GOVERNMENT OF DUBAI

دائرة المالية
Department of Finance

Economic Papers Series

Public Debt Measures and Management Strategy

This study presents forms of public debt, public debt measures and public debt management strategy based on review of some selected past studies. The first part of the study highlights reasons of government indebtedness, forms of public debt and payment of public debt. In part II, an overview of debt burden indicators are presented and subsequent parts of the study deal with measuring cost and risk of public debt in terms of asset liability management framework. An overview of measuring public debt sustainability is also part of the study. The final part of the study deals with the issues of public debt management which are mainly based on the IMF`s guidelines for public debt management.

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4/5/2010

Paper No. (3)

PUBLIC DEBT MEASURES AND MANAGEMENT STRATEGY

I. Introduction

Public Debt is an obligation of a government and is also sometimes referred to as government debt. It is a term for all of the money owed at any given time by any branch of the government. It encompasses public debt owed by the federal government, the state government, and even the municipal and local government.

Public debt, indebtedness of a central government expressed in money terms, often referred to as national debt. The debt is computed differently by nearly every nation. Some authorities exclude all government obligations other than those incurred by public borrowing from individuals. Public debt is one result of government financing expenditures. It is different from private debt, which consists of the obligations of individuals, businesses, and nongovernmental organizations. Public borrowing is generally believed to have an inflationary effect on the economy and for that reason is often resorted to in recessionary periods to stimulate investment, employment, and consumption.

High debt leads generally to high debt service liability. However, the severity of the debt service liability of a country depends on the relationship of its debt to its gross national product (GNP) and on the level of debt in relation to its debt service obligations. As such, the amount of debt of a country is not perhaps as much a matter of concern as the extent of debt service liability. Generally, high debt service liabilities become a cause of poverty, inequality and unemployment in highly indebted countries because debt settlements in the face of slow exports growth does not leave enough money to finance the needed expenditures on health, education and general welfare. In this context, the issues related to debt management become particularly important. The objective of present study is to review some of the forms of public debt, measures of public debt and highlight the issues related to public debt management. The reasons of government indebtedness are presented in section II along with forms of public debt and payment of public debt. An overview of the indicators of public debt is presented in section III and section IV deals with the measurement of cost and risk of public debt in terms of asset liability management framework. Section V presents measurement of public debt sustainability and issues related to public debt management are presented in section VI.

II. Reasons for Government Indebtedness

Governments may borrow to meet temporary needs, as when estimated revenue falls below or is exceeded by estimated expenditures. Short-term treasury notes, payable by increased taxes or by greater economizing, may be issued, but such a debt should not become permanent. Nonetheless, many national governments incur such debt because of an unwillingness to limit spending or increase taxes for fear of the political consequences. Borrowing to finance public works, especially when widespread unemployment exists, is another source of public debt and is justified in part by their long-term social utility. The largest public debts are incurred to meet emergencies, such as war debts that arise when it is difficult to finance the extended activities of the government by new or increased taxes, or when the government must borrow abroad to finance the war effort.

Public debt is advantageous if national funds are secured at an interest rate lower than that provided to private industry and in that the financial operations of government are funded on a permanent basis. It may also have an expansionary effect on employment and production during times of high unemployment. The disadvantages are that unjustifiable projects may be undertaken because the full burden of payment is postponed; that the government's demands may become so large that the interest rate on government bonds will rise to the point where money is diverted from private enterprise; and that too great a debt may induce governments to depreciate currency or default on obligations.[1]

Forms of Public Debt

Public debt can be made up of all sorts of different types of debt. A great deal of public debt is external debt, which is money that is owed by the government to foreign lenders, either in the form of international organizations, other governments, or groups like sovereign wealth funds which invest in government bonds. Public debt is also made up of internal debt, where citizens and groups within the country lend the government money to continue operating. In some ways, this is a lot like lending to oneself, since ultimately the responsibility for public debt falls back on the very people lending money.

