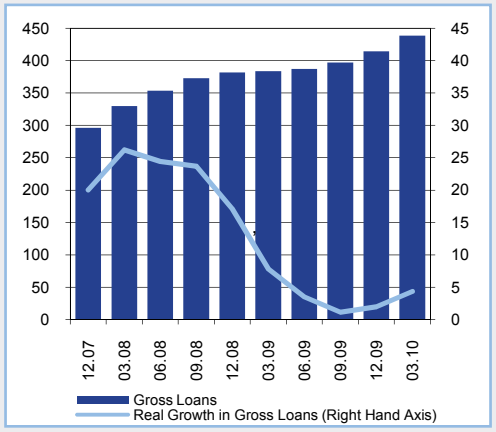
III. BANKING SECTOR RISKS

III.1. Credit Risk and Scenario Analysis

III.1.1. Credit Risk

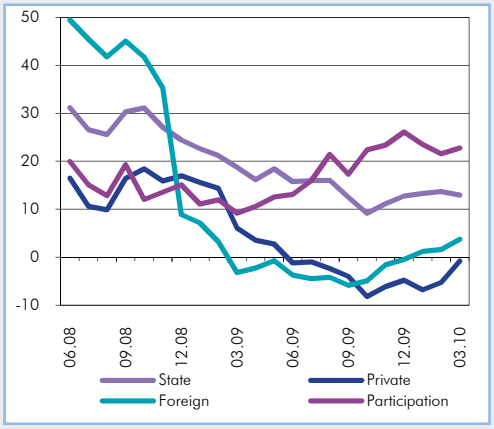
The recovery in economic activity triggered by the measures taken to curb the effects of the global financial crisis, the improved risk perceptions of banks and the low course of loan interest rates enabled the maintenance of a gradual recovery in the credit growth rate since the last quarter of 2009. The relative strengthening of firms' debt service capacity coupled with improving employment halted the increase in non-performing loans (NPL).

Chart III.1.
Gross Loans (Billion TL,%) [1,2]



Source: BRSA –CBRT
(1) Expressed in real terms using CPI (1994=100).
(2) Year-on-year percentage change.

Chart III.2.
Real Growth in Gross Loans by Groups (%) [1,2]



Source: BRSA –CBRT
(1) Expressed in real terms using CPI (1994=100).
(2) Year-on-year percentage change.

The growth rate of credits extended by the banking sector in Turkey lost pace due to the global economic crisis (Chart III.1). Analyzed by bank groups, this slowdown in all bank groups remains limited in public banks; whereas it is more accelerated in foreign and private banks. Following a fairly limited decrease, the credit growth rate in participation banks went up in contrast to other bank groups, also due to their inability to invest in interest earning instruments. Parallel to the favorable developments in economic activity since the last quarter of 2009, the credit growth rate in all bank groups gained pace and the gross credit volume reached TL 438.2 billion in March 2010 (Chart III.1 and Chart III.2).

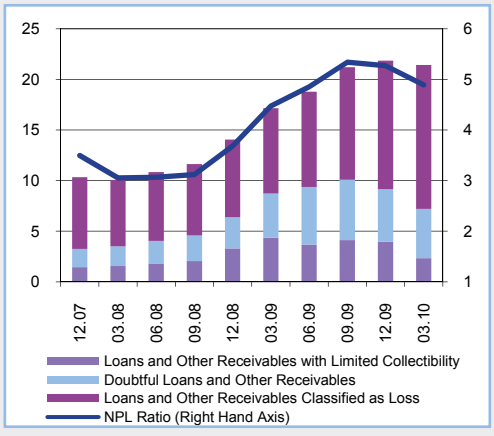
Table III.1. Selected Credit Ratios,[1] (Million TL, %)

	2007	2008	2009	03.10
First 5 Banks				
Total Gross Loans	162,452	211,543	216,948	230,736
Share in Total Gross Loans	54.9	55.5	52.3	52.6
NPL / Total Gross Loans	3.8	3.7	4.7	4.1
Gross Loans / Deposits	88.8	89.4	67.8	69.0
Provisions / NPL	89.5	84.8	90.2	88.9
First 10 Banks				
Total Gross Loans	236,833	309,321	331,379	351,606
Share in Total Gross Loans	80.0	81.1	80.0	80.2
NPL / Total Gross Loans	3.6	3.5	5.1	4.6
Gross Loans / Deposits	77.2	79.0	74.8	75.9
Provisions / NPL	89.4	83.5	87.8	86.7
Sector				
Total Gross Loans	295,962	381,497	414,473	438,249
NPL / Total Gross Loans	3.5	3.7	5.3	4.9
Gross Loans / Deposits	82.9	83.9	80.5	82.0
Provisions / NPL	86.8	79.8	83.6	82.9

Source: BRSA-CBRT
(1) The first 5 and 10 banks ranked according to their gross loans.

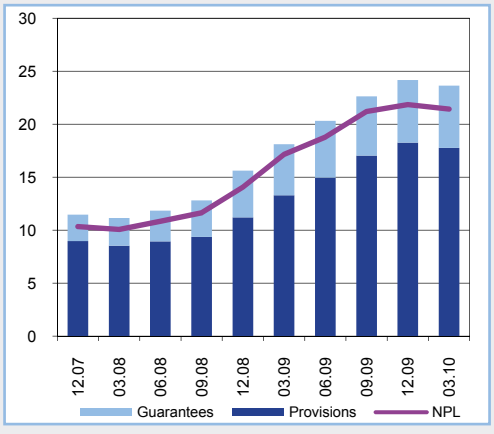
The loans to deposits ratio of the banking sector, which has been on the decrease since end-2008, rose to 82 percent in March 2010 thanks to the recovery in loans (Table III.1). The inclusion of a public bank with a high level of deposits in the first five banks with the highest loan portfolio was instrumental in the decrease in the loan/deposit ratio of the first five banks at end-2009.

Chart III.3.
Non-Performing Loans (Billion TL, %) [1]



Source: BRSA –CBRT
(1) NPL Ratio = Gross NPL / Gross Loan

Chart III.4.
Non-Performing Loans, Provisions and Collaterals (Billion TL)[1]



Source: BRSA –CBRT
(1) Collaterals are calculated based on the relevant regulation.

The amount of NPLs, which reached TL 21.9 billion - its highest level - in November 2009, recorded a limited decline then onwards and went down to TL 21.4 billion in March 2010. This decline was attributable to the increased debt repayment capacity of the private

sector, sale of a part of the NPLs to asset management companies, write-offs, or collections. Moreover, the NPL ratio, which was 5.4 percent in October 2009, decreased to 4.9 percent in March 2010 due not only to the plummeting NPLs but also to the increase in the credit volume (Chart III.3). The high provisioning policy implemented in the banking sector is considered to be a positive development as regards credit risk management (Chart III.4).

Taking the improvements in economic growth, employment and credit volume into consideration, it is believed that the trend of decline in NPL ratios will continue also in the forthcoming period.

Table III.2. NPL Ratios in Selected Countries (%)

	2007	2008	2009	Latest data
USA	1.4	2.9	5.4	December
Austria	2.2	1.9	2.3	September
Belgium	1.1	1.7	2.7	December
Brazil	3.0	3.1	4.5	October
Bulgaria	2.1	2.5	6.0	September
Czech Republic	2.8	3.3	5.3	December
Estonia	0.4	1.9	5.2	December
Croatia	4.8	4.9	6.4	September
United Kingdom	0.9	1.6	3.3	June
Ireland	0.8	2.6	7.5	September
Spain	0.9	3.4	5.1	December
Sweden	0.6	1.0	2.0	December
Italy	4.6	4.9	6.2	June
Latvia	0.8	3.6	16.4	December
Lithuania	1.0	4.6	19.4	December
Hungary	2.3	3.0	5.9	September
Poland	5.2	4.4	7.0	September
Portugal	1.5	1.9	2.8	June
Romania	4.0	6.5	14.8	October
Russia	2.5	3.8	9.6	December
Serbia	-	11.3	15.5	December
Slovakia	2.5	3.2	4.3	October
Slovenia	1.8	1.8	2.3	November
Turkey	3.5	3.7	5.3	December
Greece	4.5	5.0	7.2	September

Source: IMF Global Financial Stability Report, April 2010, BRSA-CBRT

Among the group of Central and Eastern European countries, to which Turkey also belongs, one of the lowest NPL ratios has been that of Turkey recently. The ratio for Latvia, Lithuania, Serbia and Romania exceeded 14 percent in 2009 and the NPL ratios of other countries in this group are higher than that of Turkey. Additionally, as for the developed economies, the NPL ratios of Greece, Ireland and Italy are higher than that of Turkey (Table III.2).

If concerns over financial problems stemming from the public debt burden in some European countries cannot be eliminated, the process of global recovery may slow down and the NPL ratios of these countries may increase even more.

Box 11. Some Amendments to the Regulation on the Procedures and Principles for Determination of Qualifications of Loans and Other Receivables by Banks and Provisions to be set Aside

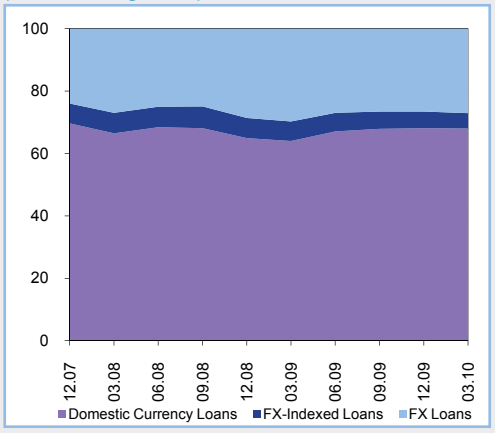
The period of implementation of the second and third provisional articles that were added to the "Regulation on the Procedures and Principles for Determination of Qualifications of Loans and Other Receivables by Banks and Provisions to be set Aside" with the amendment dated January 23, 2009 was extended for a year with a new amendment dated March 6, 2010.

According to this amendment, until March 2011, it will not be mandatory for banks to set aside provisions for the unproblematic loans of clients whose all outstanding loans have been classified as "non-performing" due to their failure to meet the repayment obligations of at least one other loan. Besides, in the event that banks collect overdue parts of loans in default, loans classified as unproblematic may be classified in the First Group on condition that they are monitored in the Second Group for a period of at least six months.

On the other hand, until March 1, 2011, loans classified in the Second Group may be tied to a new redemption plan for two times before they are classified as non-performing. Banks can also restructure their non-performing loans for a third time in the event that failure to meet payments of these loans stems from temporary liquidity difficulties. Loans subject to a new redemption plan may be classified in First and Second Groups provided that a specified percent of the total sum of receivables has been repaid.

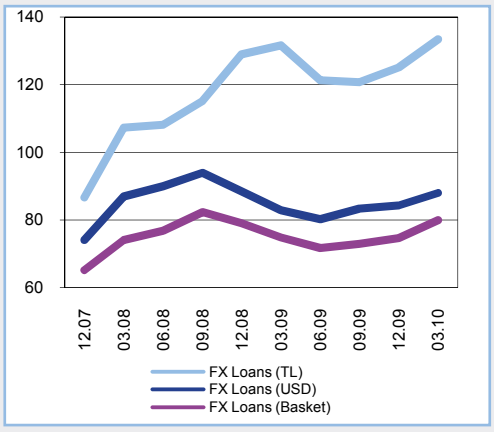
According to the new provisional article added to the mentioned regulation with this amendment, banks that has capital adequacy ratio equal to or greater than 16 percent which is measured from credit and market risk adjusted amount (except operational risk adjusted amount) can set aside zero percent general provision for their cash credit excluding credit cards from the publication date of this amendment to March 1, 2011.

