**PLANNING AND IMPLEMENTING
MONETARY POLICY IN TURKEY
AN EXERCISE**

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This paper analyses the developments in the Turkish economy from 1980 onwards. During this period, the Turkish economy continued to struggle with fundamental problems such as chronic deficits in public finance and trade, structural problems in the banking sector, slow pace in privatisation and social security reform, etc. The paper provides background information and a brief basic theoretical framework to facilitate a monetary programming exercise and an evaluation of the prevailing disinflation programme.

1. INTRODUCTION

The scope of this paper is to recommend policy options with regard to the conduct of monetary policy by the Central Bank of the Republic of Turkey, through purchase and sale transactions in domestic spot or forward foreign exchange markets, purchase and sale of government debt instruments (including repurchases and reverse repurchases) in open market, borrowing and lending in interbank money markets, discount window operations, short-term advances to treasury and other state economic enterprises, reserve and liquidity requirements, foreign exchange risk ratio and capital adequacy ratio. At the end of the paper, there will be an evaluation of the monetary programme under the standby agreement signed with the IMF in November 1999 for three years. But, in order to explain the situation we are in at the moment and what we want to achieve, I believe it will be beneficial to overview briefly the developments occurring in the Turkish economy during the last two decades. Thus, after a brief overview of the Economic Stabilisation Measures taken on 24 January 1980 and the Gulf Crisis and the Stabilisation Measures of 5 April 1994, I will present a theoretical

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background for the Monetary Programme and an evaluation of the prevailing standby agreement.

2. HISTORICAL BACKGROUND: JANUARY 24 DECISIONS AND LIBERALISATON

By the end of 1979, it was generally accepted that import-substitution-based development strategies which are heavily dependent upon restrictive foreign exchange control regimes and economic policies depending on subsidising agriculture were no longer sustainable. Therefore, to restore the operational efficiency and international competitiveness of the economy the following were required:

- A more flexible exchange rate regime;
- Liberalisation of foreign trade;
- Market-determined interest rates;
- Tax reform to strengthen government finance;
- Consolidation and spread of foreign debt service in a long term period;
- Restructuring administrative organs responsible for economic policy and management to achieve a better coordination.

These and some other measures were taken on 24 January 1980, which have long been called the January 24th Decisions.

Shortly after the start of the implementation of the January 24th Decisions, a military take-over took place. But the January 24th Decisions continued to be implemented exactly as they were taken. In order to pursue the same, Turgut Özal, Undersecretary of Prime Ministry and State Planning Organisation, who was the leading figure in the preparation of the January 24th Decisions, was appointed by the military government as Deputy Prime Minister, in charge of economic affairs. First of all, debt restructuring and new money agreements reached with the lenders in 1979 under the auspices of the Paris and London Clubs were put into operation. Thus, convertible Turkish lira deposits of foreign banks (CTLD), banker credits, third party reimbursement claims (TPRC), guaranteed and non-guaranteed trade arrears were all consolidated for 7 years, with a three-year grace period. Moreover, a US$407 million new money agreement became effective.

The Turkish lira was devalued by 66 per cent. Foreign trade and invisible transactions were liberalised substantially through changes made in the prevailing foreign exchange control regime. Daily fixation of the exchange rate began on 1 May 1980. Later, permissions were granted to banks to hold positions in foreign exchange and to private individuals to own and open foreign exchange accounts with the banks.

In 1983, Turgut Özal became Prime Minister. During his term (1983-1989), the January 24th Decisions continued to be implemented. And some additional decisions concerning economic integration to international markets and liberalisation of domestic financial markets were taken. Government securities (treasury bills and government bonds) began to be sold on regular weekly auctions. In selling government securities, the Central Bank was acting as a servicing agent to the Treasury. İnterbank money market, foreign exchange and banknote markets and gold market were established to enable the banking sector to make transactions with confidence through Central Bank intermediation. Thus, the banking sector was assisted to become proficient in prudent fund management. In order to control money supply and liquidity in the economy, along with other monetary policy instruments, open market operations began to be conducted by using government securities. All these were very important steps in enhancing efficiency and transparency of the markets. This period marks the opening up of the Turkish economy to international competition. However, necessary steps to reform public finance, the social security system and public administration had not been taken. Substantial growth in exports had been realised. However, the foreign trade deficit continued to grow. The current account deficit was financed through international borrowing.

3. GULF CRISIS AND ITS AFTERMATH

With the start of the Gulf Crisis in August 1990, the withdrawal of foreign investors from the İstanbul stock exchange and the Turkish government securities markets was so quick that even local players started to worry about the possible spill over effects of a possible war and started to withdraw the funds from their foreign exchange accounts with the banks. Panic was imminent. However, the swift action taken by the Central Bank of Turkey to meet foreign exchange demanded by the banking sector and to calm the markets down prevented it. An abrupt

end of trade with Gulf countries who had a 40 per cent share in total exports of Turkey brought about an expectation that Turkey would face severe balance of payments finance problems. However, the export sector managed to adapt quickly to the new situation and solved the problem by increasing the sales substantially in European markets.

