Monetary and exchange rate policies in the post-crisis period in Turkey[1]

Fatih Özatay[2]

1.   Introduction

In mid-May 2001, just three months after the February crisis, Turkey started to implement a new programme. The banking sector was in turmoil, calling for immediate action. The rescue programme increased the public debt-to-GDP ratio sharply. Other main pillars of the May 2001 programme were macroeconomic discipline, rehabilitation of the banking sector, and an ambitious agenda for structural reforms.

In the two decades preceding the 2001 crisis, from the perspective of the likely impact of exchange rate developments on the economy, the Turkish economy had at least two important features: a high pass-through from the rate of depreciation of the Turkish lira to the inflation rate and high dollarisation and the associated currency mismatches. Although these features are generally seen as two of the root causes of fear of floating, the Turkish stabilisation and structural adjustment programme of the post-crisis period put a floating exchange rate regime at center stage.

The Central Bank of Turkey (CBRT) stated at the outset of the programme that the number of interventions would be strictly limited. Besides strictly limited volatility interventions, based mainly on the fact that forthcoming debt repayments could significantly reduce foreign exchange reserves, the CBRT announced at the beginning of 2002 that it was going to hold foreign exchange purchase auctions in case of favourable balance of payments developments and reverse dollarisation. The principle was that those auctions should be rule based and transparent, and purchase amounts were to be announced at the beginning of each month.

This paper aims at providing information on the Turkish monetary and foreign exchange rate policies in the post-crisis period. A special emphasis is given to the motives behind interventions and foreign exchange purchase auctions. Techniques and implications of interventions and auctions are also discussed. The plan of the paper is as follows. The second section provides brief information regarding the evolution of the Turkish economy after the crisis and to what extent dollarisation and pass-through are important. We discuss the monetary and exchange rate policies of the CBRT in the third section. This section also provides information on the interventions and auctions of the post-crisis period. In the last section we briefly analyse the implications of interventions and auctions and discuss their effectiveness.

2.   Dollarisation and exchange rate pass-through in the post-crisis period

The main pillars of the May 2001 programme were macroeconomic discipline, rehabilitation of the banking sector, and an ambitious agenda for structural reforms. The programme, which was strongly supported by IMF and World Bank credits, put a floating exchange rate regime at center stage. Starting from late 2001, the programme showed its strength: inflation expectations followed a downward trend, inflation rates have almost continuously declined, the public debt-to-GDP ratio was significantly reduced, while the Turkish economy started first to recover and then to show high growth rates (Table 1).

Table 1

Selected macroeconomic indicators: 2001.03 - 2004.12 (%)

	Growth rate[a]	Expected inflation[b]	Expected inflation[c]	Wholesale inflation	Consumer inflation	Public debt stock/GDP	Interest rate[d]
2001.03	−1.0	55.0	na	35.1	37.5	72.1	193.7
2001.06	−9.8	63.3	na	61.8	56.1	98.2	88.4
2001.09	−7.5	69.8	64.8	74.7	61.8	105.1	87.6
2001.12	−10.3	72.7	69.8	88.6	68.5	99.7	74.1
2002.03	2.3	52.6	43.6	77.5	65.1	91.1	68.4
2002.06	8.9	45.4	35.2	46.8	42.6	95.0	72.2
2002.09	8.0	42.0	34.3	40.9	37.0	92.2	62.2
2002.12	11.7	35.0	31.0	30.8	29.7	87.4	49.8
2003.03	8.1	35.5	27.3	35.2	29.4	87.6	59.9
2003.06	3.9	29.3	25.4	29.6	29.8	81.7	46.0
2003.09	5.5	24.4	20.5	19.1	23.0	76.3	32.2
2003.12	6.1	19.3	19.1.	13.9	18.4	78.6	27.9
2004.03	10.1	13.4	11.8	8.0	11.8	77.1	24.4
2004.06	13.4	12.9	11.5	10.5	8.9	78.5	27.5
2004.09	4.5	11.9	10.5	12.5	9.0	77.5	25.4
2004.12		12.1	10.0	13.8	9.3		23.1

[a] Annual rate of changes.

[b] Business survey of the central bank, expected year-end wholesale price inflation.

[c] Expectations survey of the central bank, expected year-end consumer price inflation.

