

Assessment of Debt Risks and Mitigation of their Impact on the Public Debt Structure: Study Findings

The study was made along the approaches to the risk detection and economic content thereof generally accepted in the world practice and reflected in the relevant documents issued by the IMF, WB and the INTOSAI Working Group on Public Debt. These approaches were extended to conform to the current trends in the debt area, in the world and Russian practice.

The results of this study are laid down in the Analytical note on assessment of risks that arise in the course of the RF public debt management which was reviewed by the Board of the Chamber of Accounts on September, 18, 2009.

1. Assessment of the Sustainable Debt Size and Structure

A number of indicators (debt indices or ratios) are applied in the world practice to determine a sustainable size and structure of the public debt, e.g. public debt to GDP ratio, relation between public debt size and government budget revenues, or between principal and interest payments for the debt of all sectors of the economy to non-residents, on the one hand, and exports, on the other, etc.

The world experience, current and prior crises showed that critical or threshold values of the above debt ratios are not rigid levels excess of which will inevitably cause debt problems.

The assessment of debt risks and relevant indicators is, therefore, of great importance.

It is worth mentioning that contingent liabilities may play an important role in debt management, e.g. in case of government guarantees, subfederal and federal borrowings that can be made by the government should any negative events take place.

In the world practice the quantitative assessment of risks that depend on market factors is made with the help of stress-tests, a procedure of modeling future situations

when the values of indicators impacting the risk size are artificially made equal to those worst expected.

Under this provision the risk is regarded as unacceptable if the growing value of debt obligations (placement prices, principal and interest payments) in the pessimistic scenario exceeds the present value of the obligation by the preliminarily set upper limit. The risk is also unacceptable if expected losses increase to the level at which obligation amount limits and/or debt principal and interest payments, direct and contingent obligations are violated as well as the limits imposed by the debt capacity of the budget which is generally defined as the excess of budget revenues over current expenditure without spending on existing debt servicing. In defining debt capacity the reserves that can be in particular cases used for repayment and servicing of the public debt may be taken into account.

Current obligations with the unsustainable levels of risk shall be, in general cases, refinanced and replaced by the lower risk-prone obligations. Meanwhile financing is to be supplied in due time before adverse event occur.

In accordance with the international experience in assessing and mitigating risks in the debt area that was reflected in relevant recommendations made by the IMF, WB and the INTOSAI Working Group on Public Debt it was considered expedient to act as follows in the course of the public debt management:

- a) calculating in value terms, risks of future debt servicing expenses, analyzing results of stress-tests developed in line with the probable economic and financial processes in the crisis environment. Under this provision risks are measured, as the world practice prompts, by the potential growth of servicing expenses;
- b) drafting characteristics of the debt structure including key risk indicators of the existing and projected debt portfolio in the relevant perspective;
- c) comparing costs and risks of alternative strategies for the management of the government debt portfolios;

As the current crisis has proved if well-grounded, prompt and appropriate managerial decisions on the public debt management are to be made it is not sufficient

to have only target indicators and current budget projections without an adequate risk management system.

A number of countries have stipulated the installation of the risk management system into their national legislation.

2. Major Risks Associated with the Public Debt Size and Structure. Impact of Systemic Risks on the General Sustainability of Public Finances.

Generally, in accordance with the world practice risks are understood as a probability (threat) of some adverse event emergence that may cause various financial losses.

Based on the approaches to the risk profile and economic content thereof, generally accepted in the world practice and reflected in the relevant documents issued by the IMF and the INTOSDAI Working Group on Public Debt, major types of public debt risks may be classified as follows:

1. As to the direction of the risk impact:
 - a) direct risks – risks of public borrowings;
 - b) indirect (potential risks) – risks of corporate borrowings by the public and private sectors of the economy associated with the potential refinancing of these borrowings by the government.

These risks cover those of subfederal borrowings. Although the Budget Code of the Russian Federation differentiates between debt obligations of different level of government and related responsibility, regional risks are, from the viewpoint of economic safety of the Russian Federation, in fact, indirect (contingent) obligations for the federal budget as the default of a region in relation to non-residents, for example, is inadmissible for the government.