Shortly after formation of the new government, which was a coalition formed after the general elections in October 1991, expectations about reforms subsided (i.e. privatisation; reforms in social security system, administrative system, local administrations, financial sector, public finance). As they are supposed to create a competitive edge to the leading sectors (finance, industry, trade, and services) in international markets, the possibility of delaying the reforms created pessimism in the markets. Especially, methods of intervention used to curb interest rates in the weekly securities auctions led domestic and international investors to lose confidence in the economic management of the government. As government's insistence to put pressure on interest rates continued, profits made from uncovered interest arbitrage by holding short foreign exchange positions tended to decline as a consequence of the narrower spread between the yield of government securities and the devaluation rate. Hence, from early November 1993, banks started to close open positions by buying foreign exchange in domestic markets. At first, the Central Bank tried to control the abnormal rise in foreign exchange rates by withdrawing the liquidity in the market through open market operations and by selling foreign exchange. However, the Treasury declined the replenishment against settlement of its old debt to the Central Bank when open market operation portfolio depleted. On January 24, 1994, the Turkish Lira devalued by 13 per cent without an economic analysis by any standard. This spark started the crisis. Banks started to close their open positions in foreign exchange. Foreign investors quickly pulled out and this resulted in a huge amount of capital flight. The Turkish banking sector had to face panic withdrawals of foreign exchange deposit accounts with them. During the crisis, the government decided to liquidate T.Y.T. Bank, Marbank, and Impexbank. To this end, ownerships of these banks were transferred to the Saving Deposits Insurance Fund to handle the liquidation process. DIŞBANK and Expressbank changed hands. The crisis was eased by the decision of <u>100 per cent Government guarantees to all saving deposits</u>. Furthermore, three-month treasury bills were sold with a 406 per cent annual compound interest. However, as the crisis

caused capital flight, economic growth financed by foreign savings could not be sustained. Thus, GDP growth was -6.1 per cent in 1994. This negative growth figure was the highest shrinkage in economic activity since the Second World War.

4. SYMPTOMS OF THE 1994 CRISIS

It is possible to describe the crisis with the following symptoms.

- Rapid rises in foreign exchange rates;
- Unusually high interest rates;
- A blocked domestic borrowing system;
- A treasury unable to settle its debts;
- Hyperinflation;
- Increasing job cuts and layoffs;
- Liquidation of businesses and shrinking production;
- Chain linked bankruptcies;
- Panic withdrawal of deposits, danger of systemic risk in banking sector;
- Loss of credibility and ability to borrow from international financial markets;
- Disappointment among the public created by the implementation of stabilisation measures.

Loss of credibility mentioned above put the Turkish banking sector into a very difficult situation as its borrowing ability from international markets was eliminated nearly completely. Difficulties experienced during the crisis were as follows:

a) Cash credits: foreign banks cancelled all the credit lines to Turkish banks. Only a few big Turkish banks were able to secure loans up to US$5-10 million or to roll over existing credits. Even day-time overdrafts were not made available. Foreign banks did not effect payments until sufficient balance accumulated in the accounts of their Turkish customers.

b) Foreign exchange transactions: spot and forward transaction limits granted to many Turkish banks were cancelled. Settlement of arbitrage transactions were not made until the banks received the counterpart currency amount they purchased. Only a few big Turkish banks were granted forward limits of up to three months.

c) Non-cash credits: confirmations of letters of credit were given with great difficulty. Many banks could not get their letters of credit confirmed. Total cash cover was required to confirm letters of credit of as little as US$10-20 thousand. Letters of guarantee were completely out of the question.

5. CAUSES OF THE 1994 CRISIS

In order to evaluate the crisis situation and how it developed, economic policies of the past and their consequences should be examined thoroughly. In doing so, we can diagnose three fundamental problems. These are, namely:

a) Chronic budget deficit;
b) Chronic trade deficit and foreign debt burden;
c) Structural deficiencies in financial sector and disintermediation.

Issues related to foreign exchange rates, inflation and interest rates are not the causes but simply symptoms of the economic problems. Therefore, changing the levels of these variables does not solve the fundamental problems. It can create provisional relief.

5.1. Public sector borrowing requirement (PSBR)

The ratio of public sector borrowing requirement (PSBR) to GDP had risen to 14.7 per cent by 1993. The same ratio was 5.7 per cent in 1986. However, excluding interest payments, there was a primary surplus in the budget. Having this in hand, along with increasing revenue, policies toward decreasing interest payments and budgetary transfers to state economic enterprises (i.e., privatisation and restructuring) could have solved the problem before becoming chronic. But instead of taking this difficult and bitter solution, the budget deficit was financed through foreign and domestic borrowing. The methods used in domestic borrowing were as follows:

a) Government securities sales through periodic auctions;
b) Creating arrears and settling them by issuing and giving government securities;
c) Borrowing from the Central Bank.