[d] Average compounded interest rates realised in Treasury auctions, weighted by net sales.

Source: Central Bank, SIS, Treasury.

2.1　Dollarisation

It is seen from Table 1 that a sharp reduction in the inflation rate occurred simultaneously with a rapid growth rate. Moreover, throughout the post-crisis period, primary budget surplus to GNP ratios were rather high (5.5% in 2001, 4.1% in 2002, 6.3% in 2003, and 6.5% in 2004). Despite this extremely tight fiscal policy, Turkey succeeded in achieving high growth rates. No doubt, this phenomenon is not unique to Turkey; it was observed in some other countries in the 1980s, leading to the development of so-called expansionary fiscal contractions in economic literature. The important point to note from the perspective of this paper is that in heavily indebted countries fiscal discipline, by diminishing concerns about debt sustainability, reduces default premium and real interest rates. In such an environment, consumer and business confidence also start to increase. Hence, confidence build-up on the one hand and a reduction in real rates on the other boost private demand, which may more than offset the contractionary impact of fiscal discipline on aggregate demand.

But under such conditions, exactly due to the same reasons, it is natural to expect first a reduction in new demand for foreign exchange denominated assets relative to domestic currency denominated assets (flow effect) and then a reduction in the existing stock of foreign currency denominated assets (stock effect). This process can be termed as reverse dollarisation and has important implications for foreign exchange rate policy. Here it is important to note that a failure to observe a reduction in the stock of foreign exchange-denominated assets does not necessarily mean that dollarisation should continue. On the contrary, due to "flow reverse dollarisation", the share of foreign exchange

denominated assets in total assets could have started to decline. Leaving discussion of the implications of reverse dollarisation for exchange rate policy to the following section, we provide evidence for reverse dollarisation in Figure 1. In the figure, we can see the evolution of foreign exchange denominated assets to Turkish lira (TRL) denominated assets and total assets for the May 2002-December 2004 period. A significant decline in these ratios, especially starting from 2003, and up to mid-2004, is immediately evident.

Figure 1

Portfolio preferences of non-banking sector: 2002.4 - 2004.12 (%)
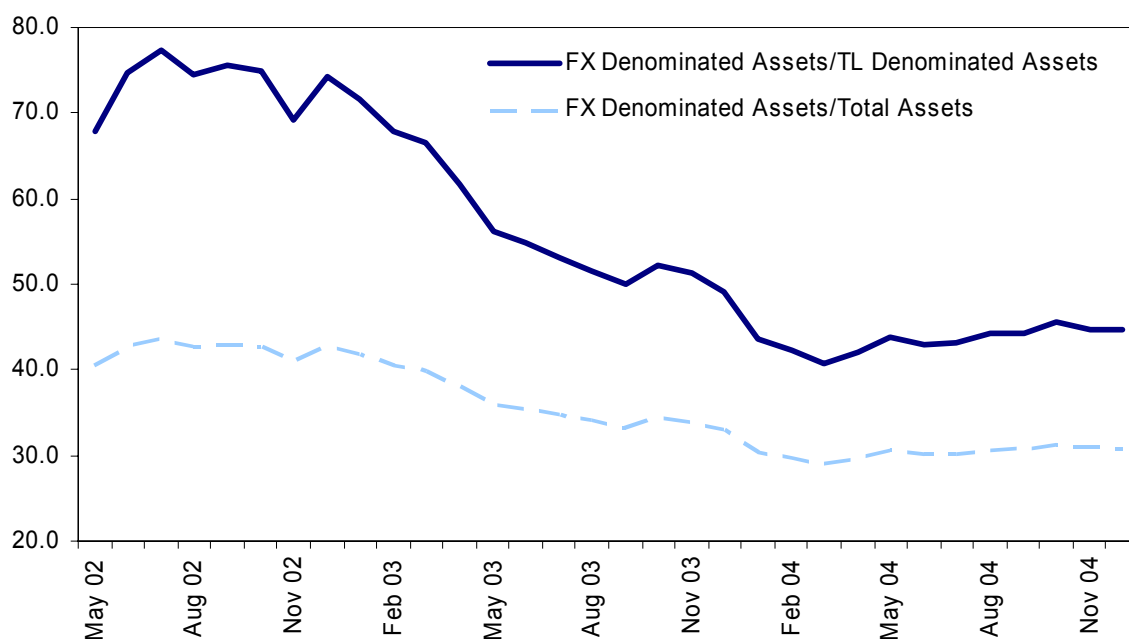
However, one should also note that there can be temporary deviations from this (expected) reverse dollarisation trend. the main reason is that while sound policies and reforms are necessary for improving economic performance, considerable time is needed for reducing the vulnerability of an economy that accumulated problems over the years to changes in international risk factors and other types of shocks (domestic or international). As evident from Figure 1, the reverse dollarisation process stopped in April 2004 when concerns about a continued rise in US interest rates became widespread and uncertainties surrounding the EU accession process for Turkey started to increase. Such temporary deviations from the main trend of reverse dollarisation also have repercussions for exchange rate policy, as discussed in the third section.