Chart III.5.
Currency Composition Loans (%, Excluding NPLs)



Source: BRSA-CBRT

Chart III.6.
FX Loans (Billion, Excluding NPLs) [1,2]

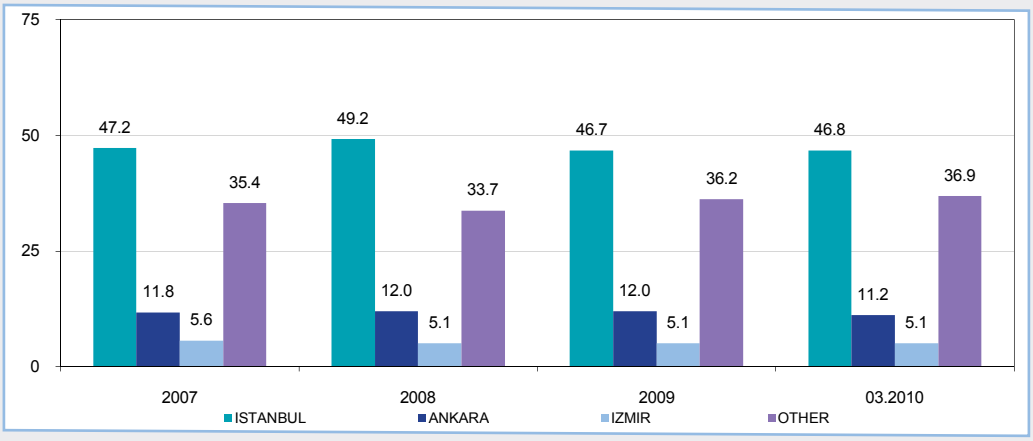


Source: BRSA-CBRT
(1) Converted to USD using the CBRT buying exchange rates as of month-end.
(2) FX basket is composed of 70 percent of the USD buying exchange rate and 30 percent of the Euro buying exchange rate.

In March 2010, 68 percent of total loans extended were Domestic Currency Loans while, 27.1 percent and 4.9 percent were FX-denominated and FX-Indexed loans, respectively. During the September 2008 – March 2009 period, the share of FX loans went up parallel to

the depreciation of TL and fluctuated in the range of 26.5-28 percent following this period. Meanwhile, FX-loans in terms of USD and FX-basket have increased since the second half of 2009 (Chart III.5 and Chart III.6).

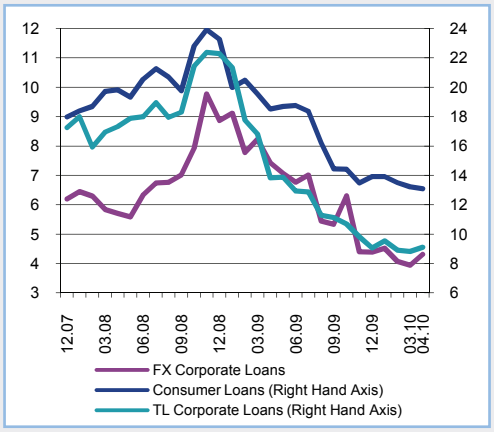
Chart III.7.
Distribution of Loans by Provinces (%) [1]



Source: CBRT
(1) Loans are compiled based on bank reporting under the scope of Central Bank Law No:1211, Article:44. They include corporate loans greater than 10 thousand Turkish Liras (inclusive) and retail loans greater than 5 thousand Turkish Liras (inclusive); extended to real and legal bodies by banks (including external loans used by firms with the intermediation of banks). They are inclusive of non-performing loans and accrued interest and exclusive of non-cash loans. Since October 2007, NPL's are being disclosed on the basis of firms without being subject to any limits.

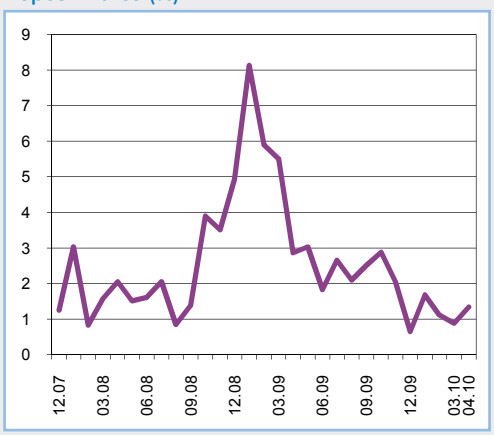
The geographical breakdown of loans suggests that while the share of Ankara decreased in March 2010 compared to end-2009, the share of other provinces within total loans increased, excluding İzmir, where no change is observed (Chart III.7).

Chart III.8.
Loan Interest Rates (%) [1]



Source: CBRT
(1) Weighted average flow interest rate.

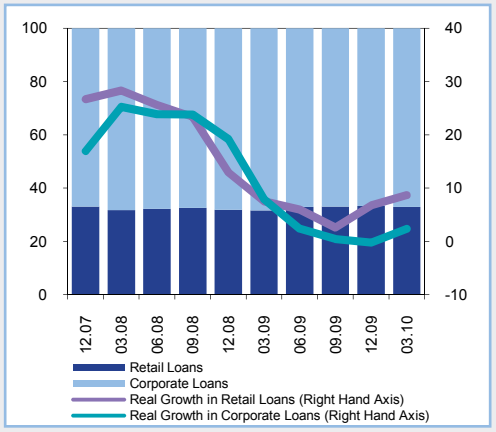
Chart III.9.
Spread Between Corporate Loan and Deposit Rates (%) [1]



Source: CBRT
(1) Weighted average flow interest rate.

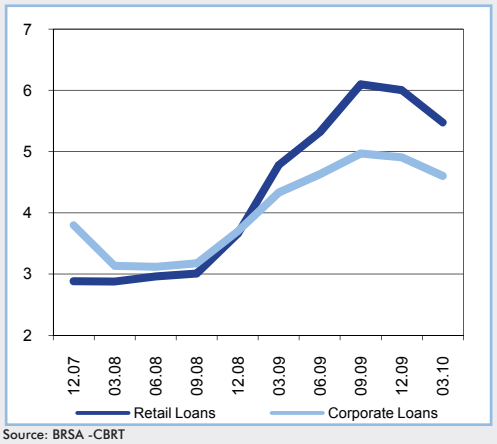
Although loan interest rates increased in October 2008 following the global crisis, they fell below their September 2008 levels with the help of the CBRT's interest rate cuts between November 2008 and November 2009 (Chart III.8). The rising spread between commercial loan-deposit interest rates, an indicator of tight loan conditions, which went up until February 2009, has levelled off at the 1-2 percent range since end-2009 (Chart III.9).

Chart III.10.
Breakdown of Gross Loans and Real Growth Rates (%) [1,2]



Source: BRSA -CBRT
(1) Expressed in real terms using CPI (1994=100)
(2) Annual percentage change as compared to the same period of last year.

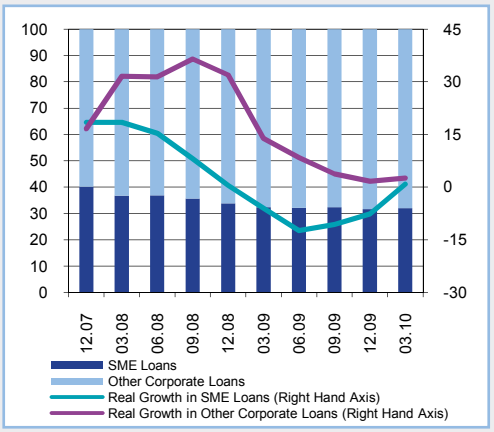
Chart III.11.
NPL Ratios of Corporate Loans and Retail Loans (%)[1]



Source: BRSA -CBRT
(1) NPL Ratio = Gross NPL / Gross Loan

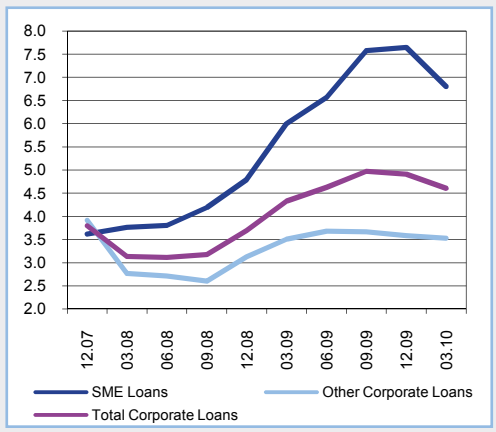
As of March 2010, 33 percent and 67 percent of total loans consisted of retail loans and corporate loans, respectively. Mainly the contraction in corporate loans triggered the deceleration in total loans in the post-crisis period; but these loans have increased due to the recovery in economic activity and the improvement in risk perception of banks since the last quarter of 2009. In March 2010, a year-on-year increase of 8.6 percent and 2.3 percent in retail loans and corporate loans was seen in real terms, respectively (Chart III.10). In the crisis period, NPL ratios of retail loans especially stemming from credit cards were above those of corporate loans and the said ratios have been decreasing since the last quarter of 2009 (Chart III.11).

Chart III.12.
Corporate Loans by Type (Excl. NPLs, %) [1,2]



Source: BRSA -CBRT
(1) Growth rates were brought to real terms by using CPI (1994=100).
(2) Annual percentage change as compared to the same period last year.

Chart III.13.
NPL Ratios of Corporate Loans (%)[1,2]



Source: BRSA -CBRT
(1) NPL Ratio=Gross NPL / Gross Loans
(2) Other corporate loans calculated by subtracting SMEs from total corporate loans.

Due to the gradual decrease in the tightness in lending standards of banks, corporate loans recovered and reached TL 280.3 billion in March 2010. 32.1 percent of these loans were extended to Small and Medium Sized Enterprises (SME)[8]. Parallel to the recovery in economic

8 Enterprises that are included in the Regulation on ''Definition, Properties and Classifications of Small and Medium Sized Enterprises'', prepared by the Ministry of Industry and Trade and published in the Official Gazette dated 18.11.2005 and numbered 25997.

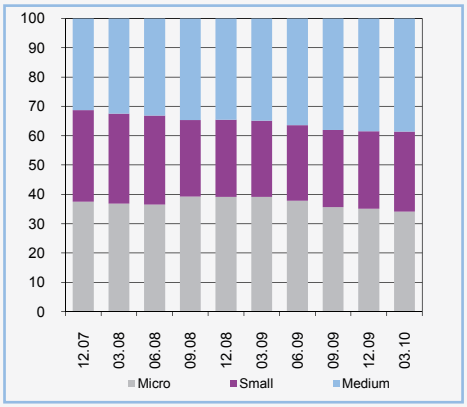
activity, these loans have been on the rise since the last quarter of 2009 (Chart III.12). Moreover, the results of the CBRT Banks' Loans Tendency Survey suggest that the highest increase in demand in the forthcoming period is expected in SME loans.

A rapid increase was observed in NPL ratios owing to the significant contraction in the loans extended to SMEs and the slowdown in the debt service capacity of these firms. However, due to the recovery in economic activity and high growth expectations, loans extended to SMEs have increased and NPL ratios have improved since the last quarter of 2009 (Chart III.13).

Box 12. Types of SME Loans

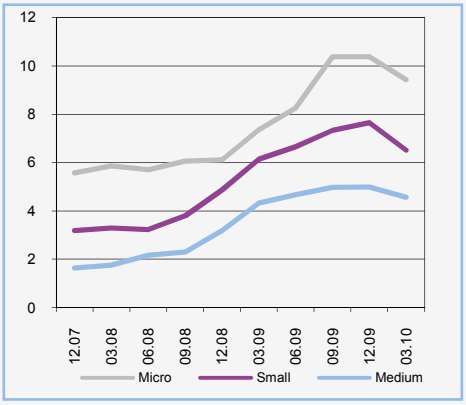
According to the Regulation on ''Definition, Properties and Classifications of Small and Medium Sized Enterprises'', prepared by the Ministry of Industry and Trade, which was published in the Official Gazette dated November 18, 2005 and nr. 25997, SMEs are classified as micro, small and medium sized enterprises considering number of employees and annual net sales. Micro enterprise is defined as a business employing less than 10 persons and having annual net sales revenue or a financial balance-sheet of up to 1 million TL, small enterprise is defined as a business employing less than 50 persons and having annual net sales revenue or a financial balance-sheet of up to 5 million TL, and medium-sized enterprise is defined as a business employing less than 250 persons and having annual net sales revenue or a financial balance-sheet of up to 25 million TL.

Chart 1.
Distribution of SME Loans
(Excluding NPLs, Share %)



Source: BRSA – CBRT

Chart 2.
NPL Ratios of SMEs (%)



Source: BRSA – CBRT
(1) NPL Ratio=Gross NPLs/ Gross Loans

Total amount of SME loans rose to 89.9 million TL as of March 2010 and the shares of micro, small and medium sized enterprises were realized as 34.1 percent, 27.2 percent and 38.6 percent respectively. Due to banks' diminished risk appetite and worsened financial conditions of SMEs, their loans decreased significantly after the global financial crises. Besides, due to adverse conditions in global markets, external funding capacity of SMEs were deeply affected from the global crisis. In addition, the share of micro enterprises within SME loans decreased (Chart 1). Although the NPL ratio of SMEs started to increase after September 2009, this ratio turned to decelerate in all types of SMEs parallel to the recovery in the economic activity. However, NPL ratio of micro enterprises is still higher than small and medium sized enterprises (Chart 2).