Weekly sales of government securities through auctions facilitated deficit financing. The auction system worked efficiently. However, the guarantee system in the bidding process favoured banks and securities houses. (Real persons and institutional investors were required to deposit 10 per cent of their bid in advance. But banks and securities houses were required only 1 per cent). Thus, actual investors' participation in auctions was prevented . As a result, auctions evolved to a system by which an oligopolistic banking sector dictated interest rates to the Treasury. Moreover, the auction system created a lucrative securities market in which speculative short-term international capital could profit from the large spread between the devaluation rate and the interest rate. This process converted domestic debt actually to foreign debt, which greatly increased the crisis potential. The Treasury's attempts to cut interest expenditures by decreasing interest rates in securities auctions (by way of cancelling auctions, selling less than the declared amount, forcing government banks to bid lower interest rates in auctions and as such) created disappointment within the banking sector. The Central Bank, on the other hand, inclined to rising interest rates since it considered the exchange rate as a nominal anchor in its fight against inflation. This led the oligopoly to feel stronger in challenging the Treasury's efforts to lower interest rates.

Another method of domestic borrowing used by the Treasury was to create arrears with contractors, state economic enterprises, social security organisations and farmers. Arrears thus created were settled later by giving government securities issued without auction process. This method was used extensively during the pre-crisis period. Recipients of these treasury bills and bonds had them discounted in financial markets with very high interest rates. As securities with the same maturity and credit quality were available in secondary markets at a lower price (higher interest rates) than auctions, it was not plausible to purchase the same in the auctions at a higher price (lower interest rate). This had some effects on interest rate hikes before the crisis.

The Treasury's borrowing from the Central Bank cannot be fully explained by the short-term advance facility under Article 50 of the Central Bank Law. If someone could examine the asset side of the Central Bank balance sheet before the crisis, s/he would see that almost all the items except gold and foreign exchange reserves constitute credits to the public sector. Credits to the banking sector was made of

SEE's bills rediscounted via the banking sector (especially Ziraat Bank). Securities portfolio is made of government securities. Re-valuation account is made of exchange rate differences to be invoiced to the Treasury at the end of the accounting period. In short, it could not be considered as a mistake if we say that the main function of the Central Bank was evolved to finance the Treasury. Thus, the main destabilising factor in the financial sector and the price level become clear.

In addition to these, the choice of the exchange rate as a nominal anchor required stability in the exchange rate and sterilisation of the domestic currency counterpart of the capital inflow through government securities markets. The Central Bank carried out sterilisation operations by withdrawing money from the banking sector through open market operations and by borrowing from the interbank money market. However, in a period with continuous capital inflow and high currency substitution, sterilisation policies could not be pursued successfully. Because in episodes of chronic high inflation with high rates of dollarisation, conversion from domestic to foreign currency is realised very fast, however the reverse is not. Real money balances which people want to hold consist of foreign exchange as well. Therefore, monetary policy implementations do not easily bring about the desired outcome. It happened so in Turkey as well. Continuous interventions in foreign exchange markets provided extra confidence to inflows of short term international capital to exploit the above-mentioned arbitrage opportunities. Thus, the system became more vulnerable to instability. Moreover, the Central Bank's purchase and sales of foreign exchange banknotes in interventions resulted in creation of quasi foreign exchange swelling thereby foreign exchange deposit accounts. Therefore, foreign exchange liabilities were created against non-existent foreign exchange reserves and the system became more prone to instability. Short positions of the banking sector in foreign exchange reached a historical high and was about US$6 billion.

5.2. Chronic trade deficit and foreign debt burden

Traditionally, there is almost always a deficit in Turkish foreign trade accounts. In a country like Turkey with a big productive capacity, this deficit can be linked to two different factors:

a) Insufficient and inadequate marketing strategies;

b) Loss of competitiveness.

With such a high level of integration to international markets, the foreign trade deficit of Turkey cannot be explained only with inefficiency in marketing. The main reason the for trade deficit is the ability to compete at world prices. The Turkish lira appreciated against other currencies before the crisis as the exchange rate was kept down by the Central Bank through interventions. The real effective exchange rate index, calculated with the base year of May 1981, indicates that the index figure reached 102 in January 1991. The same was 71.5 in September 1988. Which proves the appreciation of the Turkish currency against the US dollar. The designation of the exchange rate as an anchor in the fight against inflation hit export receipts and encouraged imports by increasing profitability. As a result, the trade deficit reached US$14 billion.

5.3. Structural deficiencies in the financial sector and disintermediation

As mentioned before, the Turkish banking sector went through a period of major changes since 1980 and a long way towards integrating itself with international markets. Liberalisation of interest rates, authority to hold foreign exchange positions, establishment of treasury departments, use of market-based transactions and fund management techniques were all important developments. But, the banking sector still had some structural problems emanating from itself and from regulations enforced by government authorities.

Regulations related to banking affect the cost of funds raised and the rate of returns on investments made by banks. Reserve requirements, liquidity requirements, premiums paid to deposit insurance schemes and some other levies raise the average cost of funds to the banking sector. Therefore, before the 1994 crisis, banks tried to find ways by making repos, borrowing abroad, borrowing from the interbank market, collecting deposits in the name of their off-shore branches in order to evade legal requirements and lower their cost of funds. Thus, banking evolved into a system where Turkish lira denominated assets were funded by creating foreign currency denominated liabilities. Hence, the banking system had to carry uncovered exchange rate risks. On the other hand, advantages obtained by investing in the assets which were

excepted or exempted from taxation had greatly affected the composition of assets in the banking sector. For instance, as government securities were exempted from withholding tax, credits to the public sector became an important part of bank assets creating a crowding out effect in the market which put interest rates further up as available funds became scarce. The only benefit obtained from this situation was that private firms were obliged to use their own resources very carefully to become independent of the banking sector except for very short-term advances, letters of credit, letters of guarantee, and monetary transfers. As a result, they almost became financially self-sufficient. Most of the credits granted to the private sector before the crisis was short-term in nature. The risk of such exposure is to become insolvent even if there exist sufficient collateral and assurance.