Governments with strong economies, who are well trusted in the world, are able to raise funds by issuing their own securities, usually called government bonds. Individuals, other nations, and groups buy these bonds, and the government promises to pay them back at a certain, usually fairly good,

[1] R. Heilbroner and P. Bernstein, *The Debt and the Deficit* (1989);

interest rate. Less robust governments, who do not have the trust from the world to be able to issue bonds and expect people to buy them, may turn to international institutions, or even normal banks, to give them loans, usually at less favorable rates.

Public loans, the characteristic form of government debts in modern times, may be in the form of short-term instruments, e.g., tax warrants, treasury certificates, treasury notes, and other notes such as those of the central bank; of long-term government bonds; and of various notes that promise yearly payment of interest but do not specify a date for payment of principal. Although governments in times of stress have often converted bonds to issues carrying lower interest rates, have depreciated the value of currency, or have defaulted entirely on their obligations, with disastrous results for the bondholders, the number of those holding government obligations has increased in recent history. Default on obligations held by foreigners has been a reason offered for past intervention by major powers in Latin America, Africa, and elsewhere.

Payment of the Public Debt

The payment of the public debt improves the national credit by instilling public confidence in the economy, which usually leads to economic growth. Public debts may be paid by a sinking fund[2] or by annuities[3], but both have the disadvantage of committing the government to fixed annual payments, whether convenient or not. Another method is to use only surplus revenue, setting a permanent appropriation to be paid against principal over and above annual interest rates. The ultimate security of the public debt lies in the willingness of the people to pay and the ability of the government to collect taxes.

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[2] A Sinking Fund is a fund established by a government agency or business for the purpose of reducing debt. In modern finance, a sinking fund is a method by which an organization sets aside money over time to retire its indebtedness. More specifically, it is a fund into which money can be deposited, so that over time its preferred stock, debentures or stocks can be retired. The amount invested in sinking fund can also be used for purchasing various assets for the company. The companies put some money into sinking fund account and after some years when the asset (like machinery) becomes old the company can use this money for purchasing the new asset.

[3] The term annuity is used in finance theory to refer to any terminating stream of fixed payments over a specified period of time. Examples of annuities are regular deposits to a savings account, monthly home mortgage payments and monthly insurance payments. Annuities are classified by payment dates. The payments (deposits) may be made weekly, monthly, quarterly, yearly, or at any other interval of time.

III. Measuring Debt Burden

The public debt stock represents the nominal amount of debt owed by a country. The present value of debt – the future debt service on a debt aggregated based on its cost in today's money and debt service is the annual amounts payable on the debt. There is confusion about how to judge the payment capacity of a country. One could use GDP/GNI, exports or budget revenue, preferably expressed in PV terms, if PV is being used as the measure of the debt.

Overview of Indicators of Public Debt

Indicator	Description
Debt-Related Indicators	Debt-related indicators should generally be used in conjunction with medium-term scenarios, which permit the analysis of debt sustainability over time, and under a variety of alternative assumptions.
Ratio of External Debt to Exports	Useful indicator of trend in debt that is closely related to the repayment capacity of the country.
Ratio of External Debt to GDP	Useful indicator of relating debt to resource base (reflecting the potential of shifting production to exports or import substitutes so as to enhance repayment capacity).

Average Interest Rate on External Debt	Useful indicator of borrowing terms. In conjunction with debt/GDP and debt/export ratios and growth outlook, a key indicator for assessing debt sustainability.
Average Maturity	Useful for homogeneous categories such as non-concessional public sector debt, to track shortening of maturities or efforts to limit future vulnerabilities.
Share of Foreign Currency External Debt in Total External Debt	Useful indicator of the impact of exchange rate changes on debt (balance sheet effect), especially in conjunction with information on derivatives that transform the effective currency composition.[4]

Indicators of Reserve Adequacy	**Description**
Ratio of Reserves to Short-Term External Debt	Single most important indicator of reserve adequacy in countries with significant but uncertain access to capital markets. Should be based on measure of reserves consistent with the *Balance of Payments Manual, Fifth Edition* and operational guidelines for *Special Data Dissemination Standard* reserves template, and a comprehensive measure of short-term debt of the public and private sectors on a remaining maturity basis.

[4] Source: "Debt- and Reserve-Related Indicators of External Vulnerability" (SM/00/65), IMF, 2000.

Ratio of Reserves to Imports	Useful measure for reserve needs for countries with limited access to capital markets; effectively scales the level of reserves to the size and degree of openness of the economy.
Ratio of Reserves to Broad Money	Measure of the potential impact of a loss of confidence in the domestic currency, leading to capital flight by residents. Particularly useful if the banking sector is weak and/or credibility of the exchange rate regime remains to be established. There are, however, other potential sources of capital flight as well.

IV. Measuring Cost and Risk of Public Debt: Use of an Asset Liability Management

(ALM) Framework:

To assess current risk position, some indicators are used such as market risk which include (i) external debt/total debt – (ii)- currency structure – (iii)- floating interest rate debt/total debt (iv)duration – (v)- average life (vi)- amortization schedule (amount or percentage of principal payments due each period). Another indicator is fiscal sustainability which includes (i) Total debt/GDP (ii) Total debt/tax revenues (iii) Debt service/total revenues (iv) new borrowings/debt. We also assess current risk position by balance of payments sustainability which include (i) external debt/exports and (ii) external debt service/exports.

Risk Measure

A debt profile is a set of indicators that imply potential volatility of debt servicing. Most government debt offices use cash flow simulations to measure cost and risk of debt where cost is measured as the future debt servicing costs and risk is measured as the potential increase in costs. However risk is a relative concept and it is useful to have a framework for modeling it.

Government Asset Liability Management (ALM) Framework

An ALM framework examines the nature of the government's assets and liabilities, with the objective of reducing overall risk for the government. Risk of the government's liabilities is measured relative to the government's assets, and its objectives for managing those assets. This approach facilitates risk management by matching assets and liabilities natural hedging, and providing a framework for measuring costs and risks.

Simplified Sovereign Balance Sheet

Assets	Liabilities
Present value (PV) of future taxes (revenues)	Debt Present value of future expenditures (excluding debt service)

PV of future taxes - PV of future expenditures = PV of debt

In this framework, debt is the equivalent of deferred taxes.

Risk Implications of the Simplified Balance Sheet

Balance sheet risk is minimized when risk characteristics of debt matches that of future taxes minus future government expenditures (T- G = the primary surplus). If T and G are largely in domestic currency, risk is minimized when debt is in domestic currency. As (T – G) is relatively insensitive to real interest rates, risk is minimised by issuing long-term, fixed rate debt long duration. If domestic debt market is relatively undeveloped, then there is trade-off between long-duration foreign debts vs. short-duration domestic debt

Best debt strategy requires measuring cost and risk of trade-offs between external and domestic debt.

Managing Risk on a Sub-Portfolio Basis

Assets	Liabilities
Foreign exchange reserves	Foreign exchange debt
Present value of government revenues	Long term, fixed rate, Domestic currency debt

Balance sheet risk is minimized by matching the foreign exchange reserve composition and interest rate characteristics of external debt with foreign exchange reserves and also by issuing the rest in long maturity, fixed rate domestic currency debt.

Methodology for Measuring Cost & Risk

In "Pure ALM methodology", for each debt strategy, simulate a range of paths of possible future debt servicing costs & future government revenues or primary surplus. If the two flows move together when market prices change i.e. sensitivity of A&L to market variables is the same, the liability portfolio is immunized, otherwise debt servicing costs will be volatile relative to revenues. Risk is measured as the volatility. However the joint modeling of debt servicing costs and revenues is highly complex and requires jointly modeling interest and exchange rates, macro variables and the government's assets and liabilities. A few debt offices in Sweden, Brazil and UK have begun experimenting with this approach. Most debt offices simplify the process by comparing the range of future debt servicing costs against a notional reference representing the government's main assets by assuming assets denominated in local currency and of long duration. This implies risk should be measured in terms of volatility of debt service in local currency over the medium- to long-term. Mainly there are four step procedure for measuring cost and risk.