Box 13.
Treasury Support that will be provided to Credit Guarantee Fund Inc.

In order to help alleviate financial difficulties encountered by the corporate sector firms whose financial conditions weakened and funding needs increased after the global crisis, a Council of Ministers Decision was published on July 15, 2009, to provide Treasury support to Credit Guarantee Fund Inc. (CGF).

Since this fund, which came into effect in January 2010, could not be used efficiently due to some troubles in implementation, credit coverage was extended as of April 10, 2010 to include restructured loans and conditions to be met by the beneficiaries were amended in terms of providing easiness in application.

Table 1. Amounts of Guarantee Provided by CGF (Authorized, Million TL)

Periods	1994-2009	10.09	11.09	12.09	Jan.-Apr. 10
Amount of Guar. Prov. by Equity Capital	1,088.6	65.3	74.5	48.6	157.7
Amount of Guar. Prov. by Treasury Support	-	-	-	-	24.7

Source: Credit Guarantee Fund

While the aim was to provide loans at an amount equivalent to TL 10 billion by this facility, the amount of guarantee actually provided by CGF within the context of Treasury support became limited to TL 24.7 million. On the other hand, the amount of guarantee provided by equity capital of CGF reached to TL 157.7 million during the first four months of 2010 (Table 1).

It is aimed to increase the amount of guarantee provided by CGF with Treasury support and to meet the funding needs of the firms in the coming period with the amendments in the regulation. The recovery process of SME loans, which increased recently, is expected to accelerate with more efficient use of the mentioned fund.

Table III.3. Sectoral Breakdown of Corporate Loans (Excluding NPLs) (%)[1,2]

		Loans			FX Loans/ Total Loans		
		2008	2009	03.10	2008	2009	03.10
1	Wholes. and Ret. Trade, Brok., Motor Veh. Maint. and Rep. Serv.	18.1	17.6	17.6	42.9	37.5	33.3
2	Transportation, Storage and Communication	8.2	8.4	8.0	62.1	64.5	68.9
3	Textile and Textile Products Industry	5.2	4.5	4.5	66.6	61.4	60.7
4	Construction	9.5	9.9	10.0	59.1	55.5	54.1
5	Industry of Tobacco, Beverages and Food	5.3	5.2	5.3	50.7	47.9	48.2
6	Manufacture of Basic Metals and Fabricated Metal Products	6.1	5.8	5.9	71.7	69.6	68.9
7	Sources of Electricity, Gas and Water	5.0	6.0	6.3	90.9	93.3	94.6
8	Agriculture, Hunting, Forestry	5.1	5.2	5.1	25.6	18.3	18.8
9	Machinery and Equipment Industry	3.0	2.5	2.4	50.6	50.9	47.2
10	Hotels and Restaurants (Tourism)	3.4	3.9	3.8	79.1	77.9	76.0
	Total of 10 Sectors	68.9	69.0	68.9	56.7	54.6	53.8

Source: CBRT
(1) Loans are compiled based on bank reporting under the scope of Central Bank Law No:1211, Article 44. They include corporate loans that are greater than ten thousand Turkish Liras (inclusive); extended to real and legal bodies by banks (including external loans used by firms with the intermediation of banks). Incurred interests and rediscounts are included, non-cash loans are excluded.
(2) Financial Intermediation as a sector is excluded.

According to Central Bank Risk Center data, the share of ten selected sectors in total corporate loans as of March 2010 declined by 0.1 percentage point compared to end-2009 to stand at 68.9 percent.

In the same period, the "Wholesale and Retail Trade, Brokerage and Motor Vehicles Maintenance and Repair Services", which had the largest share in total corporate loans with 17.6 percent, was followed by "Construction", and "Transportation, Storage and Communication" sectors. The decline in the "Textile and Textile Products Industry", which had been going on for a while, ceased.

By the end of March 2010, the share of FX-loans in total loans within the selected sectors mostly tended to decrease with the exception of the "Transportation, Storage and Communication" and "Electricity, Gas and Water Sources" sectors, which exhibited an increased use of FX-loans (Table 3).

Table III.4.
Sectoral Breakdown of NPL and Default Ratios of Corporate Loans (%)[1,2]

		2008		2009		03.10	
		NPL Ratio	Default Ratio	NPL Ratio	Default Ratio	NPL Ratio	Default Ratio
1	Sources of Electricity, Gas and Water	0.1	6.1	0.2	9.0	0.2	9.2
2	Industry of Tobacco, Beverages and Food	4.4	9.0	4.9	13.6	4.6	14.0
3	Construction	2.6	8.5	4.1	12.2	3.9	12.5
4	Machinery and Equipment Industry	2.1	5.5	3.1	9.0	2.9	9.2
5	Manuf. of Base Metal and Fabr. Metal Prod.	1.2	5.9	2.5	9.9	2.3	9.9
6	Hotels and Restaurants (Tourism)	2.6	7.8	3.1	10.6	3.0	10.6
7	Agriculture, Hunting, Forestry	4.2	10.3	6.0	11.4	5.8	10.8
8	Transportation, Storage and Communication	1.7	4.6	2.5	7.1	2.8	7.1
9	Textile and Textile Products Industry	10.1	11.6	11.8	16.7	11.4	17.3
10	Wholesale and Ret. Trade, Broker., Mot. Veh. Maint.	3.9	6.5	5.8	11.3	5.5	11.5
	Total of 10 Sectors	3.4	7.8	4.5	11.1	4.4	11.0
	Total of All Sectors	3.7	8.1	4.9	11.2	4.6	11.3

Source: CBRT
(1) Loans are compiled based on bank reporting under the scope of Central Bank Law No:1211, Article 44. They include corporate loans that are greater than ten thousand Turkish Liras (inclusive); extended to real and legal bodies by banks (including external loans used by firms with the intermediation of banks.)
(2) Financial Intermediation as a sector is excluded.

Based on the Central Bank Risk Center data, NPL ratios of loans decreased compared to December 2009 in all sectors analyzed in March 2010, the only exception being the "Transportation, Storage and Communication" sector, which displayed an increase in NPL ratios. (Table III.4).

The default rate, which is calculated by dividing the number of firms with NPL to the total number of firms, rose to 11.3 percent for all sectors in March 2010 (Table III.4).

As of March 2010, default rates in the "Industry of Tobacco, Beverages and Food", "Textile and Textile Products Industry", "Construction" and "Wholesale and Retail Trade, Brokerage and Motor Vehicles Maintenance and Repair Services" were above the average default rate of the selected 10 sectors (Table III.4).

Box 14.
Export Rediscount Credits Given to Turkish Eximbank and Commercial Banks

In line with the Article 45 of the CBRT Law, with the aim of financing exporters' export rediscount credits has been provided by accepting bills concerning exports after dispatch that have a payment guarantee of a resident commercial bank or Turkish Eximbank and bills concerning exports before dispatch that have a guarantee of a resident commercial bank with the mediation of Turkish Eximbank for rediscount.

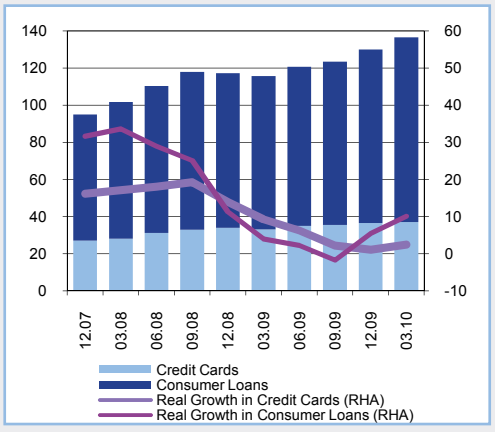
LIBOR or EURIBOR rates are being applied to these credits that are made available through acceptance of bills arranged in foreign exchange and have a maximum of 120 days for their maturity for rediscount. Maximum amount of credit for a single company is 40 million USD for Foreign Trade Capital Firms and 20 million USD for other companies.

In order to mitigate the negative effects of the global crisis on the real sector, the overall limit for these credits that was set as 1 billion USD in 2008 has been raised to 2.5 billion USD in April 2009 and the requirements for using these credits have been eased.

In 2009, 1,365 Million USD and in the first five months of 2010 376.2 Million USD worth of export rediscount credits have been provided. Stock balance of the aforementioned credits as of May 20, 2010 is 338 Million USD.

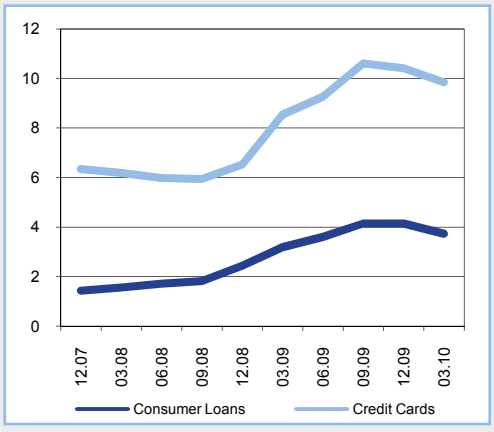
In this framework, between January 1, 2009 and May 20, 2010, for 705 export transactions of 179 companies, approximately 22 of which are Foreign Trade Capital Firms, export rediscount credits have been provided. These credits have mostly been used by Metal Main Industry and Crude Mining Products, Textile and Textile Products, Electrical and Optical Devices, Machines and Equipment and Transport Vehicles sectors.

Chart III.14.
Retail Loans [1,2]
(Excluding NPLs, Billion TL, %)



Source: BRSA -CBRT
(1) Expressed in real terms using CPI (1994=100).
(2) Year-on-year percentage change

Chart III.15.
NPL Ratios for Retail Loans [1] (%)



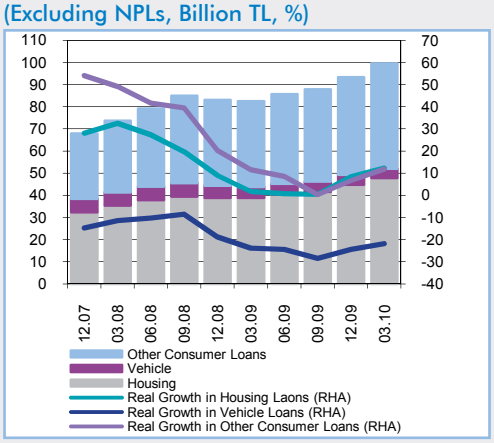
Source: BRSA -CBRT
(1) NPL Ratio = Gross NPL / Gross Loans

The real rate of increase in consumer loans had trended down since the second quarter of 2008; however, it started to recover in the last quarter of 2009 in line with the favorable developments in consumer confidence and employment indicators, as well as low interest rates on loans. The slowdown in the real growth rate of credit cards was replaced by a limited increase in the first quarter of 2010. As of March 2010, retail loans amounted to TL 136.6 billion; consumer loans and credit cards increased by 10 percent and 2.4 percent, respectively, year-on-year in real terms (Chart III.14).

While NPL ratios for consumer loans and credit cards, which tended to increase with the global crisis, rose until October 2009, they declined after this period and became 3.7 percent and 9.8 percent, respectively, in March 2010 (Chart III.15). This development is mainly attributable to the increase in credit utilization owing to the removal of tightness in credit conditions and to the improvement in household expectations for the future, despite the flat course of NPL amounts since the last quarter of 2009.

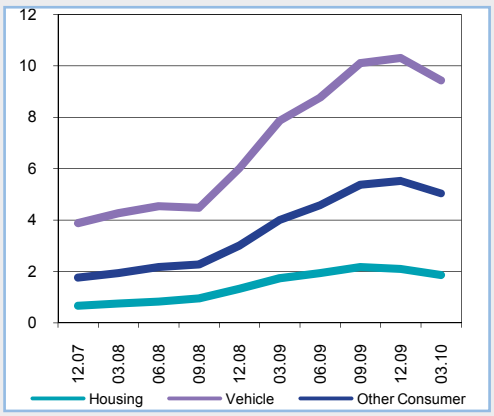
In the meantime, the restructuring of non-performing credit cards within the scope of Law No: 5464 and on a voluntary basis in the subsequent period is expected to have a positive effect on NPL ratios (Table I.36).

Chart III.16.
Consumer Loans [1,2]
(Excluding NPLs, Billion TL, %)



Source: BRSA -CBRT
(1) They were brought to real terms using CPI (1994=100).
(2) Annual percentage change as compared to the same month of the previous year.

Chart III.17.
NPL Ratios for Consumer Loans [1] (%)



Source: BRSA -CBRT
(1) NPL Ratio = Gross NPL / Gross Loans

In March 2010, housing loans and other consumer loans increased by 12.2 percent and 11.9 percent, respectively, on year-on-year real terms, while vehicle loans decreased by 21.8 percent in real terms; thus, total consumer loans became TL 99.5 billion. The contraction in vehicle loans, which had lasted for a long time, has decelerated in real terms since the last quarter of 2009 (Chart III.16). The horizontal course of NPL ratios in all consumer loans, which started in the last quarter of 2009, was replaced by a decline (Chart III.17).

The Banks' Loans Tendency Survey suggests that in the second quarter of 2010 credit standards will remain unchanged in housing and vehicle loans, while they will be tightened in other consumer loans.

It is observed that flow interest rates referring to interest rates on newly extended consumer loans, which increased in the last quarter of 2008 due to the global financial crisis, started to decline afterwards with the effect of the measures taken (Chart III.18).

9 Refers to the balance in the cash loans item, until credit card spending and cash withdrawals are paid back to the bank by the cardholders.

Chart III.18
Consumer Loan Interest Rates (%)[1,2]

Source: CBRT
(1) Other consumer loans are consumer loans excluding housing and vehicle loans.
(2) Weighted average interest rates.

III.1.2. Credit Risk Scenario Analysis

With the aim of assessing the credit risk that the banking sector might be exposed to, an analysis was conducted on how CARs and the profitability of banks might be affected from a potential increase in NPL ratios as of March 2010[10].

The scenario analysis was conducted under the following assumptions;

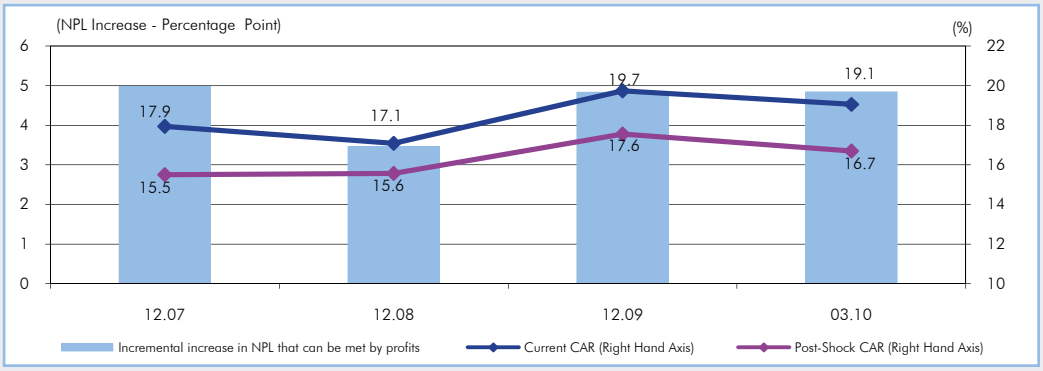
i) The total credit amount of banks remained unchanged.

ii) NPLs resulting from shocks have the same composition as the existing NPLs of banks. For banks that did not have any NPLs before the shocks, the NPLs that came into existence due to the shock implemented are classified as "loans and other receivables with limited collectibility", setting aside a 20 percent provision.

iii) Post-shock NPLs were categorized as 100 percent risk–weighted loans in the calculation of the pre-shock CAR.

iv) There is no change in the total risk-weighted assets and equity capital of the sector except for the shocks. Collateral amounts were not taken into account while calculating additional provisions.

Chart III.19.
Effect of Credit Shock on the Profitability of the Sector 1,2



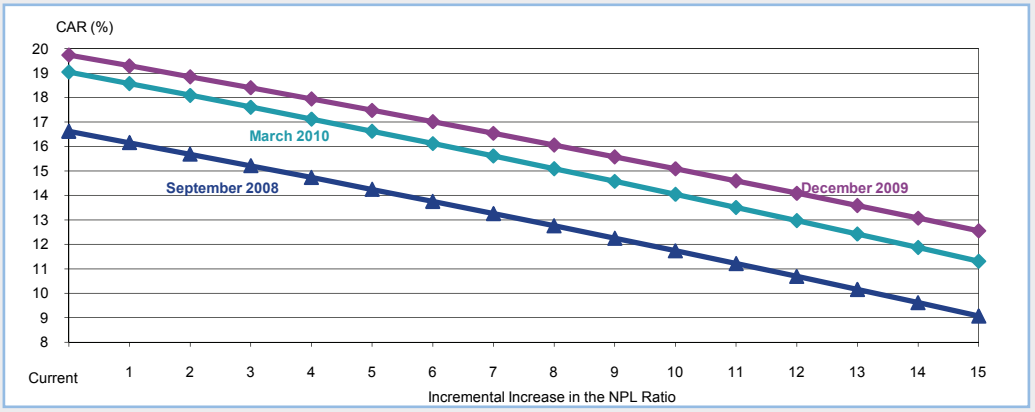
Source: BRSA-CBRT
(1) Excluding the SDIF Bank, Iller Bank and banks that do not have loans in their portfolio.
(2) Post-shock CAR is calculated based on the maximum increase in NPL, which might be covered by the annualized profit.

[10] After loans are classified as NPLs and additional provisions are set aside, the post-shock capital adequacy ratio is calculated as follows: (Equity capital – Additional Provisions) / (Risk Weighted Assets – Additional Provisions)*100.

An analysis of how much additional NPLs can be covered by the net profit of the banking sector reveals that an increase of 3.5 percentage points in NPLs can be covered by that period's net profit at end-2008, whereas in March 2010, this figure rebounded to 4.8 percentage points as a result of the increase in net profit as well as the decrease in NPLs (Chart III.19).

The scenario analysis assesses the effects of a 1-15 point incremental increase in the NPL ratio on the CAR of the banking sector. Accordingly, as of March 2010, the NPL ratio of banks that were included in the analysis was 5 percent. While the shock from a maximum 15-point increase in the NPL ratio of the banking sector reduced the CAR of the sector by 7.6 percentage points in September 2008 when the global crisis started to affect Turkey, it reduced the CAR by approximately 7.7 points in March 2010 and the post-shock CARs materialized as 9.1 percent and 11.3 percent, respectively (Chart III.20).

Chart III.20.
Effects of Credit Shocks on the CAR of the Sector (%)[1]



Source: BRSA-CBRT
(1) Excluding the SDIF Bank, Iller Bank and banks that do not have loans in their portfolio.

Should the normalization process, currently being witnessed in global financial markets, persist along with the ongoing economic recovery in Turkey, the acceleration in the banking sector's credit volume is expected to continue in the forthcoming period as well. The scenario analyses reveal the soundness of the capital structure of banks and the improvements in the asset quality and profitability support credit growth. Nevertheless, the upcoming course of the credit volume and NPLs will be shaped around the latest developments in international markets and their implications on the Turkish economy.

III.2. Market Risk and Scenario Analyses

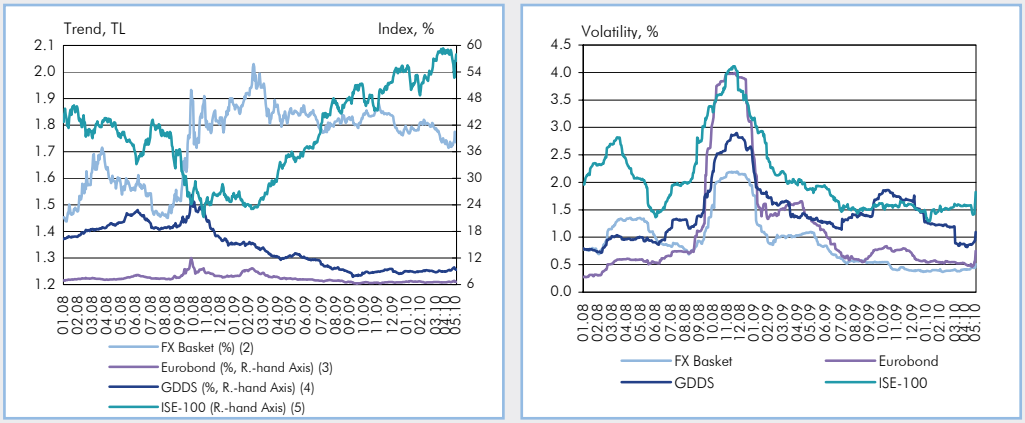
In this section, where the implications of the developments in interest rate and FX risk on bank balance sheets are assessed, the impact of two scenarios based on hypothetical data are also analyzed.

III.2.1. Market Risk

The volatility in the Turkish financial system tapered off compared to the previous periods, on account of the measures taken by the Central Bank of Turkey coupled with improvements in global risk perceptions. However, recently, with growing concerns particularly over debt ratios along with budget deficits at international level, Turkish financial markets have also been influenced and volatility has increased, albeit modestly. The value of the Turkish Lira versus the

foreign exchange basket comprising US dollar and Euro is hovering above pre-crisis levels. The upward trend in the ISE, which started in March 2009, continued, though with a slight decline recently. The interest rates on GDDSs maintained their downward trend, however they started to rise at the end of April due to the recent volatility and became 9.5 percent on average by May 2010 (Chart III.21).

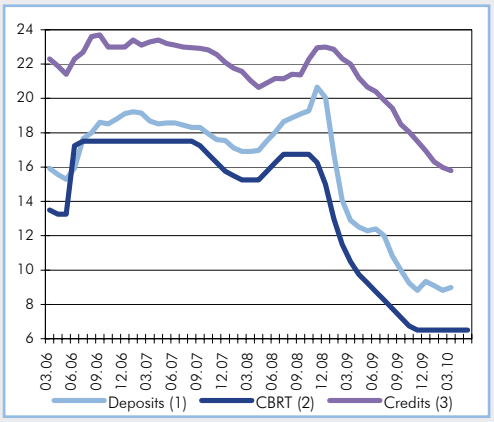
Chart III.21.
Foreign Exchange Rates, Interest Rates and Equity Prices[1]



Source: CBRT
(1) For volatility calculations, standard deviation of daily logarithmic yield of the related market instrument (60 business -days moving average) is used.
(2) 50 percent of the Foreign Exchange Basket is in USD and the rest is in Euro.
(3) Based on USD denominated Eurobond interest rate with 2030 maturity.
(4) Based on the interest rate on the benchmark GDDS.
(5) Calculated by dividing ISE-100 by 1,000.

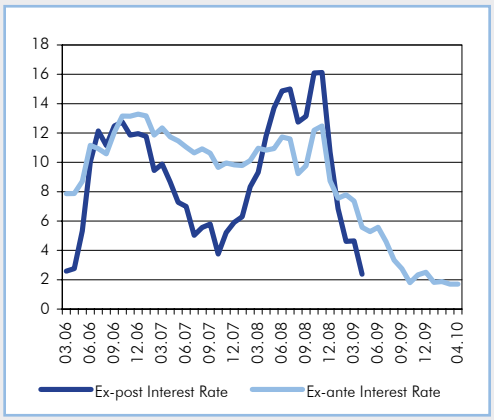
Central Bank policy rates have remained unchanged and the overnight borrowing rate has been kept flat at 6.5 percent since November 2009. Moreover, the Monetary Policy Committee has stated that it may be necessary to maintain policy rates at current levels for some time, due to uncertainties regarding the global economy. In the meantime, interest rates on deposits and loans continued to decrease and while interest rates on deposits declined to 9 percent on average, those on loans dropped to 16 percent in the first quarter of 2010 (Chart III.22).

Chart III.22.
Interest Rates (%)



Source: CBRT
(1) Banking sector 3-month weighted "stock TL deposit" interest rate.
(2) CBRT overnight (O/N) borrowing rate.
(3) Banking sector weighted "stock TL credit" interest rate.