Another structural deficiency within the banking sector is the existence of imperfect competition. As a result of very advanced technologies which banks adopted earlier than other sectors, communication between banks developed very well leading to a tendency to create consensus prices, something like those fixed by cartels. Although there exists a high number of banks in the sector, it is not competition but consensus which determined effectively the auction prices, deposit and credit interest rates, commissions, wages and such others. Along with this, it was observed that while some banks were effective in fixing foreign exchange prices, some were leading repo rates and another was acting as master of securities auctions. Actually, the market shares and sizes of such banks were not compatible with their persuasive power in fixing prices. Capital adequacy ratio was supposed to be observed continuously throughout the year as a prudency ratio, however, it became a bureaucratic reporting burden to be observed by year's end. This indicates that banks do not take pain to make the necessary risk analysis for their investments which were funded by collecting deposits or by borrowing in the markets instead of shareholders equity.

6. CRISIS MANAGEMENT

Panic, which started in the financial sector after the decision to devalue the Turkish lira by 33 per cent was taken, spread out to the real sector shortly after causing the closures of businesses and lay-off of work force. Employment statistics show that, from April to October 1994,

more than 345,000 lost their jobs. Even this statistic alone is sufficient to understand the scale of the crisis. However, realisation of a rate of growth of - 6.1 per cent by year's end indicated the horror of the crisis without any doubt.

In order to control the crisis and to make the financial system operative again, a set of stabilising measures were taken on April 5, 1994. Later, these were going to be called April 5th Decisions. These measures were as follows:

- 100 per cent government guarantee was issued to all deposits within the banking system,
- funds accumulated in reserve requirements accounts with the Central Bank were made available upon receipt of extraordinary deposit withdrawal notices from banks,
- surrender requirements for foreign exchange receipts of the banking sector were lowered,
- limits were increased for discount window borrowing of the banks,
- the exchange rate was allowed to fluctuate to permit devaluation of the Turkish lira,
- A 10 per cent income tax was levied once and for all on taxpayers in the higher brackets and firms whose balance sheet total asset figure was over their previous year's,
- decisions to restrict government expenditures,
- decision to speed up privatisation,
- decision to stall some investment projects of government agencies,
- decision to increase prices of goods and services provided by SEEs,
- A three-year stand-by agreement was signed with the IMF and the government promised to realise performance criteria which put restrictions on public finance and monetary expansion.

Some measures which were stabilising in nature were started to be implemented at once. And stability was achieved rapidly. However, as it always happened since the 1970s, privatisation, tax reform, social security reform, structural reforms in the financial sector, reform of central and local administrations were not realised. The stand-by agreement was stalled before the general elections were held in 1995.

Coalition governments formed after the elections were not very stable and were short-lived. Along with political instability, the South East Asian crisis increased reluctance among foreign investors creating an outflow of short-term international capital. The Motherland Party-the Democratic Left Party-and the Great Turkey Party coalition government formed while this process was continuing. This government proved to be somewhat more stable than its predecessors and, at the beginning, gave assurances to investors to pursue reforms in the economy, and hence, to stop the capital outflow. However, the spill over effects of the South East Asian crisis in Russian markets hit the shuttle trade which had been a significant item in Turkish export receipts since the fall of the Soviet system. Moreover, deep devaluations realised by South East Asian countries created competitive advantages over Turkish textile and leather exports to European markets. South East Asian textile and cotton yarn flooded these markets creating a dampening effect. The slump in textile and leather markets shed light on the problems in these sectors. Banks which were reluctant to non-performing loans started to recall outstanding credits granted to these sectors. This put further pressure on the firms which were dependent on the banking sector for their working capital needs. Therefore, the share of non–performing loans in the balance sheets of banks increased, causing a liquidity squeeze.

While the banking sector was struggling with these problems, securing loans from international markets became very expensive and almost impossible because of the global crisis. Taking this difficulty into consideration, the Central Bank met the banking sector demand for foreign exchange and liquidity by selling foreign exchange and by making repos at the same time. In order to put credibility into the Medium Term Stability and Structural Adjustment Programme which was started to be implemented at the beginning of 1998, a staff monitoring agreement was achieved in mid-year. However, the credibility of the IMF itself became questionable, as it was accused of short-sightedness for not being able to foresee the South East Asian and Russian crises. Therefore, the Programme had to be implemented without credit and credibility support from the IMF and without financial support from international markets. The Medium Term Stability and Structural Adjustment Programme consisted of a disinflation programme to lower inflation to single-digit figures in a three-year period, a tax reform to strengthen public finance, a privatisation programme and a banking reform. By year's end, inflation

came down to 50 per cent as targeted in the programme. Tax reform was enacted in the parliament. However banking and social security reform could not be realised, even though necessary preparations in parliamentary commissions had been completed. In fact, the coalition government left office in November 1998 as a result of a censure vote of distrust. Programme implementation was based on the announcement of three-monthly interim targets for public finance and for monetary aggregates and the results. The first three quarters were realised as targeted. The only exception to this was revision of the year-end net domestic assets target (with the consent of IMF) from (minus) -1.500 trillion to (plus) +700 trillion to ease the liquidity constriction effect of capital outflow as a result of the global crisis.