In the course of this study we were mainly concerned with the problems caused by direct risks. Indirect risks were reflected in the part relating to government guarantees.

2. As to the character of risk origin:

a) external risks that are caused by factors external to the country's economy, e.g. changes in the foreign trade conditions that do not virtually depend on the policies pursued by the borrowing government's policies;

b) internal risks including those caused by internal economic factors, borrowing government's policies, interrelations between organizations participating in the debt management and other intra-state factors.

3. As to the systemic character:

a) systemic risks - risks of significant losses due to global negative changes in the banking, financial systems and in the national economy as a whole. Systemic risks are a kind of a catalyst increasing risks in the debt area. In the systemic crisis environment various risks - independent in the stable situation - show a significant correlation.

Systemic risks are also understood as risks typical for some system functioning. The public debt management system is, undoubtedly, characterized by its own systemic risks. These risks are permanent as they are present at any time of the system functioning, e.g. due to the changing market environment and other factors.

b) specific – (non-systemic or diversified) risks inherent in some types of debt obligations.

4. The above systemic risks may be broken down by their origin into:

a) economic systemic risks - risks caused by adverse changes in the borrowing country's economy, or in the world economy, or in some sectors, or in large investors. The most widespread type of the economic risk entailing private risks is market changes, unbalanced liquidity (inability to satisfy payment obligations), changes in the management level, etc.

b) political systemic risks - risks caused by the changes in the political environment that impact the general economic and financial spheres and opportunities to borrow on the internal and external capital markets. These risks, given their specific features, were not the subject of review in this study.

5. Systemic economic risks may, in their turn, be classified by the degree of impact and origin as:

- a) risks of crisis processes developing (risks of financial crises);
- б) public debt management risks inherent in the public debt management process in various economic conditions.

Systemic economic risks of the crisis processes developing increase public debt management risks and worsen the state of public finances and the economic situation in the country as a whole.

Among major risks of financial crises (as systemic risks) are the following: exchange crisis risks, debt crisis risks, foreign exchange crisis risks, bank crisis risks, and liquidity crisis risks. Meanwhile it was noted that each of these crises might break out with other segments of the financial and lending sphere being quite robust and, in its turn, become a triggering mechanism turning local crisis phenomena into a large-scale financial crisis.

Risk realization in the development of crisis processes - that are subject to considerable uncertainty and are difficult to forecast - serve as a kind of catalyst for the growth of public debt management risks.

6. As to economic content risks may be classified as:

- a) foreign exchange risk - a risk of losses due to the adverse exchange rate changes;
- b) interest risk - a risk of losses due to the adverse interest rate changes;
- c) refinancing risk – risk of losses due to extremely unprofitable conditions for borrowings to refinance the existing obligations;
- d) price risk - a risk having the same nature as the refinancing risk but emerging in settlements on earlier issued debt obligations and in other operations associated with the government securities issues in the amounts exceeding refinancing, or in the course of exchange operations.;
- e) legal risk - a risk of changes in the international law or legislation of particular creditor-countries as well as risks associated with poor internal legislation and legal regulation in the debt area;
- f) inflation risk a type of risk brought about by the growing inflation typical, generally, of obligations indexed in relation to inflation or those with a variable rate that is inflation dependent;

g) liquidity risk is a risk considered as a wider interpretation of the refinancing risk and including problems caused by the mismatch between structures of assets and liabilities;

h) unplaced obligations – a risk of impossibility to place the required number of obligations on the internal market at an acceptable price due to the limited market capacity and scarce liquidity of market participants, or the risk emerging in the placement of market obligations if the placement price does not meet the expectations of market participants and current market environment;

i) credit risk - a risk of losses incurred through non-satisfaction of transactional obligations by the counteragent. This risk is typical for government guarantees associated with public debt repayment by deliveries of goods, as well as for operations of refinancing contingent obligations on the part of the government;