Chart III.23.
Ex-ante[1] and Ex-post[2] Real Interest Rates[3] (%)

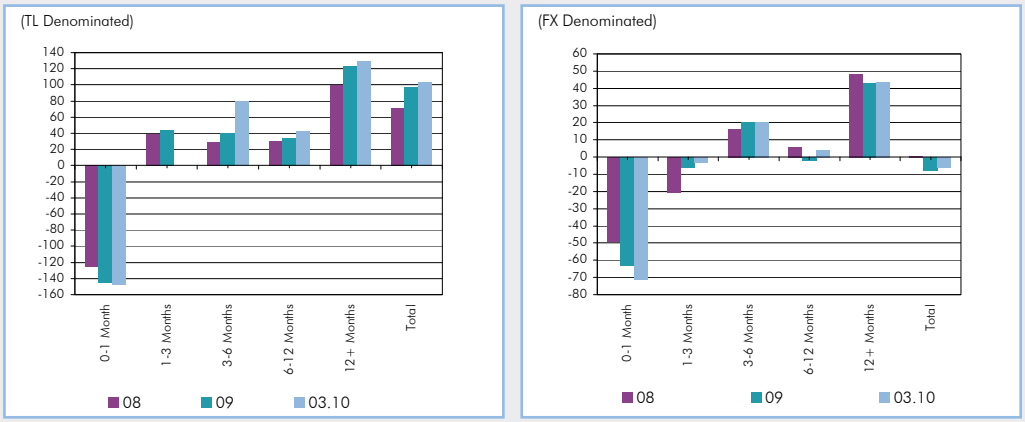


Source: Calculated by using the data of CBRT, ISE and TURKSTAT
(1) Ex-ante interest rate=(((1+ nominal interest rate)/(1+expected inflation rate))-1)*100
(2) Ex-post interest rate=(((1+ last year's nominal interest rate)/(1+realized inflation rate))-1)*100. As expected inflation rate, yearly ex-ante CPI figures in the bi-weekly Survey of Expectations published by the CBRT are used.
(3) GDDS interest rates are the monthly average interest rates on the benchmark GDDS.

The real interest rate, which had materialized on the back of the surge in inflation rates since the end of 2009, and the downward trend of nominal interest rates that started at end-2008, had taken a sharp plunge since the end of 2008 and became 2.4 percent as of April 2009. Meanwhile, the expected real interest rate materialized as 1.7 percent in April, due to mounting inflation expectations at end-2009 and in early 2010 (Chart III.23).

In terms of days to re-pricing, negative interest-rate sensitive TL and FX gaps of the banking sector were mainly observed in the 0-1 month maturity bracket similar to previous periods, and in March 2010 the gap in this maturity bracket widened compared to the previous year-end (Chart III.24).

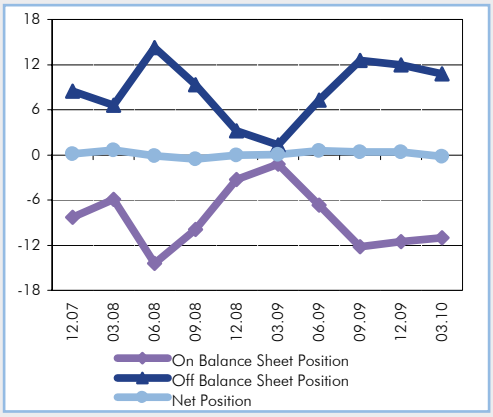
Chart III.24. Interest-Rate Sensitive Gap of the Banking Sector (Billion TL) [1,2]



Source: CBRT-BRSA
(1) Time to re-pricing is used.
(2) Excluding SDIF bank

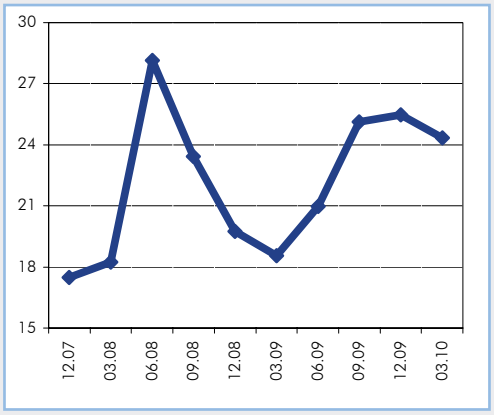
The net overall FX position of the banking sector is almost balanced (Chart III.25).

Chart III.25. Foreign Exchange Position of the Banking Sector[1] (Billion USD)



Source: BRSA
(1) Participation banks are included.

Chart III.26. Swap Transactions in TL/FX[1] (Billion USD)



Source: BRSA-CBRT
(1) Participation banks are included.

The banking sector's tendency to invest its foreign currency funds in Turkish lira loans through derivatives, especially through swap operations, and thus carrying an on-balance sheet short position and an off-balance sheet long position, was interrupted during the crisis but later

resumed on the back of the positive atmosphere in global financial markets since April 2009. Accordingly, the on-balance sheet short and off-balance sheet long position of the banking sector resumed its upward trend (Chart III.25, Chart III.26).

The banking sector, which balances its on-balance sheet short position with its off-balance sheet long position, held USD 36.3 billion of selected TL/FX derivative assets by March 2010. For USD 31.1 billion of this amount, the counterparty is a financial institution.

III.2.2. Scenario Analyses

III.2.2.1. Interest Rate and Exchange Rate Increases

In this section, the individual and collective effects of the interest rate and exchange rate increases on the banking sector have been analyzed under two scenarios assuming that the two increases occur independently.

Under Scenario A, it is assumed that the Turkish lira depreciates by 30 percent against other currencies, interest rates for the Turkish currency and foreign currencies increase by 6 and 5 percentage points, respectively, and Eurobond prices decline by 15 percent.

Under Scenario B, it is assumed that the Turkish lira depreciates by 40 percent against other currencies, interest rate increases are twice the increases given in Scenario A and Eurobond prices decrease by 25 percent.

FXNGP data was used to calculate the effects of exchange rate increase on the sector.

Table III.5. Interest Rate and FX Rate Increase Scenarios

	SCENARIO A	SCENARIO B
A. Depreciation of TL	30 percent depreciation of TL against other currencies	40 percent depreciation of TL against other currencies
B. Interest Rate Increase-TL	Re-pricing of TL interest sensitive assets and liabilities falling in 0-1 and 1-3 month maturity brackets at 6 points higher	Re-pricing of TL interest sensitive assets and liabilities falling in 0-1, 1-3, 3-6 month maturity brackets at 12 points higher
C. Interest Rate Increase-FX	Re-pricing of TL interest sensitive assets and liabilities falling in 0-1 and 1-3 month maturity brackets at 5 points higher	Re-pricing of TL interest sensitive assets and liabilities falling in 0-1, 1-3, 3-6 month maturity brackets at 10 points higher
D. Trading Portfolio-TL[1]	6 points increase in market interest rates of YTL denominated fixed income securities in the trading portfolio	12 points increase in market interest rates of TL denominated fixed income securities in the trading portfolio
E. Eurobond Portfolio	Decrease in prices of Eurobonds in the trading portfolio by 15 percent	Decrease in prices of Eurobonds in the trading portfolio by 25 percent

(1) Trading portfolio consists of "financial assets at fair value through profit or loss" and "securities available for sale".

To calculate the impact of interest rate increases on the sector, the repricing gap method, which complements the standard method and is recommended by the Basel Committee on Banking Supervision, was applied. In this framework, the difference between interest-rate sensitive assets and interest-rate sensitive liabilities in the "days to repricing maturity brackets of 0-1, 1-3, and 3-6 months "were taken into account.

In scenario analyses based on repricing, it was assumed that:

- The interest rate sensitivity of banks' assets and liabilities remains unchanged throughout the analysis period,

- Demand deposits are not interest-rate sensitive,

- There are no new fund inflows or outflows,

- Interest rate increases would last for 3 months in Scenario A and for 6 months in Scenario B.

The loss of value in Turkish lira-denominated discount securities within the trading portfolio and the Eurobond portfolio, stemming from the rise in interest rates, has also been calculated.

III.2.2.1.1. Depreciation of TL

Table III.6. Results of Market Risk Scenarios[1] (Million TL)

	Scenario A			Scenario B		
	09.08	09	03.10	09.08	09	03.10
A, TL Depreciation						
a, Total	-325.5	123.4	-226.8	-434.0	164.5	-302.5
Profit (Loss) / Own Funds (%)	-0.4	0.1	-0.2	-0.6	0.2	-0.3
b, Banks Gaining Profits	155.7	277.2	179.1	207.5	369.6	238.8
c, Banks Suffering Losses	-481.1	-153.8	-405.9	-641.5	-205.0	-541.2
Losses of Banks Suffering Loss/ Own Funds	-1.2	-0.4	-0.6	-1.6	-0.5	-0.8
B, Interest Rate Increase						
a, TL	-1,393.8	-941.4	-1,543.1	-1,531.3	-1,401.4	-1,453.7
b. FX	-466.2	-526.6	-575.5	-1,344.1	-1,098.5	-1,309.7
Profit (Loss) due to Interest Rate Increase (a+b)	-1,860.0	-1,467.9	-2,118.6	-2,875.4	-2,499.9	-2,763.4
Profit (Loss) due to Interest Rate Increase/ Own Funds (%)	-2.4	-1.5	-2.0	-3.8	-2.5	-2.6
C, TL Trading Portfolio						
Loss in Value due to Interest Rate Increase	-2,089.9	-3,221.1	-4,021.8	-3,914.6	-6,046.9	-7,515.5
Loss in Value due to Interest Rate Increase/ Own Funds (%)	-2.7	-3.2	-3.8	-5.1	-6.1	-7.2
D, Eurobond Portfolio						
Loss in Value	-2,627.6	-2,371.2	-2,655.0	-4,379.3	-3,952.0	-4,425.0
Loss in Value/ Own Funds (%)	-3.5	-2.4	-2.5	-6.3	-4.0	-4.2
E, Total						
Profit (Loss)	-6,902.9	-6,936.9	-9,022.2	-11,603.2	-12,334.2	-15,006.3
Profit (Loss)/ Own Funds (%)	-9.1	-7.0	-8.6	-15.2	-12.4	-14.4
Current CAR of the Sector (%)	**16.0**	**19.2**	**18.7**	**16.0**	**19.2**	**18.7**
After-Shock CAR of the Sector2 (%)	**14.6**	**17.9**	**17.1**	**13.6**	**16.8**	**16.0**

Source: CBRT
(1) Excluding SDIF bank. T. Kalkınma Bank. Iller Bank and Eximbank.
(2) After-shock profit/loss amounts under the scenarios are assumed to affect only own funds but not the risk weighted assets.

Under Scenarios A and B, the banking sector makes a loss amounting to TL 226.8 million and TL 302.5 million, respectively, owing to its FX long position as of March 2010. As a result of the shocks, the ratio of losses of banks – arising from their open positions –to their own funds increased by a small margin compared to end-2009 and became 0.6 percent and 0.8 percent, respectively under the two scenarios (Table III.6).

III.2.2.1.2. Interest Rate Increases and Loss in Value

i) Under Scenarios A and B, the TL denominated interest income declines as of March 2010. In both scenarios, the amount of decline in TL denominated interest income increases. The amount of decline in interest income under Scenario A is higher compared to Scenario B, which assumes that the shock will last for 6 months, owing to the rise in long position for the 3-6 month maturity bracket.

As for foreign currency, while the decline in interest income does not display a major change under Scenario A, it increases slightly under Scenario B, which covers a fierce interest rate shock that is twice as large as the one applied in Scenario A.