2.2 Pass-through effect

In an open economy, the domestic level of prices is affected by international prices and changes in exchange rates through the prices of tradable goods and services. In highly dollarised economies, in addition to such cost effects, changes in exchange rates also affect prices through balance sheet effects and expectations. The effect of changes in exchange rates on domestic inflation is called the pass-through effect. It is natural to expect both a decline and a slowdown in this effect, due to the radical change in macroeconomic policies, ie implementation of prudent macroeconomic policies after the 2001 crises and floating exchange rate regime. In such an environment, the exchange rate begins to lose its function as a nominal anchor. This is first reflected in firms' the pricing decisions, leading to a decline in the pass-through effect and supporting the fall in inflation. As disinflation gains pace, expected inflation strengthens as a nominal anchor.

However, such a change in the pass-through effect can take time and furthermore before a decline occurs (a decrease in the sum of simultaneous and lagged effects of exchange rate changes on inflation) in this effect one can only observe a slowdown (less contemporaneous but more lagged

effects, whereas the cumulative effect does not change significantly). Table 2 reports cross-correlation coefficients between the k-period lagged rate of change of the exchange rate and inflation for different periods. In the period preceding the crisis, the pass-through effect is high and almost without delay, whereas in the post-crisis period there is a considerable slow-down in this effect as reflected by the highest correlation coefficients at lagged values of exchange rate changes. No doubt, one should not rely on simple correlations only. Further evidence is obtained by recursively regressing CPI inflation on contemporaneous and lagged values of rates of change of the exchange rate (four lags) and the one-month lagged output gap. Figure 2 shows the evolution of the sum of the coefficients of exchange rate change variables for the January 1996-September 2004 period. A significant decline in the pass-through effect can easily be seen. It can also be seen that the decline in the pass-through effect, which was more rapid until the beginning of 2002, showed a relative slowdown thereafter.[3]

Table 2

**Cross-correlation coefficients between k-period lagged values of the
rate of change of the exchange rate and the current value of the inflation rate**

(k) period lagged exchange rate change	1987:01 - 2000:12		2002:01 - 2004:09	
	Monthly change	**3-monthly change**	**Monthly change**	**3-monthly change**
0	0.60	0.59	–0.18	–0.25
1	0.31	0.52	0.09	–0.01
2	0.06	0.27	0.23	0.20
3	–0.04	0.00	0.22	0.34
4	–0.13	–0.07	0.25	0.37
5	0.02	0.01	0.16	0.32

Note: Nominal exchange rate TRL vis-a-vis US is used for computations.

---

[3] According to a recent study carried out by the research department of the CBRT, which uses a time-varying parameter model in a Kalman filter setup, the time-varying pass-through coefficients are still declining, although at a slower pace compared to the beginning of the floating exchange rate regime.

Figure 2

The pass-through effect: January 1996-September 2004
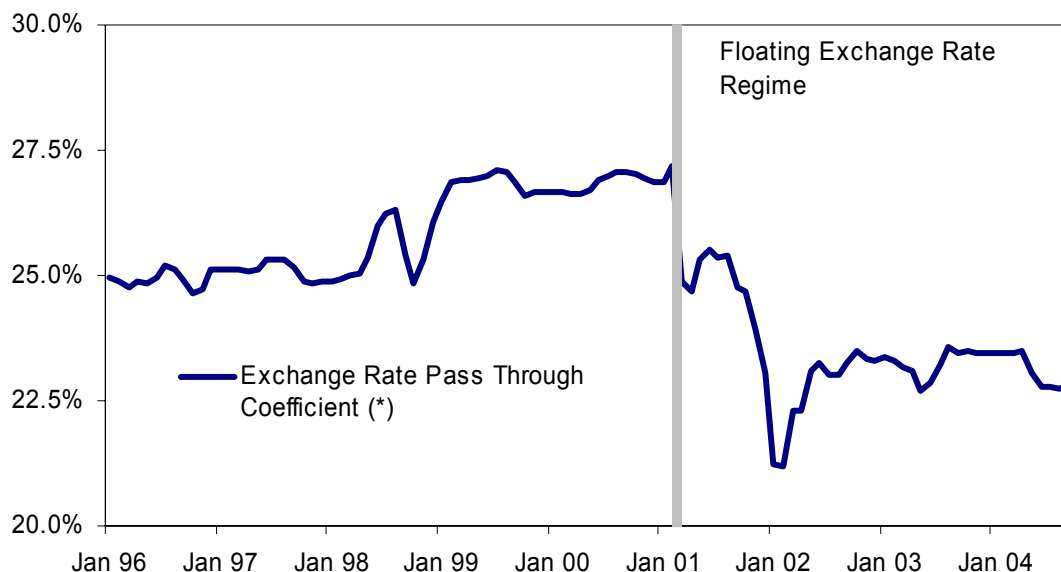
Note: (*) 1) The pass-through is the sum of the exchange rate coefficients obtained from the regression which explains monthly inflation, by four lagged series of change in the exchange rate, lagged monthly inflation and output gap. 2) For estimating output gap figures, projections have been used for 2004Q3-Q4.

## 3.   Monetary and exchange rate policies in the post-crisis period

3.1   Monetary policy

At the beginning of 2002, the CBRT announced that it was going to implement implicit inflation targeting, which is still the current monetary policy framework. The core of formal inflation targeting is included in this framework. That is, firstly, given that the main aim of the CBRT is to achieve price stability, short-term interest rates (the main policy tool of the CBRT) have been changed based on the inflation outlook only. Secondly, whenever a decision was taken on interest rates, the rationale behind that decision was explained to the public by press releases. However, some elements of formal inflation targeting were missing: for example, the public did not know the meeting dates of the monetary policy committee.[4] With continued fiscal discipline and structural reforms in the background, implicit inflation targeting has been successful in sharply reducing the inflation rate (Table 1). Figure 3 shows the evolution of secondary market interest rate, policy-rate of the CBRT, inflation expectations that are obtained from surveys, and consumer inflation in the post-crisis period. High and positive correlation between the inflation rate, inflation expectations, secondary market interest rate, and the CBRT policy rate are immediately observable.

---

[4]   On the 20th of December 2004, the CBRT issued a press release: Accordingly, starting from January 2005, the monetary policy committee would meet on the 8th of each month and interest rate decisions would be announced on the following business day at 09:00hrs. It was also announced that the CBRT would start the implementation of formal inflation targeting in the beginning of 2006.

