RISK MANAGEMENT: WITHIN RESERVE MANAGEMENT POLICIES

GAZİ ERÇEL

GOVERNOR

THE CENTRAL BANK OF TURKEY

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I am delighted to be with you today to offer some general remarks about reserve management, and our approach to risk management, at the Central Bank of Turkey. Before starting my speech, I would like to thank the World Bank for organizing this conference which, I believe, will be most beneficial to all of us. I am sure most of the important subjects related to new developments in reserve management will be covered in detail at this meeting. However, let me briefly comment on recent developments in managing risk within reserve management and share our experience at the Central Bank of Turkey with you.

A string of disaster stories dominated the financial news coverage during the last two decades. A variety of factors could be cited as possible causes of these events. They include shortcomings in economic policy, inadequate supervision and, in most cases, poor risk management by the market players themselves. Beyond that, the basic issue is the financial system's vulnerability to unforeseen events. We all learned much from these bad experiences but we are living in a changing world. These changes can be good or bad for those affected by them. Change, therefore leads to risk, the prospect of gain or loss, and the risk of loss are something that we must all be aware of. To be aware of risks does not mean eliminating them from our lives, which is certainly impossible, nor does it mean that we should do nothing about risks and accept consequences fatalistically. It means: we must manage risk. To manage risks we must decide what risks to avoid and how we can avoid them; what risks to accept and on what terms to accept them; what new risks to take on and so on.

Both theory and practice of risk management have developed enormously in the last two and a half decades. The

theory has developed to the point where the risk management is now regarded as a distinct sub-field of the theory of finance and risk management has become a separate subject in the master's and MBA programs. The subject has attracted a huge amount of intellectual energy not just from finance specialists but also from specialists in physics. The most important factor contributed to this transformation of risk management was, as I mentioned at the beginning, the high level of instability in financial markets. The other factors were *rapid developments in information technology*, *huge increase in trading activity* and *development of new financial instruments*, namely, derivative instruments.

As a result of these developments along with the globalization of financial markets, every trading institution has become more exposed to changes all over the world economies and financial markets. This has led all institutions including central banks to develop new processes in their organizations to manage the risks in a more systematic way, although they used to have had implicit risk management practice. Parallel to these developments in risk management, the practice of reserve management by most of the central banks has changed

significantly over the last decade. Once characterized by passive short-term investment strategies to preserve principal value and maintain maximum liquidity, many central banks now use a broad range of instruments, extend their portfolio duration and develop performance benchmarks. This increased attention to risk management and new approach to reserve management by central banks has come about not because of any change in central bank missions, but because of the growing recognition that the conduct of core businesses inevitably involve exposure to financial risks and also because of increased attention to the contribution of central bank profits to national treasuries. Advances in financial risk management brought more scope for central banks to consider increasing their portfolio returns together with maintaining the desired level of liquidity, which is the primary target for central banks.

Then, the important question of how an effective risk management system can be developed comes out. The answer to this question does not change depending on the objectives and the size of the institution. Only for more complex organizations, a more extensive technological infrastructure is

needed. Let’s come to the answer to the question then. To have a well established, in other words, efficient risk management system, first we need to develop the risk culture within our organizations meaning that we need to make sure that at all levels every person understands the risks the institution is exposed to. It is the responsibility of top management to provide that kind of information by having a clear approach to risk, its appetite for risk and assigning responsibility for assuming and controlling risks. Therefore, the first step in risk management process is to identify the risks the institution is exposed and to quantify those risks. Effective risk management requires that a consistent methodology be developed for analyzing risk. Important steps in risk management analysis are as follows:

- Identifying the key financial flows;
- Determining the appropriate time horizon;
- Setting a benchmark;
- Defining the institution’s return objectives and views toward risk.

As you all know, most progress has been made in the measurement of market risk and much work is now being done in many places to construct models for a better management of credit risk. Difficulties with credit risk measurement lies in the lack of statistics about individual default probabilities. Even if these default probabilities can be estimated reasonably accurately, it is still rather difficult to combine them into portfolio assessments. The reason for that partly stems from the lack of statistical knowledge about the interaction between variables. Therefore, the models mostly tend to rest on simplified assumptions based on subjective judgments. I do not want to go into details about the technical aspects of the risk measurement methods, but I would like to emphasize that it is necessary to combine them with sound judgment and common sense. Since these models are no more than simplified and limited image of the real world, they are better to be used having this fact in mind and the decisions must be taken not solely relying on the results of these models. The results should be supported with scenario analysis, stress testing and most importantly with the sound judgment of the decision makers.

Another important aspect of risk analysis is that it should be integrated, meaning that the analysis results for different risk types should be comparable with each other to facilitate decision-making. It necessitates that the assumptions, data, valuation models used in analyzing different types of risks be the same or at least consistent with each other. Organizationally, the integration of risk analysis requires that there be a single, common risk management authority for the whole organization.

At the beginning, it might not be easy to look at risk on an institution-wide basis. Since it requires a considerable amount of capital to be invested either in terms of technology, or in terms of staff. Besides that, the risk management system must be flexible enough to adjust to the rapid developments in this area. So, at the end, the risk management system should be established in a way to allow the management to compare risk on a consistent “apples for apples” basis even for those risk factors such as operational and legal risk, where there limited data is available.

As I mentioned earlier, the management not only has to set standards for its risk policies but also has to ensure that they

are disseminated to and understood by the staff who are affected by them. I think this point is worth to restress since it is impossible to launch the risk culture without ensuring that kind of communication channels in the organization.

At this stage, I would like to say a few words about reporting and monitoring which are important steps to complete the risk management process. Reporting and monitoring is really important to check the system’s efficiency. Because of this, the risk management function has to have an independent reporting line to provide assurance that the institution is assessing its risks effectively, and is complying with its own risk management standards. With this functionality, reporting is the key component of any risk process, because it is basically the window into the risk management results and the means of communicating risks the institution is exposed to. Therefore, data collection and processing need to be highly efficient so that accurate risk results are available in time and within the necessary level of confidentiality.

At the Central Bank of Turkey, we established a risk management division about two years ago. The need for such a division came as a result of multiple factors. These factors can be grouped into two as external and internal. The external ones as I have just mentioned in the first part of my speech are rising volatilities in financial markets, rapid developments in information technology, huge increase in trading activity and development of new financial instruments along with the globalization of financial markets. The internal factors are accumulation of net reserves starting from 1997 and the increased responsibility of our bank in terms of its leading role in the Turkish financial markets.

As our work on risk management has progressed during the establishment process, we have seen that our reserve management needed to be restructured to have an efficient risk management. Within this context, although we did not change our primary objectives of having enough liquidity and preserving safety, we decided to consider the return factor also. Therefore, we separated our reserves into different tranches serving different purposes, one for operational, one for liquidity and one

for investment as in the case of the most central banks changing their approach to reserve management. Within this framework, we developed a performance benchmark for our reserves to evaluate our performance on a risk-adjusted basis. The benchmark reflecting the neutral position has been constructed in line with the objectives, the asset-liability structure and the liquidity needs of the Bank for a one-year period. And it is going to be reconsidered periodically.

The Risk Management Division in the Central Bank of Turkey is in the process of establishing a system to carry out risk analysis and to feed the results to the appropriate units. For the last year or so, duration and Value at Risk (VaR) figures reflecting interest rate and currency risks of the FX reserves, and liquidity indicators such as current ratio (percentage of liquid assets in total of liabilities) are being observed. However, these reports are not yet parts of a comprehensive risk measurement and control system. Although they give an idea of the general level of market and liquidity risk levels, the actual risk exposure will be clearly seen only after the reserves portfolio is restructured and the benchmarks are included in these reports.

The risk management process related to market risk that we plan includes daily marking to market of benchmark portfolios; monitoring risk limits determined in terms of currency and duration limits; daily measurement of actual portfolio's VaR figures for currency and interest rate exposure; monitoring liquidity ratios and reporting these figures to the top management weekly including stress testing report. There is no specified global risk tolerance limit but our institutional objectives and constraints are reflected in portfolio benchmarks. In terms of performance evaluation comparison of actual and benchmark portfolios returns are going to be monitored daily and reported to the top management periodically.

For credit risk management side, a transaction limit is assigned to each counterparty, covering all types of credit risks and market risks. The limits are marked to market daily and reflect the amount of exposure that the bank is willing to take with each counterparty. The credit limits are set by employing an *internal scoring model* that incorporates the counterparty's external credit ratings, financial information, and some other

qualitative information such as the quality of relationship with our bank and the support status, i.e. the possibility of getting help from the government in case of financial difficulty. The credit rating of the country in which the bank operates is also considered. Reports about limit monitoring are produced regularly.

I would like to conclude my remarks by underlining once again how important to have an efficient risk management to protect our reserves from financial instabilities all over the world. We need to watch out the rapid changes in reserve management in terms of technological developments and in terms of economic conditions very closely and adapt our institutions to these changes right away.

Thank you.