The Medium Term Stability and Structural Adjustment Programme continued to be implemented during the pre- and post-election period. The coalition government, formed after the general elections held on April 18, 1999, confirmed its dedication to pursue the prevailing programme and intention to obtain IMF financial support. Negotiations with the IMF for a medium-term stand-by arrangement resulted in an agreement by the end of 1999 and a three-year stand-by agreement was reached.

The stand-by agreement is actually a reaffirmation of the staff-monitored Medium Term Stability and Structural Adjustment Programme. Performance criteria have been established for primary balance in the government budget to ensure a tight fiscal stance. Net domestic assets and net foreign assets of the Central Bank were chosen as performance criteria to regulate monetary expansion. The exchange rate was accepted as a nominal anchor. The daily values of a currency basket were fixed and announced for the whole year to achieve a forward indexation to break the inflationary process[*].

The implementation of the stand-by programme produced positive encouraging results by the end of the first quarter of 2000. The first signs of slowing inflation have been observed. Performance criteria were realised. A large progress was achieved in the privatisation process.

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[*] For some of the criteria and indicators targeted in the stand-by arrangement see the Appendix.

7. THEORETICAL FRAMEWORK OF MONETARY POLICY

The process of monetary policy planning requires the establishment of relations between monetary aggregates which can be controlled by authorities and GDP growth, inflation and balance of payments. However, instead of being established directly, these relations are established through a selection of intermediate monetary targets, realisation of these targets via monetary policy instruments and hence appropriate money supply, and consequently a monetary environment convenient to achieve the targeted growth rate, inflation rate and balance of payments.

The relation between money supply, growth rate and inflation rate is best understood via classical quantity equation (Fisher Equation).

$$MV = PT$$
In this equation:
   M = Money supply,
   V = Velocity of money (i.e., how many times the same money is used in a period),
   P = Price level,
   T = Number of transactions. In other words, PT = GNP.

In this equation, assuming a fixed velocity of money and the fact that production cannot be increased in the short term, it is obvious that increases in money supply will directly result in an increase in price levels. Therefore, if velocity of money (V) is a fixed or relatively stable figure, we can calculate a level of money supply which will mediate in the purchase of goods and services produced in an economy without creating inflationary pressures. We can show this with the help of a Quantity Equation as follows;

$$M = PT / V$$

In a financial programming exercise; in period t_0, if we assume GNP = 1000 and velocity of money (V) = 4. We can calculate M2x money supply figure as 250. Now let us assume that government is projecting an economic growth of 3 per cent and a rate of growth of the wholesale

price index of 44.4 per cent in year t_1. Taking these into consideration, GNP in current prices in year t_1 will be;

$$Y\,t_1 = 1000*1.03*1.444$$
$$= 1.487.33$$

with the assumption of a stable V, the convenient money supply figure (M2x) will be:

$$M = 1487.33/\,4$$
$$= 371.83$$

From this point onwards, it is necessary to determine intermediate monetary targets and monetary policy instruments to be used in realising this money supply figure. Thus, we can produce a monetary programme. In order to make a monetary programme, a detailed analysis of money supply process is carried out. This analysis requires the examination of three separate groups of accounts. These are:

a) The balance sheet of the Central Bank (the balance sheet of monetary authorities);
b) The consolidated balance sheet of deposit money banks;
c) The monetary survey.

The balance sheet of the Central Bank is a document which accumulates and shows transactions carried out by this institution and their results. It is an important document in understanding the Central Bank's policies to control money supply and liquidity in the economy. Therefore, one has to have an in-depth knowledge of the items in the balance sheet in order to plan, conduct or understand the monetary policy stance. Hence, we take a close look at the major accounts in the balance sheet. The most important account on the liability side of the Central Bank balance sheet is **banknotes issued**. This account aggregates and shows all domestic currency denominated banknotes which were paid out from Central Bank cashiers during its history and not being brought in yet. In reality, banknotes are notes payable carrying the authorised signatures of the Central Bank and a promise to pay the amount written on them. In short, banknotes in our pockets are our receivables from the Central Bank and its debt to us. During the times of the gold standard, holders of banknotes were able to convert these banknotes into gold at the counters of the Central Bank. In a way, it was as if the Central Bank was settling its debt with gold. In our times, we

can also take banknotes to the Central Bank in order to redeem them. And the Central Bank pays us its debt. Of course with new banknotes. Because they are legal tender.