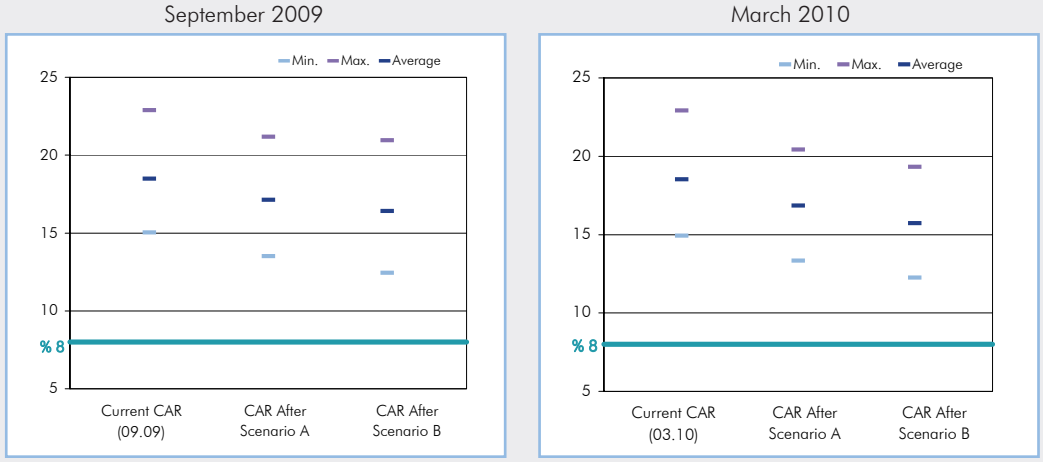
The overall amount of decline in interest income increases under both Scenarios. While this increase is driven by the Turkish currency in Scenario A, it is driven, albeit to a limited extent, by foreign currency in Scenario B. Under Scenario A, the ratio of loss – due to interest rate increases – to own funds, which was 1.5 percent at end-2009, rose to 2 percent in March 2010, whereas it did not display a significant change in Scenario B.

ii) There has been a rise in the banking sector's trading portfolio owing to the increase in the banks' demand for GDDSs as banks deem GDDSs to be risk-free investment instruments in the post-crisis period and their classification of these securities in their trading portfolios in line with the policy rate cut cycle. Therefore, the loss in value due to the shocks in both scenarios increased compared to end-2009 owing to the rise in trading portfolios. The ratio of loss of value due to interest rate increases to own funds under Scenario A and Scenario B, which were 3.2 percent and 6.1 percent at end-2009, rose to 3.8 percent and 7.2 percent in March 2010, respectively.

iii) The loss of value in the Eurobond portfolio increased slightly compared to end-2009 in both scenarios.

In conclusion, as of March 2010, the losses resulting from both Scenario A and Scenario B increased compared to end-2009. Although the CAR of the sector declined by 1.6 percentage points under Scenario A and by 2.7 percentage points under Scenario B, it still stands above the legal ratio of 8 percent and the target ratio of 12 percent.

Chart III.27.
Impacts of the Scenarios on the Largest 10 Banks of the Sector[1]



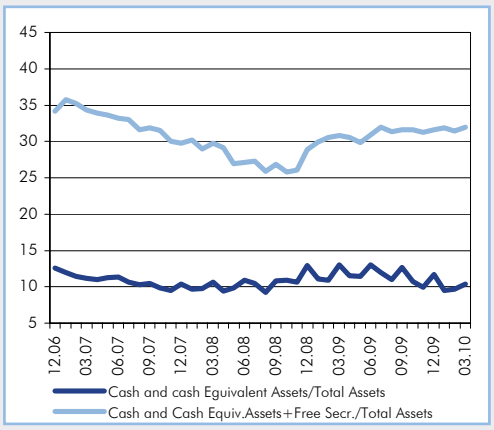
(1) Largest 10 Banks considering their share in total assets are included in the analysis.

When the impacts of Scenario A and Scenario B on the CARs of the 10 banks with the highest share in assets are analyzed, it is observed that post-shock CARs decreased by a small margin, parallel to the current decline in CAR. Under both scenarios, the minimum CAR level remained well above the legal ratio of 8 percent by March 2010 (Chart III.27).

III.3. Liquidity Risk

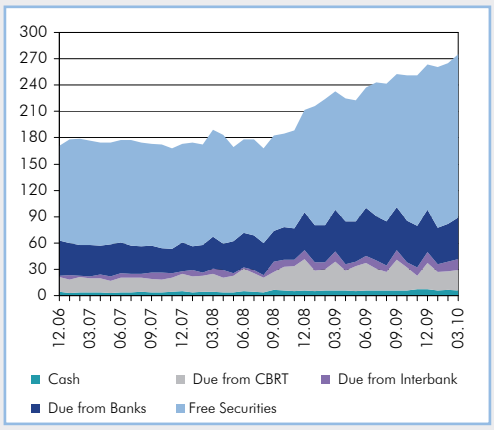
Turkey, with both a sound banking system and a flexible and effective liquidity management framework, which was formed in the light of the experience gained from former crises, was fairly well prepared for the global turmoil. In times when the global crisis began to deepen, the gradual and effective implemetation of the measures taken for both Turkish lira and foreign exchange markets reduced the tensions and volatilities in the markets considerably.

Chart III.28.
Basic Liquidity Indicators (%)[1,2]



Source: BRSA-CBRT
(1) Cash and Cash Equivalent Assets=Cash + Due from CBRT + Due from Interbank+Due from Banks.
(2) Free Securities= Securities that are not used as collateral or for repo transactions.

Chart III.29.
Liquid Assets (Billion TL)



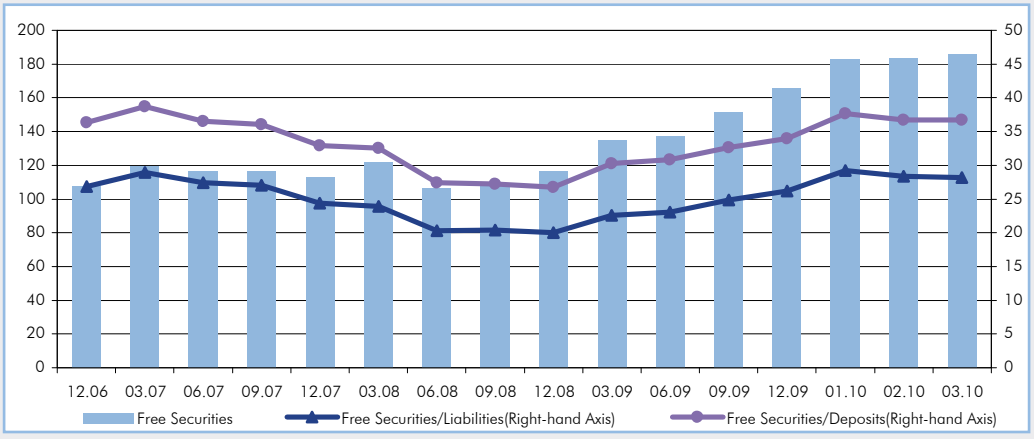
Source: BRSA-CBRT

When the basic liquidity indicators of the banking sector are analyzed, it is observed that the ratio of cash and cash-equivalent assets to total assets generally maintained a horizontal

course. When the free securities, those securities which are not used as collateral or for repo transactions, are taken into account, this ratio displayed a tendency to increase as of end-2008 (Chart III.28).

Being the largest item in liquid assets, the recent increase in free securities is noteworthy. This can mainly be attributed to the tendency of particularly private banks to invest in government bonds (Chart III.29).

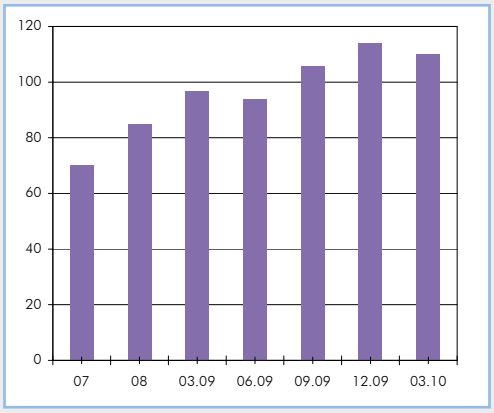
Chart III.30.
Free Securities and Liabilities[1] (Billion TL, %)



Source: BRSA-CBRT
(1) Participation banks are not included in this calculation

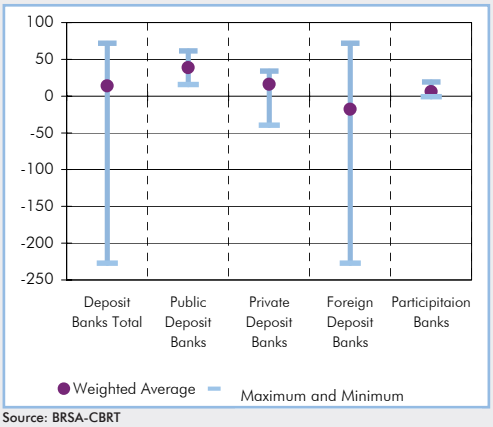
The ratio of free securities, which can be accepted as collateral by the Central Bank to provide liquidity to banks in the event of a temporary liquidity shortage, to liabilities and to deposits, maintained an accelerating trend from end-2008 to January 2010. In March 2010, the aforementioned ratios slightly declined to 28 percent and 37 percent, respectively (Chart III.30).

Chart III.31.
Deposits Not Incurring Interest Charge (Billion TL)



Source: BRSA-CBRT

Chart III.32.
Deposits Not Incurring Interest Charge(March 2010)[1,2] (%)

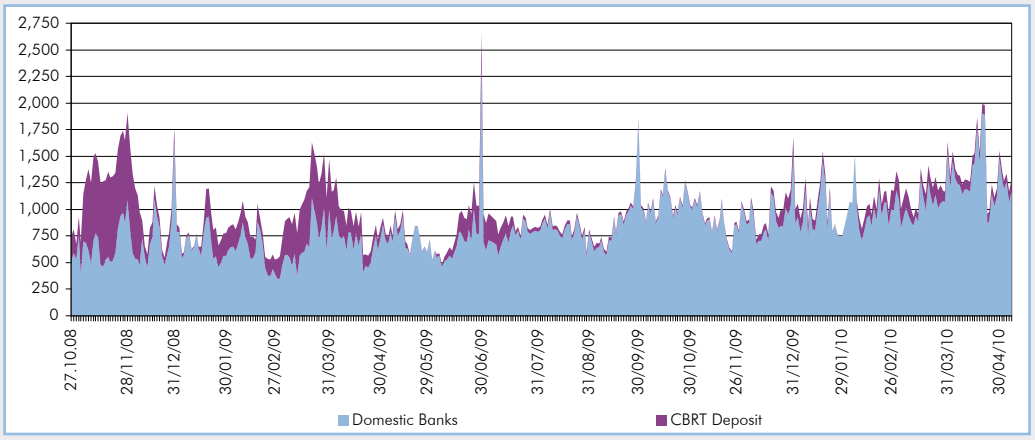


Source: BRSA-CBRT
(1) Deposit Ratio that does not incur interest charge = (Deposits-Credits)/Deposits
2) The bank at SDIF is not included.

As the most important source of the Turkish banking system, deposits restrain the susceptibility of banks to the volatility of interbank funds. The amount of the sector's deposit that

was not used as loans was TL 114 billion as of December 2009, whereas it fell to TL 110 billion as of March 2010 (Chart III.31). An analysis per bank groups indicates that foreign banks are slightly more susceptible to external funds compared to other groups (Chart III.32).

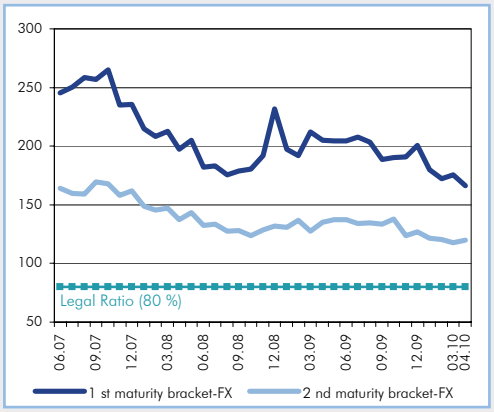
Chart III.33.
Foreign Exchange Interbank Operations (Million USD)



Source: BRSA-CBRT

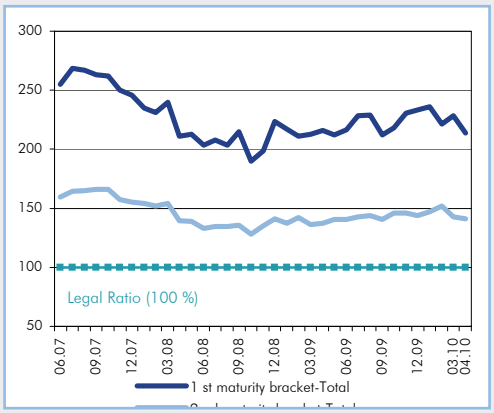
The Central Bank of Turkey resumed its activities as an intermediary in the foreign exchange deposit market on October 9, 2008 with the aim of enhancing the flow of foreign exchange liquidity. Yet, with the decline of the transaction volume in this market as of the second half of 2009, banks started to increase interbank transactions again (Chart III.33).

Chart III.34.
FX Liquidity Adequacy Ratio (%)



Source: BRSA-CBRT

Chart III.35.
Total Liquidity Adequacy Ratio (%)



Source: BRSA-CBRT

The liquidity adequacy ratios of the banking sector, calculated pursuant to the "Regulation Relating to the Measurement and Assessment of Liquidity Adequacy of Banks", for both total and foreign currency in the 1st and 2nd maturity brackets[11] are above the legal limits and the recent decline in the 1st maturity bracket is considered to be related with swap transactions (Chart III.34 and Chart III.35).

