

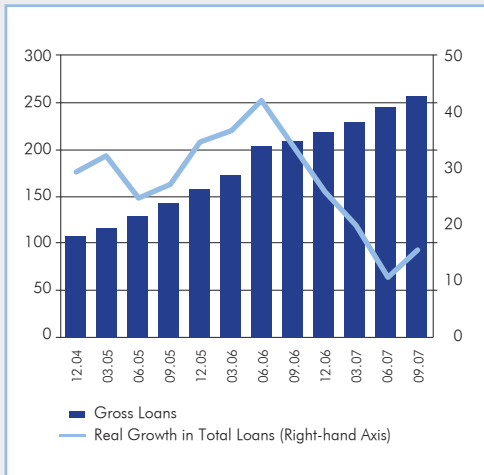
III. BANKING SECTOR RISKS

Participation Banks, which have the same legal status as traditional banks but different operating principles, are excluded from the risk analyses of this section.

III.1. Credit Risk and Scenario Analysis

III.1.1. Credit Portfolio

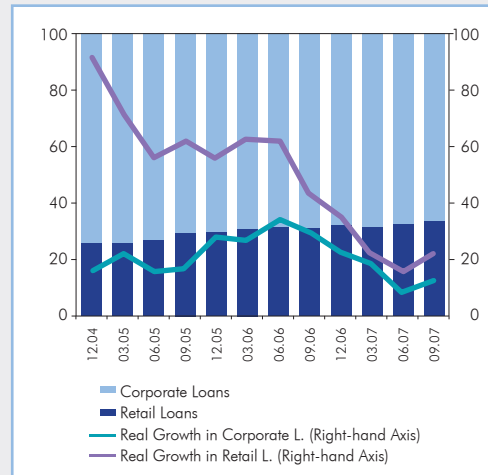
Chart III.1
Gross Loans
(Billion YTL, %)¹



Source: BRSA-CBRT

(1) Annual percentage change as compared to the same month of the previous year.

Chart III.2
Gross Loans by Borrowers and Real Annual
Growth Rates (%)^{1,2}



Source: BRSA-CBRT

(1) They were brought to real terms by using CPI (1994=100).

(2) Annual percentage change as compared to the same month of the previous year.

Gross credit volume⁸ of the banking sector increased by 15.6 percent in real terms compared to the same period last year and reached YTL 257.2 billion by September 2007. The rate of increase of the credit volume that lost pace due to the tight monetary policy implemented after the fluctuations in the second quarter of 2006 re-entered an upward trend in the third quarter of 2007 (Chart III.1). The 68.1 percent ratio of corporate loans to total loans as of year-end 2006, whose rate of increase remains below that of retail loans in every period, decreased to 66.7 percent by September 2007 (Chart III.2).

⁸ Gross Loans = Total Loans + Gross NPLs

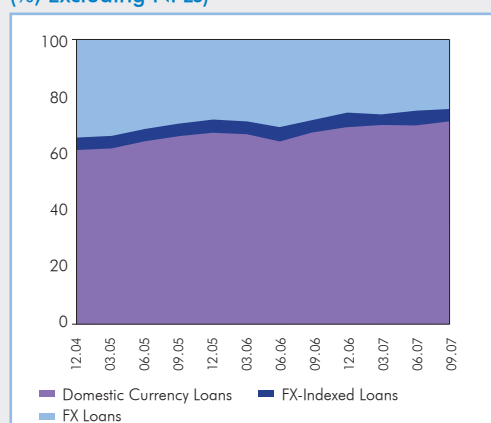
Table III.1. Some Selected Credit Ratios¹ (Million YTL, %)

	2004	2005	2006	09.07
First 5 Banks				
Total Gross Loans	56,620	87,889	127,494	148,199
Share in Total Gross Loans	53.6	55.8	58.5	57.6
NPLs / Total Gross Loans	5.0	3.9	4.0	4.0
Loans / Deposits	47.8	54.7	79.9	87.0
First 10 Banks				
Total Gross Loans	83,965	127,913	183,154	214,934
Share in Total Gross Loans	79.4	81.2	84.1	83.6
NPLs / Total Gross Loans	6.5	5.0	3.8	3.8
Loans / