**Remarks by**

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# *CENTRAL BANKS AND FORECASTING*

Ladies and gentlemen,

It is a great pleasure for me to address you today. It is a real privilege to be discussing with you, distinguished group of experts, financial markets and forecasting. Before we begin our discussion, I would like to share with you some of my memories from the past.

The other day I was looking through my books in my study room, I happened to see my master's thesis, submitted to the University of Vanderbilt almost twenty years ago. It was reading it again after so many years that stirred several memories.

The topic I had chosen for my thesis was related to monetary issues, specifically the supply of money. In those years, the prevailing method of research for such studies was the use of mathematical modelling and its empirical testing. As those in my generation will recall, in those days, we had huge computers big in size, but small with capacity. They could only read data and program commands from the so called "punch cards". We had to be extremely careful in punching these cards, since even a simple mistake, such as omitting a comma, meant repunching which usually involved another day. Besides, we had such few computers that we often had to wait for hours to be able to use them. I remember that the best time to use the computer was late at night since it would not be so crowded.

In those days, the monetary model I proposed was one of the earliest attempts in this area in Turkey and the results were significant and promising. However, after twenty years, this model now seems a little old fashioned, looking at the advance of technology and the improvement of theory. During the last two decades, there have been enormous developments both in economic theory and econometric methods. The recent developments in empirical methods allow researchers to build sophisticated models to explain complicated relationships in the real world and to test them.

Here I would like to talk about the evolution of global finance and need for econometric models.

Financial markets are more efficient today than ever before. Changes in communications and information technology, and new financial instruments have presented new challenges. The new technologies, and the financial instruments and techniques have not only made possible but also strengthened interdependencies between markets and market participants at international level. As a result, a disturbance in one market segment or one country is likely to be transmitted far more rapidly throughout the world economy than it has previously been.

The availability of new technology and new derivative financial instruments has facilitated new, more detailed approaches to the measurement, and management of risk. There are, however, limitations to the econometric models owing to the necessity of overly simplifying assumptions. Hence human judgements, based on analytically looser but far more realistic evaluations of what the future may hold, are of critical importance in risk management. Although a sophisticated understanding of econometric modelling techniques is important for risk management, an intimate knowledge of the markets is also a must for better decision making.

It is widely recognized that the world economy is becoming even more interdependent. With the freely floating exchange rates, the increasing size and frequency of international capital flows, and the attempts by nations to coordinate international economic policy, it became evident that single country studies have proved to be increasingly inadequate. Hence, without taking into account international repercussions, analyses in isolation have become futile. The point is that no economy is any longer closed. This is also true for Turkey.

International modelling of many related economies together is now becoming more and more commonplace. After the actualization of project LINK, which is in every sense an international model, a group of economists in Research Department of the Central Bank of Turkey, built a quarterly macroeconometric model, called CBRT1 in 1988 and after a while, this model joined the LINK project. One of the main results of this model was that "price expectations are the main determinants of the inflation in Turkey and price expectations have been increasing in a state of uncertainty".

This model was used for the purposes of understanding the dynamics of the Turkish economy, policy simulations and forecasting.

Following this model, in 1990, another structural macroeconometric model, CBRT2, was built in the Research Department. The main differences between these two models were the closing rules of the models and the econometric techniques that were applied. Unit root tests and co-integration techniques were widely used to estimate the behavioural equations of this model.

In 1995, a third structural model was constructed by the Research Department to analyze the balance sheet of the Central Bank of Turkey. Compared to the other two models it was smaller in scale, but highly efficient.

The construction of and the analyses with an econometric model require an artful combination of the theories and the methods of economics, statistics and econometrics. Econometric modelling, which is itself directed by economic theory and by perceptions of the real

economy, constitutes one of the most widely accepted means in the attempts to understand the interrelationships and interactions between economic variables.

Many central banks in the world are using econometric models in their decision making process. But the use of econometric models encounters growing theoretical and empirical challenges in the decision making process.

First, the present state of uncertainty in economic theory is so high that there is no consensus on key problems for central bankers such as the interaction of a causality link between money and real variables.

Second, as I have already mentioned, the move towards more international integration and financial deregulation since mid 1970's has provoked changes in the institutional environment by extending the sources of shocks on economic behaviours, just at a time when central banks committed to stabilize exchange rates or money growth.

There are 25 symposium papers on Turkey. I would like to emphasize that six of these papers were authored by the staff of the Research Department of the Central Bank of Turkey. Central banks in developed countries have highly prestigious research departments. This is also true for our Central Bank. Presently, our research team has outstanding members who hold international degrees from prestigious institutions and have international publications.

I would like to emphasize that we support our young researchers to actively participate in international academic meetings. I strongly believe that they all have potential for original research. The number and quality of papers to be presented in this symposium clearly indicate that our research team ranks among top institutions.

Ladies and gentlemen,

It has been a pleasure for me to be talking to you at this occasion. However, I do realize I must stop at some point, as some of you may already be thinking about the last part of menu for our dinner.

Please accept my thanks.