[11] Assets and liabilities with 0 to 7 days to maturity are included in the 1st maturity bracket and those with 0 and 31 days to maturity are included in the 2nd maturity bracket.

Box15.
Amendment to the Regulations Relating to the Liquidity Management

According to The Communiqué on Reserve Requirements 2005/1, which is regulated by the CBRT, the liabilities of banks subject to required reserves are calculated every two weeks on Fridays and reguired reserves that are calculated from these liabilities are maintained over fourteen days.

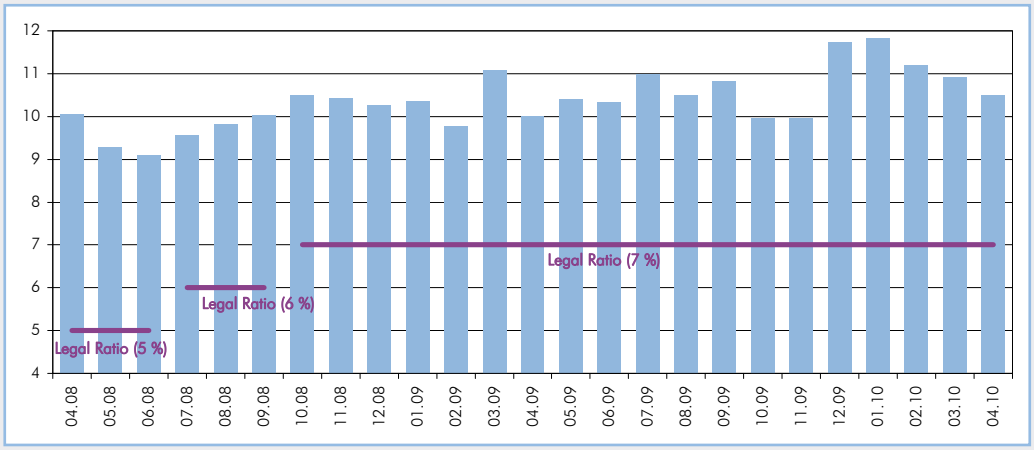
With the amendment to the above-mentioned Communiqué, starting from 8 January 2010, provided that it does not exceed 10 percent of Turkish Lira required reserve amount in a maintenance period, it is allowed to carry over excess or deficiency Turkish currency liabilities to be used or made up only in the following period.

On the other hand, with the amendment to the Regulation Relating to the Measurement and Assessment of Liquidity Adequacy of Banks, overnight placement was added on the asset items that are calculated daily over stock values regardless of maturity and starting from the period of 11-24.12.2009, stock liquidity adequacy ratio has been started to be calculated for a period of 14 days, instead of a week, covering the maintenance period of required reserves.

With these amendments, it is intended to provide flexibility to liquidity management by banks.

The stock liquidity ratio, which is calculated by using the full stock values of selected assets and liabilities as per the liquidity regulation, and which stands at a minimum of 7 percent, displayed an increase of around 1 percentage point when it started to be calculated at fortnightly intervals from the period of 11-24 December 2009 onwards in line with the period of required reserve provision and with the effect of the inclusion of overnight placements in liquid assets starting from the same date (Chart III.36).

Chart III.36.
Liquidity Ratio Calculated By Using Stock Values of Selected Assets and Liabilities (%)



Source: BRSA-CBRT

As the effects of the global turmoil began to subside, the Central Bank of the Republic of Turkey started to release and implement exit strategies in order to prepare markets for the normalization process.

As the exit strategy announced by the Central Bank on 14 April 2010 suggests, the facilities provided for the Turkish lira and FX liquidity are planned to be brought to pre-crisis levels orderly and gradually. Within this scope;

· The FX required reserves ratio may gradually be increased at a measured pace.

· After the effects of the developed countries' exit strategies are monitored, the intermediary function of the Central Bank in the foreign exchange deposit market will be abolished.

· The maturity of the foreign exchange deposits, which the banks will be able to borrow from the Central Bank within the predetermined borrowing limits, will be decreased from 3 months to 1 week and considering the developments in global interest rates, foreign exchange deposit lending rates announced by the Central Bank may be increased.

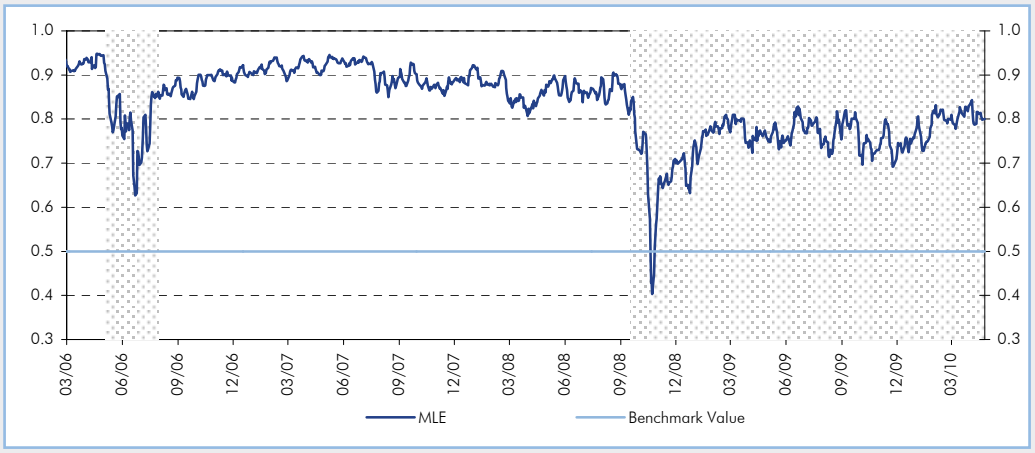
· Excessive funding of the Turkish lira market will be reduced gradually, and

· The technical interest rate adjustment process will become operative.

The FX required reserves ratio, which had been reduced by 2.0 percentage points to become 9 percent at the end of 2008, was increased by 0.5-percentage point to reach 9.5 percent. With this increase in the FX required reserve ratio, approximately USD 700 million of foreign currency liquidity was drawn from the market on 14 May 2010.

The Monetary Policy Committee stated on 18 May 2010 that market liquidity conditions necessary to implement the first step of the technical rate adjustment had emerged. Observing that current rates for one-week repo auctions fluctuated around 7 percent, the Committee decided to start conducting one-week repo auctions via quantity auction with a fixed interest rate. In this respect, the one-week repo rate was set at 7 percent. The Central Bank envisages continuing to gradually implement the exit strategy.

Chart III.37.
Market Liquidity Index[1]



Source: ISE, CBRT
(1) Calculation methodology of MLI is explained in the ninth issue of the Financial Stability Report and the increase in the MLI in this illustration denotes an increase in liquidity. The Chart presents the 5-day-moving average of the MLI.

The adverse effects of global turbulence on the Turkish financial markets were compensated in a short time thanks to the liquidity measures taken by the Central Bank and the market

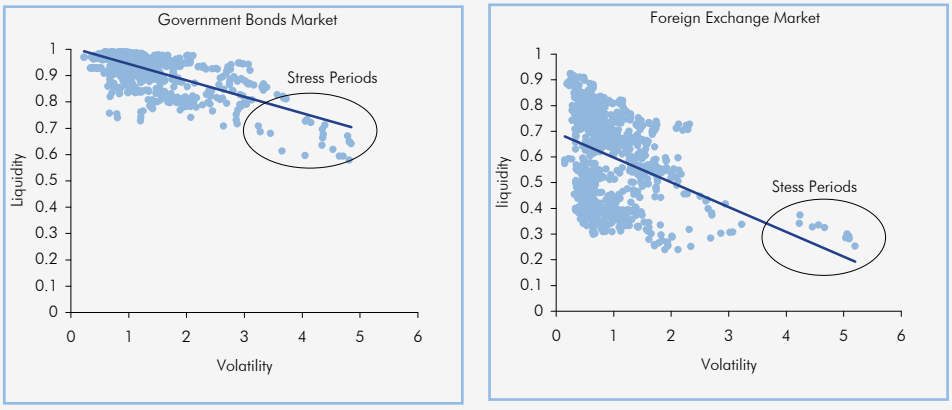
liquidity index displayed a rapid rise on the heels of the peak of global crisis, when its five-day average fell below the reference value of 0.5. However, the vulnerability in financial markets is predicted to persist for an extended period due to financial problems and thus, increased riskiness particularly in Eurozone (Chart III.37).

Box 16. Market Liquidity and Volatility

As is known, the way the financial system functions highly depends on the functioning of the markets. Sudden drops in market liquidity may adversely affect the real economy in the long run, thus policy makers may be forced to intervene in the markets in order to provide market liquidity. In this framework, taking the importance of market liquidity into account, the stress in financial markets is evaluated in conjunction with market liquidity.

The determining factors of market liquidity differ during stressed and normal market conditions. Under stressed conditions, risk management applications, funding liquidity restrictions and concerns regarding counterparty risk become important[1]. When market liquidity decreases due to widening spreads, asset prices can be affected to a great extent. On the other hand, excessive price movements may cause the transactions to decrease and this may bring decline in market liquidity. Therefore, market illiquidity and price volatility may have a feedback loop and the markets may not serve their main role of distributing resources and risk effectively. Hence, the lasting high stress in markets may constitute a serious burden for the economy thereby causing financial instability and harm to the real economy.

Chart 1.
The Relationship Between Liquidty and Volatility



Source: CBRT, ISE

In this context, considering the fact that market liquidity decreases and volatility increases during periods of uncertainty, government bond markets and foreign exchange market, which are components of the Market Liquidity Index (MLI), are analyzed. To analyze these two parallel moving indicators, especially during crisis periods, relative spreads showing the liquidity and the standard deviation of prices as a proxy for volatility are used. Relative spread is computed by dividing the difference between the best bid and the best ask prices with the average of these

prices. After an appropriate transformation, the increase in the liquidity indicator implies an increase in the market liquidity.

As seen from the scatter plots, although under normal market conditions the relationship between the volatility and the market liquidity is not that clear, overall, the extreme values corresponding to periods of stress strengthen the said relationship. The reason for this may be the parallel moving factors affecting both the liquidity and the volatility and their dominance compared to other factors especially during stressed periods. All these may increase the nonlinear tendency of this relationship. On top of this, when the market liquidity is high, under the assumption of no new coming information to the market, an asset is expected to be traded at a price which is very close to its last trading price, which is called price continuity. However, despite the presence of market liquidity, due to new information, prices may jump. Under such situations, volatility may arise not from the market illiquidity but from the new information flow. In other words, high volatility does not necessaily mean low liquidity[2,3]. On the other hand, the widening spreads may have low impact on the prices and the increase in the volatility may remain limited.

(1) Market Distress and Vanishing Liquidity: Anatomy and Policy Options, Claudio Borio (2004), BIS.
(2) Liquidity Risk and Banks' Bidding Behavior: Evidence from the Global Financial Crisis, Gersl & Komarkova (2009) , Czech Journal of Economics and Finance.
(3) Trends in the Liquidity of Hungarian Financial Markets – What does the MNB's New Liquidity Index Show?, Páles & Varga (2008), MNB.

Box 17. Global Liquidity Standard

Prior to the crisis, many banks treated available liquidity as a free good due to its abundance, invested in complex structured products and relied heavily on wholesale funding. As both asset and funding markets had been liquid for an extended period, banks did not consider stress scenarios that involved key asset and funding markets drying up and they did not consider the interaction of credit, market and liquidity risks and a sustained period of liquidity stress. As a result, the banking sector faced the financial crisis with inadequate liquidity cushions to absorb the stress and ultimately massive injections of liquidity by central banks were required.

In response to liquidity risk management shortcomings and other lessons learned from the financial crisis, the Basel Committee started implementing a programme aimed at strengthening the international framework for liquidity risk regulation, supervision and risk management. Within the scope of this programme, the Committee is working on developing a global standard for liquidity regulation of cross-border banks. The aim of the standard is to strengthen the consistency and robustness of liquidity risk supervision globally.