Step 1: Determine the Cost

Debt service cost flows are projected forward for a medium to long-term horizon under base case assumptions of the funding strategy and future market rates. The base case assumptions of future market rates should be "market neutral" e.g.: it should be based on survey of market participants; derived from implied currency and interest rate forwards and assuming that rates remain constant. The cost is measured as annual debt servicing costs under base case assumptions such as total debt service; or debt as a proportion GDP (proxy for power to tax).

Step 2: Design Risk Scenario

New projections are made under alternative market rate assumptions and alternative cases can be generated using statistical techniques, historical analysis and "worst case" scenarios etc.

Step 3: Measuring Risk

Risk is measured as the volatility or potential increase of debt servicing costs relative to the base case and risk can be modeled using deterministic scenarios or stochastic simulations. It is best to start with simple scenario models and move to stochastic simulation later as scenario models handle economic shocks more easily (stochastic models tend to assume normally distributed variables; and better to consider impact of shocks on GDP and primary surplus as well as interest and exchange rates which are steps towards developing integrated macroeconomic models.

Step 4: Repeat Process for other strategies

Steps 1 - 3 are repeated for alternative funding strategies, and costs and risks of strategies are compared - e.g. strategy A: 75% fixed 25% floating" strategy B: 25% fixed, 75% floating - if available] explore impact of index-linked bonds - more resilient in event of demand shocks.

V. Measurement of Public Debt Sustainability

There are many alternative indicators of fiscal and external debt sustainability that can be used to assess possibility of default (insolvency). Three of the most commonly used are the debt to GDP ratio, the debt to export ratio and the debt to government revenues ratio. Figuring out which one is the most appropriate one is crucial to assess sustainability. For example, based on the criterion of the external debt to GDP ratio, Argentina does not look very different from the average of other emerging markets and Latin American countries as it has a ratio of about 50%. While, based on the debt to export ratio, Argentina is way out of line with a ratio above 400% and much larger than that of most emerging markets. So, Argentina looks insolvent based on the debt to export ratio and solvent based on the debt to GDP ratio (Robini, 2001).[5]

Thus, which is the most appropriate measure? Some argue that the debt to export ratio is more relevant as a country needs to rely on hard currency receipts to service its external debt and export are the sources of this revenue. But conceptually what matters for sustainability of external debt is the ability to generate trade surpluses (the difference between exports and imports) rather than just exports as a way to avoid an explosive path for the external debt. The debt to export ratio also penalizes countries that, given their size or structural characteristics, have a low export to GDP ratio.

To clarify this point, assuming two countries A and B that are identical. Their GDP is 100 each, their external debt is 50 each, their exports are 20 each (with 10 of it exported to each other and the rest exported to the rest of the world). Then the debt to GDP ratio if 50% for each and the debt to export ratio is 250% each. Assume that, at these ratios, both countries are solvent. Now take the two countries and merge them. Total GDP will be 200, total debt will be 100 and total exports will be 20 (as exports among each other are now inter-regional rather than international trade). Then the combined A+B economy has a

[5] One caveat on the debt to GDP ratio: if the currency is over-valued/misaligned and a real depreciation is necessary to restore growth, the current debt to GDP ratio is misleading. For, example with a 30% overvaluation, a current 50% of GDP ratio would become closer to 67% of GDP after the real depreciation has occurred. This has relevance for the case of Argentina.

debt to GDP ratio that is still 50% but now the debt to export ratio is 500%, a figure that is clearly unsustainable and would suggest default. So, using the debt to export criterion, the same two economies look solvent if they are a separate country and insolvent if they are joined in one country. This suggests that the debt to export ratio may be a faulty measure of solvency; larger countries with greater intra-regional, rather than international trade, would look insolvent while smaller countries with similar fundamental would look solvent just because their export to GDP ratio is higher. Thus, the debt to GDP ratio may be a better measure of solvency. However the debt to export ratio should not be disregarded altogether in spite of some of its shortcomings. In the example above, the export to GDP ratio is lower for a larger country with greater amount of inter-regional, rather than international trade. But a small open economy, like Argentina, is usually more open than a larger economy; thus, low export to GDP ratio may reflect currency overvaluation, high degrees of trade protection and other policy restrictions to openness rather than structural factors that explain lower openness. Thus, an economy that should be more open than it is and has a large debt to export ratio may find it harder to service its external debt. For example, if export ratios are low, even a large real depreciation may not improve exports and the trade balance enough to reduce a resource (trade balance) gap necessary to prevent insolvency. So, the degree of openness (export to GDP ratio) does affect the country ability to service its debt.