j) operational risk - a risk of losses due to the debt management inefficiency;

k) risk of corporate borrowings ousting - a risk arising from the necessity to make large-scale borrowings in the limited market environment on the terms comparable or better than those for corporate borrowings, which may result in redistribution of investors' resources in the direction of government borrowings and reduced opportunities for corporate sector borrowings;

l) risk of liquidity absorption - a risk arising from the lack of coordination in the fiscal and monetary policies when it becomes necessary to provide liquidity under the monetary policy and to make huge borrowings under the fiscal policy;

m) conflict of interests risks – this type of risk is associated with potential losses due to the conflict of interests between executive authorities that manage the debt and their agents, on the one hand, and government units responsible for the financial market operation, on the other;

n) risk of co-financing - a risk of losses arising from the refusal or inability for counteragents to co-finance projects that are implemented for the resources obtained through government borrowings;

o) reputation risks – risks of losses or non-placement of obligations due to the loss of market participants' confidence in the government as the borrower due to the inadequate satisfaction of obligations as well as a smaller size of the previously

declared (targeted) scale of the obligations to be placed, considerable changes in the market functioning conditions and other similar factors.

Some of the above risks may be caused either by external factors or internal ones. The interest, price, legal risks and refinancing risk may be both internal and external.

It should be noted that a combination of several of the above risks may take place in reality depending on the types of debt obligations constituting the public debt, ways of circulation thereof and methods of settlements.

The suggested classification does not claim to entail all debt risks. Neither does it offer a single interpretation of the risk economic content and may, therefore, be complemented.

Defining threshold values of some risks mentioned in the classification could help create clear benchmarks deviation from which would serve as a reason for making relevant managerial decisions in the public debt area, thus, raising the efficiency of this process.

3 Major Problems in the Assessment of Risks Arising from the Formation of the Debt Size and Structure.

Problems of assessing risks arising from the formation of the debt size and structure are brought about by the following objective as well as specific factors.

Objective factors include:

- a high degree of uncertainty inherent in the nature of risks that is increasing rapidly in the crisis environment;
- inability to forecast major economic changes in the world economy and market environment with a high degree of accuracy.

Specific factors may, generally, be as follows:

1. Lack of regulations defining procedures for the public debt management and for one of the basic elements of this management – risk management in the debt area.
2. Inconsistency of debt policy goals and priorities.
3. Lack of criteria for assessing the efficiency of public debt management operations because in a number of cases the arising risks in some - non-critical - ranges is

not a prevailing factor for the expediency of operations with debt instruments.

Generally, formalizing public debt management risks assessment is difficult because of the inability, using one specific model, to account for all aspects of financial markets, government budget, investor preferences as well as economic and political decision-making mechanisms. In addition, perpetual changes of the market condition, macroeconomic and financial system qualitative characteristics and modifications within the public debt management system per se give rise to additional factors of uncertainty hampering risk assessment.

4. Mitigation of Debt Risk Negative Impact on the Stability of Public Finances.

1. A major objective of risk management procedures is risk mitigation.

Reducing external risks on existing debt obligations is very difficult. In this case a major mechanism of mitigation is either redemption (re-purchase) or refinancing for the purposes of risk mitigation, i.e. making new borrowings that are less risk-prone to redeem obligations with larger risks.

In making new borrowings risk mitigation procedures are based on the detailed analysis and assessment of all risks inherent in the particular borrowing and rejection of instruments with the unsatisfactorily high risk level.