Figure 3

Evolution of inflation expectations and interest rates
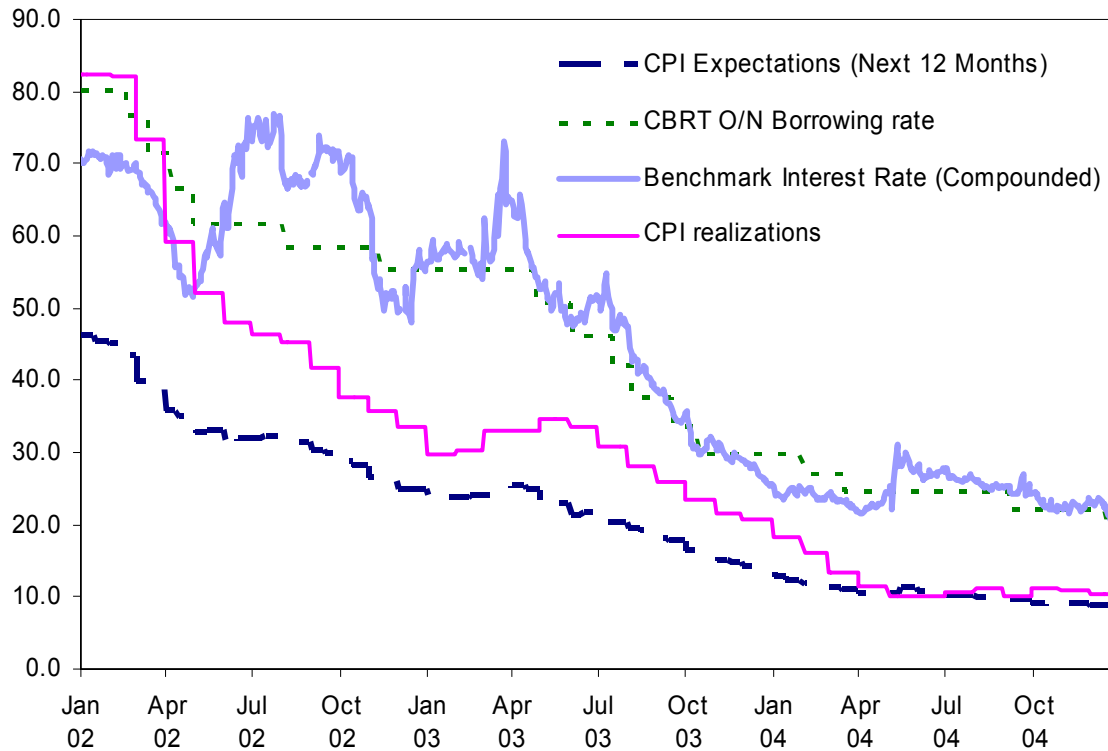
3.2 Exchange rate policy

The pre-announced fixed rate of increase of the exchange rate system, which had been implemented since January 2000, collapsed in February 2001. One of the most important elements of the programme to have been implemented after the crisis is the floating exchange rate system. Both the monetary and exchange rate policies of the CBRT were made more explicit at the beginning of 2002. At that time, CBRT once more emphasised the importance of floating exchange rate system. The main principle since then has been that market conditions would determine exchange rates. That is, the CBRT stressed that it would not interfere in the level or trend of exchange rate. It also announced that it could intervene in case of excess volatility. Based on the main principle, however, the CBRT has also pledged to keep the number of such volatility interventions strictly limited. Table 3 provides information regarding the number of volatility interventions, their type (sale or purchase), and the amount purchased or sold in millions of US dollars.

Table 3

Volatility interventions (2002-04)

Date	Type of intervention	Amount (million US$)
11.07.2002	Sale	3
02.12.2002	Purchase	16
24.12.2002	Sale	9
2002 net purchase		**4**
12.05.2003	Purchase	62
21.05.2003	Purchase	517
09.06.2003	Purchase	566
18.07.2003	Purchase	938
10.09.2003	Purchase	704
25.09.2003	Purchase	1442
2003 net purchase		**4229**
16.02.2004	Purchase	1283
11.05.2004	Sale	9
2004 net purchase		**1274**

In addition, at the beginning of 2002, the CBRT explicitly told the markets that:

i   Conditional on strict implementation of the programme and in the absence of large external shocks, the dollarisation process would lose its importance, becoming eventually a reverse dollarisation process.

ii   It was most likely that favourable balance of payments conditions would be observed.

iii   Although the exchange rate regime was a float - almost pure float - the level of foreign exchange reserves was at least as important for three reasons. First, Turkey had debt repayments forthcoming to the IMF. Second, international investors gave a special emphasis to the level of reserves. Third, CBRT wanted to clear its balance sheet of some types of foreign exchange liabilities, such as deposits of workers abroad.

iv   Given the importance of the level of reserves (in this case regardless of the exchange rate system), provided that at least one of the conditions stated in the first two paragraphs materialised, it was going to buildup reserves through rule based, transparent, and pre-announced purchase auctions.

Table 4 presents data for foreign exchange purchase auctions. The important point to note is that these auctions, unlike volatility interventions, were not discretionary. They were rule-based, which was known by the public. Provided that the aforementioned conditions were satisfied, at the beginning of each month, the CBRT announced how much and via which mechanism it was going to buy foreign exchange in these daily auctions. At later stages the auction mechanism was revised: an optional selling system was also introduced. Finally, the CBRT revised the auction mechanism effective from 22 December 2004. A yearly programme was announced to minimise the distortionary effects of possible changes in daily purchase amounts at the beginning of each month on the operation of the foreign exchange market. It was made explicit that the CBRT was not going to change the programme unless extraordinary changes were observed in terms of foreign exchange liquidity.

Table 4

Foreign exchange purchase auctions: 2002-04

(million US$)

Date	Amount	Date	Amount	Date	Amount
Jan-02		Jan-03		Jan-04	285.8
Feb-02		Feb-03		Feb-04	805.1
Mar-02		Mar-03		Mar-04	1,417.9
Apr-02	280.0	Apr-03		Apr-04	1,353.6
May-02	242.0	May-03	340.0	May-04	
Jun-02	273.0	Jun-03	630.0	Jun-04	
Jul-02		Jul-03	990.0	Jul-04	
Aug-02		Aug-03	1,050.0	Aug-04	
Sep-02		Sep-03	1,316.7	Sep-04	
Oct-02		Oct-03	1,325.6	Oct-04	
Nov-02		Nov-03		Nov-04	
Dec-02		Dec-03		Dec-04	241,6

4.   Effectiveness of foreign exchange interventions

Since foreign exchange purchase auctions were pre-announced at the beginning of each month and the amounts that were going to be purchased were declared at the outset, we do not classify these auctions as interventions. Given that the only aim was to buildup reserves, one should simply look at the level of reserves to judge the success of these purchase auctions. As evident from Table 4, the CBRT purchased US$ 10.3 billion in the 2002-04 period through such auctions. To put it another way, in that period, foreign exchange purchase auctions helped to increase CBRT reserves by 55% on average.

Akıncı, Emir, Özlale, and Şahinbeyoğlu (2004) analyse the causes and effectiveness of foreign exchange interventions for the post-crisis period. They make use of three different methodologies: event study, E-GARCH models, and time-varying parameter models. They do not find any significant impact of volatility interventions on the volatility of the exchange rate in the May 2001-December 2003 period. Guimaraes and Karacadag (2004) note that interventions did not affect the level of the exchange rate but reduced its volatility in the period March 2001-October 2003. Note that they do not differentiate between volatility interventions and purchase auctions and use an aggregated data set.

5.   Reserve management

In Turkey, the reserves are held and managed independently by the CBRT. Reserve management strategy is influenced by different factors. One factor is the liability structure of the CBRT, which is somewhat different from most central banks. The CBRT carries a relatively large amount of liabilities in foreign exchange in the form of savings deposits held by Turkish citizens living abroad. An important part of required reserves is in foreign exchange.

Secondly, foreign debt payments executed on behalf of the Turkish Treasury also have an influence on reserve management strategy, and it should be noted as well that under the current institutional framework, asset and liability management functions rest with different institutions. While the Treasury manages the government's foreign debt, the CBRT is responsible for the management of foreign

reserves, which renders sovereign risk management a challenging task. The CBRT takes expected foreign debt payments of forthcoming years into account when designing the global benchmark.

The model portfolio is designed to minimise credit, market and liquidity risks incurred in international markets. The portfolios in major reserve currencies are divided into sub-groups, each providing liquidity in different time horizons. While the operational portfolio meets day-to-day liquidity needs, the liquidity portfolio provides liquidity in the short to medium terms. Although relatively small, the investment portfolio is managed with the objective of ensuring return maximisation, while staying within the overall risk limits. The bulk of the reserves are invested in AAA rated highly liquid government issues, whereas a small portion of the reserves is placed with at least Aa2 rated banks in the form of time deposits.

References

Akıncı, Ö, O Y Emir, Ü Özlale, G Şahinbeyoğlu (2004): *Causes and effectiveness of foreign exchange rate interventions for the Turkish Economy: a post-crisis period analysis*, mimeo, Research Department, Central Bank of Turkey.

Guimares, R F and C Karacadag (2004): "The empirics of foreign exchange intervention in emerging market countries: the cases of Mexico and Turkey", *IMF Working Paper* 04/123.