A related discussion is relevant for deciding on whether the debt to GDP or the debt to government revenues is more relevant to assess sustainability. If most of the external debt of the country represents the liabilities of the sovereign (or if we are looking at the issue of domestic debt and possible insolvency of the sovereign with respect to this debt), it makes more sense to scale the debt to some fiscal variable rather than GDP. In fact, if a country is structurally unable to raise revenues out of GDP to finance its spending and service its debt (i.e. government revenues are a small share of GDP), GDP is not an appropriate scale variable and government revenues are a better one. In this respect, one could again argue that government revenues are not the appropriate scale variable as what matters for solvency and debt dynamics is not the absolute value of revenues but rather the ability to

achieve primary surpluses (revenues minus non-interest spending). While this point is correct, it is easier to achieve a certain amount of primary adjustment when revenues are large as a share of GDP than when they are a small share of GDP. For example, a 2% of GDP primary adjustment (be it on the revenue side or the spending side) should be easier to implements when revenues/spending are closer to 30% of GDP than when they are only 10% of GDP; in the former case, a 2% primary adjustment is a 20% adjustment of revenues/spending while in the latter case is only a 6.6% adjustment of revenues/spending. Thus, looking at the debt to revenue ratio may be relevant.

The analysis above suggest that the three indicators of debt sustainability discussed above (and there are other ones one could look at too) have all some pros and cons and they may all be useful in making an assessment of whether a country is insolvent. The following table presents the ranking and debt burden in terms of public debt as percentage of GDP.

Table

Debt Burden Ranking in terms of Public Debt as % of GDP

Rank	Countries	Amount
# 6	Egypt:	105.8 % of GDP
# 7	Italy:	104 % of GDP
# 8	Singapore:	96.3 % of GDP
# 16	Jordan:	72.4 % of GDP
# 17	Morocco:	67.4 % of GDP
# 26	United States:	60.8 % of GDP
# 32	India:	58.2 % of GDP
# 33	Tunisia:	55.4 % of GDP
# 46	Brazil:	45.1 % of GDP
# 49	United Kingdom:	43.6 % of GDP

Rank	Countries	Amount
# 84	Saudi Arabia:	24.3 % of GDP
# 85	Honduras:	24.1 % of GDP
# 86	Slovenia:	23.6 % of GDP
# 87	Moldova:	23.3 % of GDP
# 88	Senegal:	22.9 % of GDP
# 89	Mexico:	22.8 % of GDP
# 90	Namibia:	22.3 % of GDP
# 91	Mozambique:	22.2 % of GDP
# 92	United Arab Emirates:	21.2 % of GDP
# 93	Guatemala:	20.9 % of GDP
# 94	New Zealand:	20.7 % of GDP
# 95	Uganda:	20.6 % of GDP
# 96	Tanzania:	19.6 % of GDP
# 97	Venezuela:	19.3 % of GDP
# 98	Uzbekistan:	18.7 % of GDP
# 99	China:	18.4 % of GDP
# 100	Algeria:	18 % of GDP
# 101	Lithuania:	17.3 % of GDP
# 102	Iran:	17.2 % of GDP
# 111	Qatar:	11 % of GDP
# 113	Kuwait:	9.7 % of GDP
# 118	Russia:	5.9 % of GDP
# 119	Botswana:	5.4 % of GDP
# 120	Libya:	4.7 % of GDP
# 122	Oman:	3.7 % of GDP
	Weighted average:	43.2 % of GDP

Source: IMF World Economic Outlook (2007)

VI. Public Debt Management

Sovereign debt management is the process of establishing and executing a strategy for managing the government's debt in order to raise the required amount of funding, achieve its risk and cost objectives and to meet any other sovereign debt management goals the government may have set, such as developing and maintaining an efficient market for government securities." Public debt management is generally associated with fiscal policy / budget execution / cash management, monetary policy and operations, market development and infrastructure, financial stability, legal framework and institutional arrangements.