The Consultative Document on "International Framework for Liquidity Risk Measurement, Standards and Monitoring" was posted on BIS website in December 2009. According to the Document, banks have to maintain an adequate level of unencumbered, high quality assets that can be converted into cash to meet liquidity needs over a 30-day period under an acute liquidity stress scenario specified by supervisors. According to the "Liquidity coverage ratio" the ratio of liquid assets to net cumulative cash outflows within a 30 day period should be no lower than 100%. The numerator of the ratio is the total market value of those assets defined

as liquid assets. Net cash outflows, on the other hand, are defined as cumulative expected cash outflows minus cumulative expected cash inflows arising in the specified stress scenario in the time period under consideration. Cumulative expected cash outflows are calculated by multiplying outstanding balances of various categories or types of liabilities by assumed percentages that are expected to roll-off, and by multiplying specified draw-down amounts to various off-balance sheet commitments. Cumulative expected cash inflows are calculated by multiplying amounts receivable by a percentage that reflects expected inflow under the stres scenario.

In addition to the liquidity coverage ratio, banks are required to meet "net stable funding ratio" which is intended to complement liquidity coverage ratio, address structural liquidity mismatches and maintain core funding above a certain level. According to the net stable funding ratio, the ratio of available amount of stable funding to the required amount of stable funding should be greater than 100%. Available stable funding is defined as the total amount of an institution's capital, preferred stock with maturity of equal to or greater than one year, liabilities with effective maturities of one year or greater and that portion of stable non-maturity deposits and/or term deposits with maturities of less than one year that would be expected to stay with the institution for an extended period in an idiosyncratic stress event. The required amount of stable funding, on the other hand, is calculated as the sum of the value of the assets held by the institution multiplied by a specific required stable funding (RSF) factor assigned to each particular asset type. The RSF factor applied to the reported values of each asset is the amount of that item that supervisors believe should be supported with stable funding. Assets that are more liquid and more readily available to act as a source of extended liquidity in a stressed environment receive lower RSF factors (and require less stable funding) than assets considered less liquid in such circumstances and, therefore, require more stable funding. For instance, government debt securities receive a 5% RSF factor, whereas fixed assets receive 100% RSF factor. The amount of required stable funding includes amount of required stable funding arising from off-balance sheet activities as well.

The Consultation period ended on April 16, 2010 and at the moment the Committee is revising the comments received. In addition to the Consultative Document, "Quantitative Impact Study" was initiated in order to assess the impact of the global liquidity standard on banks. Moreover, another subgroup within the Committee is working to identify the macroeconomic effects of the liquidity standard and effects on sectors, which are not subject to the global liquidity standard. Global liquidity standard will be recalibrated taking into consideration the analysis results of the macroeconomic effects group, the results of the QIS and comments received during consultation. The aim is to finalize the Global Liquidity Standard by end-2010 and implement it by 2012.

III.4. Financial Strength Index

The Financial Strength Index (FSI) is computed with the aim of forming an "aggregate indicator" relating to the direction of the financial strength of the banking sector. Six sub-indices (asset quality, liquidity, exchange rate risk, interest rate risk, profitability, and capital adequacy) were used to form this index. Ratios projecting the risks and fragilities of the banking sector were selected under each sub-index and these ratios, reflected in certain weights, constitute the index (Table III.7).

Table III.7 Financial Strength Index Variables

	Financial Strength Indicators	Direction of the Impact	Weight
Asset Quality	Gross Non-Performing Loans / Gross Loans	negative	0.33
	Net NPL / Shareholders' Equity	negative	0.33
	Fixed Assets / Total Assets [1]	negative	0.33
Liquidity	Liquid Assets / Total Assets [2]	positive	1.00
Exchange Rate Risk	On-Balance Sheet FX Position / Own Funds [3]	negative	0.50
	FX Net General Position / Own Funds [3,4]	negative	0.50
Interest Rate Risk	(Int. Sens. TL Assets with a Mat. Up to 1 Month – Int. Sens. TL Liab. With a Mat. Up to 1 Month) / Own Funds [5]	negative	0.50
	(Int. Sens. FX Assets with a Mat. Up to 1 Month – Int. Sens. FX Liab. With a Mat. Up to 1 Month) / Own Funds [5]	negative	0.50
Profitability	Net Profit / Total Assets	positive	0.50
	Net Profit / Shareholders' Equity	positive	0.50
Capital Adequacy	Free Capital / Total Assets [6]	positive	0.50
	Capital Adequacy Ratio	positive	0.50

(1) Fixed Assets consist of subsidiaries, assets to be sold, fixed assets and net non-performing loans.
(2) Liquid Assets consist of cash, due from the CBRT, due from money market, due from banks and receivables from reverse repo transactions.
(3) Own funds are the regulatory capital, and it is different from the equity in the balance sheet. The calculation is in absolute values.
(4) Foreign exchange net open position is the sum of on and off balance sheet foreign currency positions. The calculation is in absolute values.
(5) The calculation is in absolute terms.
(6) Free capital is calculated by deducting fixed assets from equity.

The assessment of the sub-indices forming the FSI is as follows (Chart III.38);

i. Asset Quality Index: The Asset Quality Index, which was 122 at the end of 2008, denoted a downward trend in 2009 and became 119.9 at the end of the year. The said index entered an upward trend in the first quarter of 2010 and climbed to 120.6 in March. This increase was mainly driven by the decline in the NPL ratio.

ii. Liquidity Index: The liquidity index, which was 81.6 at the end of 2009, was down to 76.7 in March 2010. The fall in the index was mainly attributable to the fact that the ratio of liquid assets to total assets constituting the index decreased from 11.7 percent to 10.3 percent in the last quarter.

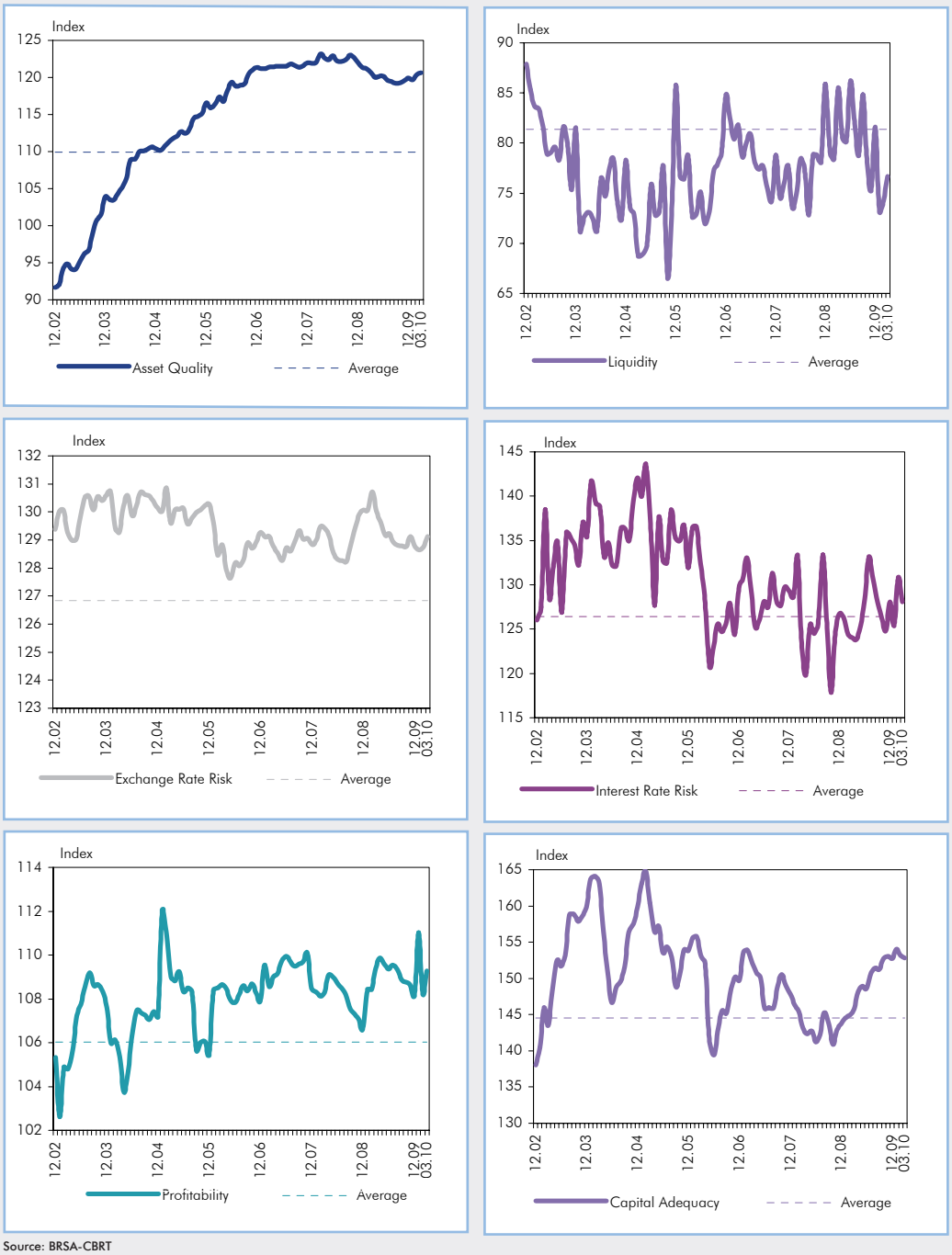
iii. Exchange Rate Risk Index: The Exchange Rate Risk Index, which had declined since March 2009 due to the rise in the on-balance sheet open positions, became 128.7 at the end of 2009. In March 2010, however, the index rose to 129.1 due to the limited decline in the on-balance sheet open position.

iv. Interest Rate Risk Index: Interest Rate Risk Index, which stood at 126.8 in December 2008, showed some improvement and became 128.1 owing to the decline in the ratio of the difference between TL-denominated interest sensitive assets and liabilities with a maturity of up to 1 month to own funds. The index remained unchanged in March 2010.

v. Profitability Index: The Profitability Index, which exhibited an upward trend in 2009 owing to the rise in the net interest margin parallel to easing interest rates, became 108.2 at the end of the year. In the first quarter of 2010, it continued to increase due to the decline in provision expenses, and became 109.3.

vi. Capital Adequacy Index: The index, which had been on an upward trend since October 2008, continued to increase throughout 2009 owing to the rise in the capital adequacy ratio and the ratio of free capital to total assets and became 152.7 at end-2009. The index remained almost unchanged in March 2010.

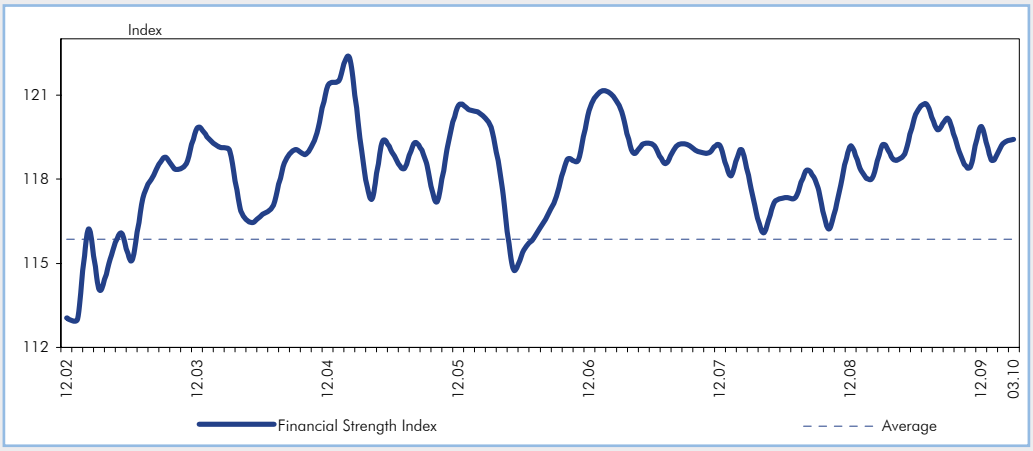
Chart III.38.
Financial Strength Index Variables[1] (1999=100)



Source: BRSA-CBRT
(1) The averages used are the averages of related sub-indices between December 1999 – March 2010.

The Financial Strength Index, monitored as an indicator of the soundness of the banking sector, which was 119.2 at the end of 2008, became 119.9 at the end of 2009, owing to the rises in the capital adequacy index, profitability index and interest rate risk index. In March 2010, the index fell by a small margin and was down to 119.4 due to the decline in the liquidity index (Chart III.39).

Chart III.39.
Financial Strength Index[1] (1999=100)



Source: BRSA-CBRT
(1) The average used is the average of financial strength index between December 1999 – March 2010.