Another important liability item in the Central Bank balance sheet is **deposits of banks**. The Central Bank requires banks to make deposits with her according to a certain ratio of their deposit liability to the general public. This is necessary both to establish a limit to money creation through a sequential credit-deposit mechanism and hence, control money supply, and to enable banks to pay depositors during panic situations. These deposits of banks with the Central Bank are called reserve requirements and kept in segregated accounts within the Central Bank and only released upon decreases in deposit liability which are declared in weekly returns by the banks. As the Central Bank does not pay any interest on required reserves, this operation increases the average cost of loanable funds in the banking sector. Therefore, the Central Bank can influence the funding costs of the banking sector and the interest rate to be charged to bank loans by changing the reserve requirement ratio. In order to enhance the flexibility of the banking sector in daily fund management, the reserve requirement liability can be allowed to be met as the average of overnight balances of free deposit accounts of banks with the Central Bank.

Banks do not only hold reserve requirement accounts with the Central Bank. They also hold **free deposits accounts** with the Central Bank in order to effect daily interbank payments. These payments, effected either through book transfers or via an electronic fund transfer system **(EFT)**, are financed from free deposits accounts. Therefore, free deposits account of the banking sector with the Central Bank constitutes foundations for payment systems operating in a country.

Other accounts on the liability side of the Central Bank balance sheet are public sector deposits, various foreign exchange deposits and debts, and shareholders equity. In the balance sheet analysis, these liabilities are offset with the receivables from related institutions on the asset side of the balance sheet. For this reason, the liability side of the analytical balance sheet of the Central Bank constitutes monetary aggregates known as **reserve money**, which is made out of items, banknotes issued, reserve requirements and free deposits of the banking sector. Reserve

money is an indicator of the banking sector's ability to create money through credit expansion.

Major groups of accounts on the asset side of the Central Bank balance sheet are **gold and foreign exchange reserves**, and **credits**. Changes in gold and foreign exchange reserves indicate the developments in the balance of payments accounts of a country. Balance of payments surplus results in an increase in gold and foreign exchange reserves. On the other hand, in the case of a deficit in the balance of payments, the opposite is true. In order to reach the **net foreign assets** figure in the analytical balance sheet, foreign exchange liabilities on the liability side of the balance sheet are deducted from that of gold and foreign exchange reserves in the asset side.

Credits on the asset side are made up of items, credits to the public sector and credits to the banking sector. Credits to the public sector are constituted by short-term advances to the treasury, credits to state economic enterprises and government securities in the Central Bank portfolio. In order to work out the figure for net domestic credits to the public sector for the analytical balance sheet, various claims of the public sector on the liability side are deducted from credits to the public sector on the asset side.

Credits to the banking sector show advances made against eligible notes from the rediscount window as a result of the Central Bank's function as a lender of last resort. The figure for credits to the banking sector is netted out with the claims of banks other than free and required reserves on the liability side. And thus is obtained the figure for net domestic credit to the banking sector in the analytical balance sheet. After making all these corrections, the analytical balance sheet of the Central Bank will look as follows:

Central bank analytical balance sheet

Asset		Liability	
Net foreign assets	**NFA**	Banknotes issued	**CY**
Net domestic credits to public sector	DC_g	Reserve requirements	**RR**
Net domestic credits to banking sector	DC_b	Free deposits of banking sector	**FR**
Net other items	**NOI**		

Total=NFA+NDC+NOI	RM	Total=Reserve Money=CY+RR+FR	RM

The consolidated balance sheet of deposit money banks shows us the deposit and other liabilities of the banking sector and also their assets which are financed through their liabilities. It will look as follows:

Consolidated balance sheet of deposit money banks

Asset		Liability	
Vault cash	K	Deposits	DD
Net foreign assets	NFA	Central Bank credits	DC_b
Reserve requirements	RR		
Free deposits at central bank	FR		
Net domestic credits	DC_g		
Net domestic credits	DC_p		
Net other items	NOI		
Total		Total	

In order to obtain the money supply figure, the analytical balance sheet of the Central Bank and the consolidated balance sheet of deposit money banks are consolidated. The balance sheet thus obtained is called the monetary survey. The liability side of the monetary survey shows the money and money created by the banking sector. The asset side, on the other hand, shows the developments in the balance of payments via net foreign assets and the share of the banking sector credits in public and private sector investments via net domestic credits to the public and private sectors. The consolidation of these balance sheets is achieved by offsetting bilateral claims through netting out and adding two balance sheets side by side. The monetary survey obtained after this consolidation process will look as follows:

Monetary Survey

Asset		Liability	
Net foreign assets	NFA	Currency in circulation = currency issued – vault cash	MB_p
Net domestic credits to public sector	DC_g	Deposits	DD
Net domestic credits to banking sector	DC_b		
Net other items	NOI		

$M_s = NFA + NDC + NOI$		$M_s = MB_p + DD$	

As it is seen above, the total of any side of monetary survey, which is obtained by consolidating the analytical balance sheet of the Central Bank and the consolidated balance sheet of deposit money banks, gives us the customary definition of the money supply figure. According to this definition, **money supply = currency in circulation + deposits**. Based on this equality and defining various deposit types, we can define as many money supply figures as we would like to. Such as;

$M_1=$ Currency in circulation + sight deposits (commercial, demand, and other deposits with the Central Bank)

$M_2= M_1 +$ time deposits (commercial, demand, and other) + certificate of deposits

$M_{2y}= M_2 +$ foreign exchange deposits

$M_{3A}= M_2 +$ official deposits

$M_3= M_2 +$ other deposits with the Central Bank

$M_{3y}= M_3 +$ foreign exchange deposits

Net other items (**NOI**) figure which takes place in the monetary survey and the Central Bank analytical balance sheet is expected to be small and unimportant as it is a netted out figure from those on both the asset and liability sides of the Central Bank balance sheet and balance sheets of deposits money banks. Therefore, it is possible to define money supply as **money supply = M = NFA + NDC.** Moreover, we can conclude that changes in money supply will be equal to the sum of the changes in net domestic assets and net foreign assets. In other words;

$$\Delta M = \Delta NFA + \Delta NDC$$

and we can also show the inverse relationship between the changes in net domestic credits and changes in foreign exchange reserves.

$$\Delta NFA = \Delta M - \Delta NDC$$

We have already seen that the total of any side of the analytical balance sheet of the Central Bank is equal to the reserve money.

$$RM = CY + RR + FR \text{ or, if the reserve of the banking system is}$$

R= RR + FR

Then,   RM = CY + R can be written. And if money supply is,

M = MB+ DD, then we can express the money multiplier as the ratio of money supply to reserve money,

M / RM = m and from which we can express money supply as:

M = m RM

We had also expressed reserve money from the asset side of the analytical balance sheet of the Central Bank as the sum of net foreign assets, net domestic credit to the public sector and net domestic credit to the banking sector. Which is

$$RM = NFA + DC_g + DC_b$$

As the money supply figure is obtained by the multiplication of reserve money and money multiplier, we can take the money multiplier and reserve money as our main policy variables in monetary programming.

The extent of money multiplier is determined by the reserve requirement ratio. However, frequent changes in the reserve requirement ratio are not very desirable as they can easily destabilise the liquidity balance in the financial system and result in a weakening of financial intermediation as banks will try to find ways to evade reserve requirements. Therefore, they cannot be used frequently as a monetary policy instrument. Consequently, we can focus on reserve money as our main monetary control variable by assuming the money multiplier as fixed or at least stable. Hence, we can control the money supply process by taking the reserve money and its components as our performance criteria in the monetary programme.

8. A MONETARY PROGRAMMING EXERCISE FOR THE YEAR 2000

The Government Programme for the year 2000 and the prevailing stand-by agreement between Turkey and the International Monetary Fund (IMF) foresee a GNP growth of 5-5.5 per cent, the wholesale price index year-end annual growth rate will be 20 per cent, the consumer price index year-end growth rate will be 25 per cent. Therefore, the GNP figure at current prices, which was TRL 78,242 trillion at the end of

1999, is expected to be TRL 103,181 trillion. These figures are US$185.1 billion and US$166.4 billion respectively, if expressed in dollar terms. This calculation shows a decline in the GNP denominated in US dollars in the year 2000. This is the result of a speeded up devaluation rate during the second half of 1999 to create a favourable environment for the implementation of the stand-by agreement which put tight measures on the devaluation rate. The annual average TRL/US$ exchange rate will be around TRL 620,000. On the other hand, as a result of developments in current account and capital movements, net foreign assets of the Central Bank will increase by US$1.5 billion.

The 1999 year-end figure for M_{2y} is TRL 40,119 trillion. As we already know the GNP figure for 1999, which is TRL 78,242 trillion, we can easily calculate the velocity of money. V = 78 242 / 40 119 = 1.95. If we assume that the velocity of money will be stable throughout the year 2000, then, M_{2y} year-end figure for 2000 will be GNP/V, in other words, 103 181/1.95 = 52,913 trillion.

Velocity of money and money multiplier

Year	Month	GNP	RMx	M_{2y}	V	Multiplier k
1997	December	29.393.263	1.936.373	10.128.836	2,90	5.15
1998	December	53.518.332	3.416.243	19.425.576	2,73	5,33
1999	December	78.242.000	6.923.729	40.119.310	1.95	5,79
2000	Project	103.181.000	8.308.474	52.913.333	1.95	6.36

To project the money multiplier for 2000, we simply assume that RMx will grow at a 20 per cent devaluation rate as it also includes foreign exchange deposits. Therefore, RMx will be 8.308,5 trillion by the end of 2000. The RMx figure is obtained by adding the foreign exchange deposits of the banking sector with the Central Bank to the reserve money figure.

The addition of the foreign exchange deposits of the banking sector with the Central Bank to the reserve money figure indicates the integration of the effects of currency substitution with the money supply process. These foreign exchange deposits originally netted out to obtain the net domestic credit to the banking sector in preparation of

the analytical balance sheet. Therefore, the addition of such deposits to the reserve money will increase DC_b figure in $RM = NFA + DC_g + DC_b$ formula. But it will not change the plausibility of the formula.