Why is Debt Management Important?

The current global financial crises, the capital account crises of the 1990s / early 2000s (including Mexico, the Asian crisis, and Russia, Brazil and Argentina) taught valuable lessons to manage public debt as structure of debt portfolio – public and private - can aggravate crises. The crises can create depreciation in the foreign exchange rate and this increases the debt to GDP ratio. Also currency mismatch (on country balance sheet) can reduce positive economic effects of devaluation and aggravate crisis (through impact on debt servicing) and in this way excessive short-term debt increases rollover and liquidity risk. Those economies with well regulated and sound bond markets were less affected by shocks (Chile) or recovered faster (Hong Kong). Prudent debt management can make countries less vulnerable to contagion and financial risks. However, prudent debt management is no solution for sound fiscal & monetary management. It is therefore necessary to formulate a debt management framework and reduce the probability of country's vulnerability.

A Framework for Public Debt Management

According to "Guidelines for Public Debt management" prepared by the staff of IMF and World Bank (March 2001), there are mainly 6 Themes / 3 Broad Strands of public debt management.

1) Organizational Framework

- Debt management objectives and coordination
- Transparency and accountability
- Institutional framework

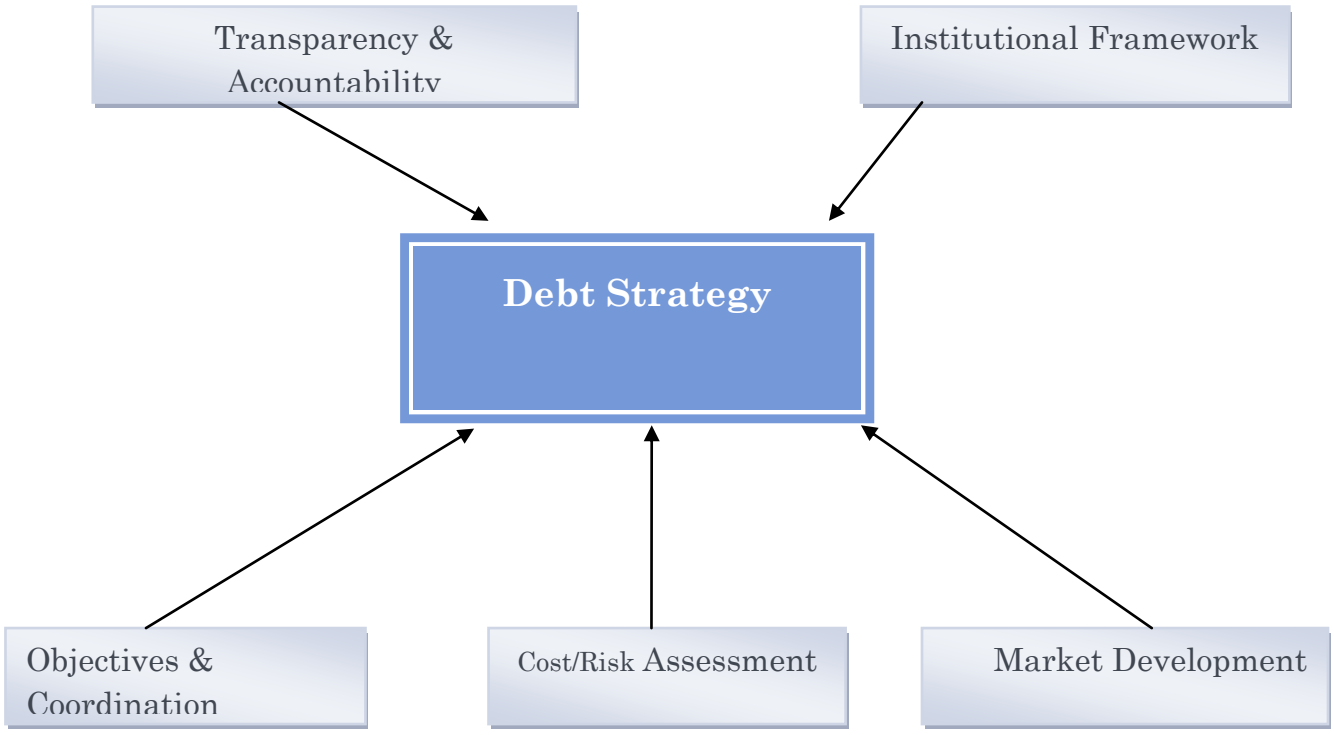
2) Analytical Framework

- Debt management strategy
- Risk management framework

3) Operational Framework

- Efficient market for government securities

All these strands inter-connected and ideally debt strategy draws all strands together into a coherent framework.



Debt Management Objectives and Coordination

The basic general objective of debt management is to ensure financing needs and payment obligations are met at the lowest possible cost over medium to long run, consistent with a prudent degree of risk. Further development of the domestic debt markets an important additional objective. The scope of these objectives is to encompass the main financial obligations over which the central government exercises control"

