, increase in international interest rates, appreciation of the loan currency or increase in prices of imports such as oil. Some of the liquidity specific benchmarks can be identified as follows:

Reserves/Imports: The ratio of foreign exchange reserves to imports serves as an important indicator of liquidity, requiring that a country should maintain at least reserves to cover at least 3 months of imports. Depending on the type of exchange rate regimes and controls the reserve requirements can be quite large.

Short Term Debt/Reserves: This ratio assesses the vulnerability to liquidity situation in the event of capital flight or repayments on account of short term debt or due to such other forms of speculative capital outflows.

Interest Payments/Reserves: Measures the interest payments on all external debt which could be covered by usable reserves.

Short Term Debt/Total Debt: The ratio of short term external debt (all debt with residual maturity of less than a year) in total external financing measures the extent of vulnerability in the event of liquidity crisis.

The structure of debt as regards its composition (official versus private), maturity (short versus long term), and the degree of concessionality (grant elements), and interest rates (fixed versus floating) are considered as important indicators affecting liquidity. The recent financial crises in Mexico (1994), Southeast Asia (1997) and Russia (1998) brought to the forefront situations of liquidity problems as the governments of these economies were forced to refinance maturing short term foreign currency denominated debt under severely deteriorating economic conditions (with higher interest rates, depreciated domestic currencies, and fiscal vulnerability). Maintenance of a set of liquidity specific indicators at their desired level would prevent governments from fiscal vulnerability in response to shocks.

4.3 Fiscal Benchmarks:

High debt level, both domestic as well as external, typically causes concern to Governments as there occurs shifts in resources away from development towards debt servicing. High level of domestic debt in particular can contribute to fiscal vulnerability in the medium run. Policy makers need to monitor certain fiscal indicators of debt vulnerability such as follows:

Debt service/Fiscal Revenue: This ratio serves as an indicator of how much budgetary resources are utilized for government debt servicing, on account of external as well as domestic.

NPV of Debt/Fiscal Revenue: This ratio measures the debt servicing obligations in relations to government revenues, which actually affects social spending.

The debt management office should consider the fiscal strategies of the government while designing portfolio benchmarks and setting debt targets. For instance, during a period of budget deficits, the primary consideration is making government securities more attractive to potential investors and deciding whether to introduce new instruments. On the other hand, during a period of budget surpluses, governments may decide to decrease the level of debt which would reduce the availability of established benchmarks. Similarly a given budgetary target such as a cap on debt-to-GDP ratio would limit flexibility to benchmark selection. It is in this context the importance to maintain the debt market to facilitate potentially higher levels of government borrowings in the future is being recognized.

In some situations, trade-offs between minimizing financing costs and supporting domestic markets may become more apparent. Governments at times aiming at lowering of the annual budget costs of debt servicing or its volatility might concentrate on specific maturity sector of the bond markets. Thus shortening of the maturity under a steeply rising yield curve although may reduce interest costs in the short run, it might increase refinancing risk eventually, or the lengthening of maturity would create bunching of debt serving in the future if the debt manager does not create a smooth redemption profile. Similarly, diversification to foreign borrowing in a low interest currency to achieve lower interest cost may increase currency risks. It is therefore necessary for the debt manager to recognize that portfolio benchmarks and debt targets would depend jointly on a set of variables such as fiscal position, debt management objectives, government risk preferences and debt market conditions.

4.4 Aggregate Portfolio Benchmark

One way of looking at the aggregate debt portfolio is in terms of its composition as regards external and domestic debt. A higher level of external debt is understood to have a higher risk element in the debt portfolio, as well as remaining susceptible to exogenous factors. A higher composition of external debt in the aggregate debt portfolio can exacerbate the impact of uncertain exogenous factors, such as volatility of exchange rates and interest rates. Therefore, governments need to maintain an optimal composition of domestic and external debt in the aggregate debt portfolio. Two indicators can be considered relevant in this context:

- Portfolio Duration:*** Setting an appropriate duration of debt portfolio in order that the portfolio is neutral to the changes in interest rates.
- Domestic Debt/Total Debt:*** This ratio measures the dependency on external borrowings for development. There should a fare balance between securing long term financing from external sources and domestic securities markets.

The aim of debt management strategy should be to attain an optimum maturity structure of the debt portfolio, as the exposure to changes in interest rates inherent in the maturity profile of the debt stock can impact debt costs. Typically the target debt structure should not be based on a particular interest rate outlook, rather be based on an overall strategy to achieve an optimum duration of the portfolio, with an appropriate mix of short term treasury bills and medium to long term bonds. Government should structure the debt portfolio to provide reasonable cost stability under a range of potential interest rate environment and achieve a balanced maturity profile.

There is no single optimal solution to the government financing mix, as regards domestic versus external sources. It would depend on the availability of financing alternatives at any given time, the depth of the government securities market, and the country's creditworthiness and accessibility in international markets.