The net foreign assets of the Central Bank were US$14.447.476.000 as of December 31, 1999. During the year 2000, an additional US$1.500.000.000 will be accumulated as per the stand-by agreement. Therefore, the net foreign assets of the Central Bank will be US$15.947.476.000 by the end of the year 2000. The Turkish lira counterpart of the reserves will be TRL10.365,9 trillion, which is TRL 2.057,4 trillion greater than the targeted RMx figure of TRL8.308,5 trillion. In this case, the only way to attain the RMx and NFA targets is to achieve a net domestic credit (NDC) figure, which is made up of DC_g + DC_b , in the amount of (minus) TRL -2.057,4 trillion. As the NDC figure was already (minus) TRL -879,4 trillion as of December 31, 1999, to achieve a (minus) TRL -2.057,4 trillion The NDC figure requires a decrease in NDC in the amount of TRL1.178 trillion. In order to do this, the Central Bank can reduce existing repo transactions from its December 31, 1999 level of TRL2.406,8 to TRL1.228,8 trillion or can make either reverse repurchases or direct sales from its portfolio in the amount of TRL1.178 trillion. In practice, these policies will result in a decrease in net domestic credit to the public sector in the amount of TRL 1.178 trillion. In other words, demand for government securities will decrease by this amount. This decrease in demand will surely have some effect on market interest rates.

As a result of the global crisis, systemic risk in the banking system and problems in public finance, monetary expansion foreseen through an US$1.5 billion increase in NFA will not be enough and there will be provisional diversions from the monetary programme. I suppose in anticipation of this, a ceiling of (minus) TRL -1.200 trillion was decided as a performance criterion for the net domestic credit (NDC). Since, as calculated above, an extra TRL1.178 trillion has to be reduced from its original level which is (minus) TRL -879,4 trillion.

A US$1.5 billion increase in net domestic assets is assumed to be realised in the second and fourth quarters of the year 2000 in equal amounts as in stand-by agreements. Consequently, figures for RM_x, NFA and NDC will be as in the following table.

Quarterly intermediate targets for Monetary Programme for 2000

(million $, billion TRL)

Period	NFA$	Rate of exchange TL/$	NFA TRL	NDC TRL	RMx TRL
31 Dec 99	14.447,5	540.098,0	7.803,1	-879,4	6.923,7
I. Quarter	14.447,5	574.124,0	8.294,7	-1.024,8	7.269,9
II. Quarter	15.197,5	620.000,0	9.422,5	-1.806,4	7.616,1
III. Quarter	15.197,5	635.000,0	9.650,4	-1.688,1	7.962,3
IV. Quarter	15.947,5	650.000,0	10.365,9	-2.057,4	8.308,5

From the examination of the table, it can be easily seen that the addition of each US$750 million to NFA will create a squeeze in net domestic credit and surely on financial markets through open market operations if the Central Bank wants to keep up with performance criteria not a ceiling but an absolute level to attain.

9. CONCLUDING REMARKS

The monetary programming exercise which is prepared by considering the government programme for the year 2000 and the prevailing stand-by agreement with respect to GNP growth, inflation and increase in NFA shows that the global crisis and the problems of the Turkish banking sector will make implementation somewhat problematic. However, the Central Bank of Turkey has the necessary know-how, market instruments and the technology to attain the targets. The importance of coordination with other government agencies in charge of economic affairs and determination displayed by the government should be stressed once more.

Appendix

Indicative targets on the cumulative overall balance of the consolidated government sector

(in trillions of liras)

	Floor
Cumulative overall balance from December 31,1999 to:	
March 31, 2000 (indicative floor)	-6,000
June 30, 2000 (indicative floor)	-12,150
September 30, 2000 (indicative floor)	-15,850
December 31, 2000 (indicative floor)	-18,750

Turkey: Performance criteria on the net domestic assets of the Central Bank of Turkey

(in trillions of liras)

	Ceilings
Outstanding stock as of September 30, 1999:	-1,400.5
December 31, 1999 (performance criterion) 1/	-1,200.0
March 31, 2000 (performance criterion) 2/	-1,200.0
June 30, 2000 (performance criterion) 2/	-1,200.0
September 30, 2000 (performance criterion) 2/	-1,200.0
December 31, 2000 (performance criterion) 2/	-1,200.0

Performance criteria on net international reserves

(in millions of U.S. dollars)

	Floors
Outstanding stock as of September 30, 1999:	17,923
December 31, 1999 (performance criterion) 1/	12,000
March 31, 2000 (performance criterion)	12,000
June 30, 2000 (performance criterion)	12,750
September 30, 2000 (indicative floor)	12,750
December 31, 2000 (indicative floor)	13,500

Performance criteria for contracting or guaranteeing new external debt

(in millions of U.S. dollars)

	Limits
June 30, 1999:	37,832
Cumulative flows from end of June 1999	
December 31, 1999 (performance criterion)	8,500
March 31, 2000 (performance criterion)	12,000
June 30, 2000 (performance criterion)	16,000
September 30, 2000 (indicative limit)	20,000
December 31, 2000 (indicative limit)	23,500

Monthly rate of depreciation vis-à-vis the basket during the year 2000

(%)

January	2.1
February	2.1
March	2.1
April	1.7
May	1.7
June	1.7
July	1.3
August	1.3
September	1.3
October	1.0
November	1.0
December	1.0