To achieve these objectives, debt managers, fiscal policy advisors, and central bankers should share an understanding of the objectives of debt management, fiscal, and monetary policies given the interdependencies between their different policy instruments. Debt managers should convey to fiscal authorities their views on the costs and risks associated with government financing requirements and debt levels. These are often a challenging task both in developing and developed countries. In practice coordination with monetary policy—e.g. instruments, forecasts, timing, development, cash Management—cash flow forecasts and fiscal Policy—e.g. budget forecasts and execution, costs projections, debt levels.

Transparency and Accountability

For prudent debt management, objectives should be clearly defined and publicly disclosed and the measures of cost and risk explained. Also the allocation of responsibilities among the MOF, central bank or a separate debt agency should be publicly disclosed" and important aspects of debt management operations should be publicly disclosed. It is also important to provide information on the past, current and projected fiscal activity and consolidated financial position of the government. For the purpose, publish information on debt and financial assets, including currency, maturity and interest rate structure and debt management activities should be audited annually by external auditors.

Institutional Framework

Legal framework should clarify the authority to borrow and to issue new debt, invest, and undertake transactions on the government's behalf. Organizational framework should be well specified and ensure mandates and roles are well articulated. Staff should be subject to code-of-conduct & conflict-of-interest guidelines regarding the management of their personal financial affairs. Sound business recovery procedures are needed to mitigate the risk that debt management activities might be severely disrupted by natural disasters etc.