4.5 Risk Management Benchmarks

An important aspect of debt management function is concerned with the identification as well as management of risks in a debt portfolio. In a world of floating exchange rates and interest rates, the debt servicing costs fluctuate significantly due to fluctuations in market prices. Exchange risk arises not only due to the changes in local currency against the loan currency, but also due to cross-currency movements in the global markets. The later can have significant impact on debt servicing; for instance, the appreciation of the Japanese yen against the US dollar can cause a rise in the dollar value of the external debt contracted in Japanese yen. The risk would be accentuated when debt is contracted at variable interest rates, such as LIBOR based loans. Debt contracted at variable interest rates is subject to risk as market interest rates rise, or debt contracted at fixed interest rates can have risk in the presence of substantial decline in market rates. The portion of debt contracted at variable interest rates should be controlled, and its exposure to rising interest rates be monitored and managed.

Three important risk related benchmark indicators can be suggested:

Budgeted Debt Service/Actual: This ratio measures the risk of public debt portfolio on a cash flow basis, in terms of its impact on the actual debt service as against the budgeted debt service.

Floating rate debt/Total Debt: Measures the component of debt that is affected by a rise in market interest rates, particularly for foreign currency loans with floating rates.

Risk Tolerance Level: This type of risk is being measured in a forward looking framework, in terms of the potential absorptive capacity of the government of the increase in future debt servicing, that are due to changes in the underlying variables such as exchange rates and interest rates.

The currency and interest rate composition of debt as well as its maturity structure are important determinants of risk in a debt portfolio. For example, a typical benchmark would specify the currency composition of the debt, and for each currency, the duration, the proportion of fixed and floating rate instruments and the types of instruments (bank loans versus bonds). It is in this context benchmarking government debt to some optimum currency portfolio (resembling the currency composition of reserves and exports earnings) or an international interest rate benchmark (which may be some kind of weighted average interest rate, OECD consensus rate or the World Bank lending rate) should be considered important.

Debt management policy should lay emphasis on stabilizing the debt service costs, by maintaining an optimal combination of fixed/floating rate debt as well as maintaining an optimal currency composition of debt portfolio. The examples of Columbia and New Zealand given below provide indications of how currency and interest rate benchmarks are selected, with differing compositions of debt portfolio. Periodic review of external debt portfolio should be undertaken, in response to major swings in exchange rates and interest rates, thereby identifying expensive foreign currency debt and undertaking risk management strategies. Debt managers should also take advantage of the favorable exchange rate and interest rate environment, and negotiate with the lenders for their prepayment, with due consideration to the penalty of such actions. It needs to be noted here that the risk related benchmarks have to be determined given the risk tolerance for the Government. It would depend on how much volatility that the Government financial position can sustain without jeopardizing the budget targets and macroeconomic policies.

Table 1: Columbia's Foreign Currency Debt Benchmark

	1997	1999
Currency (% of Total)		
USD	80%	83%
EURO	15%	13%
JPY	5%	4%
Interest Rate		
Duration*	3.5 Years	3.5 Years
% Floating	Max 30%	Max 30%
Liquidity		
% of amortization**	Max 15%	Max 15%

* Average interest reset period, expressed in years

** % yearly principal amortizations/total principal.

Source: Presentation at the World Bank Second Sovereign Debt Management, November 1-3, 1999.

***New Zealand's example:** Prior to the elimination of net foreign-currency debt, the mean-variance modeling from which the strategy for the foreign-currency debt portfolio drew insights consistently showed that the United States dollar represented the dominant currency when attempting to reduce risk in New Zealand's debt portfolio. The mix between Japanese yen and European currencies was unstable, and rebalancing costs were prohibitive. Consequently, the New Zealand Debt Management Office (NZDMO) adopted a benchmark for the net liability of 50% in United States dollars, 25% in Japanese yen, and 25% in European currencies. Those allocations corresponded approximately to relative weights of gross domestic product and, so, were consistent with a "sell the market" strategy. For the target duration for each currency sub-portfolio, NZDMO adopted the duration of the government bond market in each currency.*

Source: New Zealand Debt Management Office, "Sovereign Asset-Liability Management in New Zealand", 2002.

5. Conclusion

In concluding, it is necessary to realize that the indicators as explained in this paper need to be assessed simultaneously with due consideration of their interactions. While setting portfolio benchmarks and targets, it is necessary to recognize the environment within which the debt management function is undertaken, considering the country specific factors such as the borrowing history, sovereign ratings, and development of the financial sector, monetary conditions and the climate of external resources. The selection of optimum debt portfolio benchmarks and debt targets require careful analysis of several macroeconomic variables. The debt management function needs not only to focus on the long run outcome of its policy targets on the macroeconomic variables, and but also at the same time minimizing any short run difficulties in debt servicing.

The debt managers should also recognize that there exists significant trade-offs in setting portfolio benchmarks, which constrain their ability to conduct effective debt management. Also important is the existing framework of debt management supporting the effectiveness and credibility of policy strategies. The quality of institutions and the transparency of governance system also matter much in managing debt and ensuring its sustainability. Benchmark indicators can serve merely as the early warning signals, and solutions would require undertaking suitable macroeconomic policies or responding proactively to changes in financial environment. The ratios and targets provided in the paper are merely indicative, which are expected to serve as medium term indicators of debt management functions, and that they should be constantly reviewed with changing situations.