2. The following approaches may be used to mitigate risks:

- as for the refinancing risk – the main approach to risk mitigation is to plan operations without refinancing operations and, moreover, to plan newly raised obligations in smaller amounts than it is allowed by the debt capacity of future periods (generation of the “insurance” provision). Refinancing risk assessment is based on the comparison of servicing and repayment schedules as well as the debt capacity in various scenarios of the economic development and situation on the borrowings market;

- as for the interest rate risk – the main approach to mitigate risks is minimization, even refusal to use borrowings that are associated with a high interest rate risk, including borrowings with a floating interest rate. Interest rate risk assessment is based on analyzing changes in the value of obligations under various

scenarios of interest rate trends on the borrowings market;

- for the interest rate risk the main approach to mitigation is gradual refinancing of foreign exchange obligations and replacement thereof by obligations denominated in the RF currency. Foreign exchange risk assessment is based on analyzing changes in the value of foreign obligations in various scenarios of the relevant exchange rate fluctuation;

- as to the price risk (re-purchase price) a major approach to risk mitigation is a full refusal to borrow if relevant placement conditions are beyond the limits of planned servicing indicators and repayment of these obligations. The price risk assessment is based on analyzing changes in the value of direct obligations in various scenarios of interest rate changes on the borrowings market.;

- as to the co-financing risk the following approaches to risk mitigation may be applicable: analysis of co-investors' financial stability on the development and decision-making state of the investment project and refusal to involve co-investors with insufficient financial stability as well as toughening contract terms for joint financing of investment projects aimed at raising the price of parties' withdrawal from the contract. Assessment of potential budget losses as a result of co-investor's bankruptcy is based on analyzing his liquidity and financial stability;

- as to the liquidity risk major approaches to risk mitigation are as follows: raising the quality (accuracy) of prospective financial forecasts; using pessimistic forecasts of the economic development and budget status in calculating the budget debt capacity; formation of relevant provisions. Liquidity risk assessment is based on the separate analysis of the debt capacity and value of existing obligations;

- as to the credit risk major approaches to risk mitigation are a mandatory collateral for the issue of government guarantee, analysis of the guarantee recipient's creditworthiness on the stage of the guarantee issue; systematic analysis of guarantee recipient's creditworthiness for the whole period of guarantee. These provisions are also applied to organizations who concluded agreements of financing delivery of goods, works and (or) services to repay the public debt as application of non-traditional forms of public debt settlements;

- as to legal risks a major approach for risk mitigation is a detailed, highly qualified

legal examination of the documents developed for borrowings so as to scrupulously consider all contract (agreement) terms and detect all possible violations of the current legislation;

- as to operational risks a major approach to risk mitigation is a clear regulation of policies, on-going control over document turnover, limited and differentiated access to the classified and confidential information.

An effective risk management system may not only mitigate systemic risks in the debt area and reduce impact of subjective factors in public debt management decision-making but also ensure an “early warning” of emerging risks caused by internal and external factors, as well as and timely detection of threats to debt sustainability originating on the external financial markets and in the system of interaction thereof with the borrowing country’s financial sector.

5. Defining Major Approaches to the Assessment and Analysis of Systemic Risks Associated with the Formation of Debt Size and Structure in Public Debt Management.

1. One of the most important measures that may be taken to mitigate risks is the development of the risk management system.

We think that the public debt risk management system is to provide for the comprehensive analysis of all risks, identification and assessment thereof as well as the development of relevant controlling mechanisms. A systemic approach provides for a maximal coverage of all risk profiles which makes it necessary to classify and identify them.

The first step in defining and analyzing risks in the public debt sphere seems to be the analysis of the existing debt size and structure as well as of expected changes in the public debt structure along the following lines:

- a) by the currency of obligations (national currency and other main currencies);
- b) by the circulation on the market (market, non-market);
- c) by public debt servicing interest rates (fixed, constant, floating by internal criteria, floating by external criteria, etc.);
- d) by way of settlement (through agents, direct settlements or non-traditional forms, e.g., delivery of goods);

- e) by the debt time structure in the part of principal and interest payments;
- f) by resident/non-resident;
- g) by the possibility to index the debt principal;
- h) by holders of debt obligations (legal entities and individuals);
- i) by period of borrowing (short-term, mid-term and long-term);
- j) by purposes of borrowing (budget deficit funding or target funding).

In addition, it would be reasonable to make a detailed analysis of indirect risks associated with subfederal and corporate borrowings.

Each element of the above structure may be subject to general and specific risks.