Debt Strategy & Risk Management

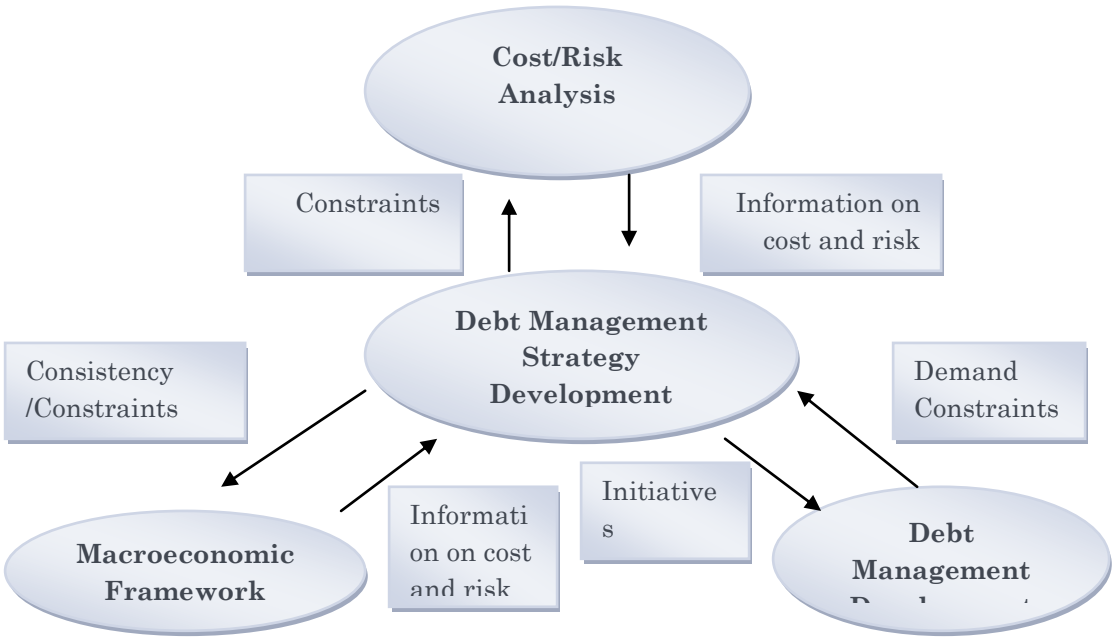
An effective debt strategy should be one that translates the objectives of the debt manager into a practical guide that covers the instruments to be issued, the distribution among the instruments, and the timing of the issuance of such instruments.[6] Risk in the portfolio should be mitigated by modifying the debt structure, taking account of the cost of doing so as risk management is the process of developing a framework to identify and manage the trade-offs between expected cost and risk of the debt portfolio. These risks may include rollover risk, market risk, interest-rate risk, exchange-rate risk, liquidity risk, credit risk and operational risk etc. For the purpose of debt management, it is necessary to examine the (financial and other risk) characteristics of the government's revenues, choose portfolio of liabilities that matches these characteristics – debt service costs co-vary with revenues. Regularly conduct stress tests of the debt portfolio on the basis of the shocks to which the government—and the country more generally—are potentially exposed and consider the impact of contingent liabilities when making borrowing decisions.

Efficient Market for Government Securities

[6] Guidelines for Public Debt Management, International Monetary Fund (March 2003)

An important instrument of debt management is to ensure that policies and operations are consistent with an efficient government securities market and strive to achieve a broad investor base, with due regard to cost and risk, & treat investors equitably. Operations in the primary market should be transparent and predictable and debt issuance should use market-based mechanisms, such as auctions. It is also necessary to promote well-functioning secondary markets under a wide range of market conditions. The debt managers, central banks, MoFs should work closely with market participants and regulators to promote market development. For efficient market the systems used to settle and clear transactions involving government securities should reflect sound practices.

Developing a Comprehensive Public Debt Management Strategy



Conclusion

Every government faces policy choices concerning debt management objectives, its preferred risk tolerance, how to manage conditional liabilities, and how to establish sound governance for public debt management. There is general consensus on prudent sovereign debt management practices that can also reduce vulnerability to economic and financial shocks. These include: recognition of the benefits of clear objectives for debt management; weighing risks against cost considerations; the separation and coordination of debt and monetary management objectives and accountabilities; a limit on debt expansion; the need to carefully manage refinancing and market risks and the interest costs of debt burdens; and the necessity of developing a sound institutional structure and policies for reducing operational risk, including clear delegation of responsibilities and associated accountabilities among government agencies involved in debt management.

It is recommended that debt management needs to be linked to a clear macroeconomic framework, under which governments try to ensure that the level and growth of public debt is sustainable. A public debt management problem arises due to lack of attention by policymakers to the benefits of having a prudent debt management strategy and the costs of weak macroeconomic management. It is, therefore, necessary for policy makers to pay greater attention to the benefits of having a prudent debt management strategy, framework, and policies that are coordinated with a sound macro policy framework. In the second, inappropriate fiscal, monetary, or exchange rate policies generate uncertainty in financial markets regarding the future returns available on local currency-denominated investments, thereby inducing investors to demand higher risk premiums. Particularly in developing and emerging markets, borrowers and lenders alike may refrain from entering into longer-term commitments, which can suppress the development of domestic financial markets, and severely hold back debt managers' efforts to protect the government from excessive rollover and foreign exchange risk. A good track record of implementing sound macroeconomic policies can help to alleviate this uncertainty. This should be combined with building appropriate technical infrastructure—such as a central registry and payments and settlement system—to facilitate the development of domestic financial markets.

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