2. We think that effective functioning of the risk management system in the public debt area makes it necessary to observe the following principles:

a) maximal coverage of all risks in the public debt management as well as of the existing amount and structure of debt obligations as a whole and particular kinds thereof within certain classes.;

b) mitigating all probable risks and the degree of their impact on the amount and structure of debt obligations as well as on the public debt principal and interest payments;

c) assuming sustainable risks, i.e. assuming risks is possible only if it has been identified and estimated and the relevant mitigation mechanism has been developed and put into practice;

d) adequate reaction to risks implies an adequate and prompt reaction to all changes in the combination of risks.

The functions assigned to the risk management system in public debt area predefine the content of this management process which can be presented as the following sequence of measures:

a) developing risk management policies under the general debt policy;

b) setting principles to define, estimate and diagnose risks as the basis for the development of strategic priorities and tasks as well as for the analysis of feasibility and relevant price (risk) of achievement;

c) analyzing the risk situation, i.e. detecting risk factors and estimating its level, forecasting behaviors shown by various participants of the economic activity in this

situation;

d) defining risk limits for the total public debt structure and amount as well as for specific types of debt obligations;

e) drafting and applying stress-tests for existing and projected amounts and structures of public debt;

f) defining potential risk mitigation techniques ;

g) developing alternative options for mitigation and compensation of risks and selecting the most acceptable and justified ones;

h) preparing and planning measures to neutralize, hedge and compensate for the expected adverse risk consequences.

3. It seems expedient, when making decisions in the public debt management process, to determine upper allowable risks and apply the following gradation:

a) minimal risk – or the risk close to zero that is characteristic, in a general case, for non-risk prone government debt obligations that have been already issued or are offered for sale;

b) allowed risk is the risk the zone of which does not exceed the projected or earlier defined amount and does not require any special managerial decisions in the public debt management area. This risk is hedged without any special measures, decisions or instruments;

c) critical risk is the risk of a probability (threat) that principal and interest payments on earlier issued obligations will rise as well as a threat of inability to place the required amount of obligations on the earlier projected terms. This risk profile requires special managerial measures to be taken for the adjustment of the borrowing program to finance the federal budget deficit, public debt servicing costs, debt instruments used and risk hedging;

d) unacceptable risk – a risk under which probability of the non-acceptable increase of repayment and servicing costs on the earlier issued obligations arises and the price for the placement of new borrowings and servicing thereof becomes unacceptable. The said risk calls for the use of provisional resources (if any) or sequester of the federal budget expenditure. The extreme degree of such risk is a catastrophic risk - an exceptional risk arising from borrowings made in amounts

significantly exceeding those required for interest payments and repayment of the earlier issued debt obligations on very unfavorable terms when the budget is in deficit, provisional reserves are close to zero and the systemic economic crisis is in full swing. This risk profile requires creative managerial decisions.

Conclusions:

1. A significant impact of the debt risks on the vulnerability of the budget system makes it necessary to install a system of managing risks inherent in the government debt obligations. Yet the problem of risk management cannot be efficiently solved only through a set of separate measures and limitations; it requires a comprehensive approach.

The study of this issue has proved that the public debt may be subject to both basic risks and specific risks inherent in particular debt obligations.

2. The risk management system as one of the public debt management components may be part of the risk management strategy, control over operations with securities, objective estimation of reasonableness and efficiency of managerial decisions made in the debt area.

It would be also possible to apply the most important practical estimations of risks and set, in the prescribed manner, their threshold values as the basis for making relevant managerial decisions and further assessment of their reasonableness and efficiency. At the same time

3. The composition of risks and forms of estimation thereof reflected in the study findings are not and cannot be entirely comprehensive and indisputable. These proposals are subject to being complemented and adjusted owing to the specific features of the public debt management in individual borrowing countries.

4. Given the importance of risk estimation and mitigation in the debt area that has become especially relevant in the systemic economic crisis environment it is essential that the INTOSAI Working Group on Public Debt develop high level recommendations on risk estimation and management.

We believe the results of this study can be of help in drafting these recommendations.

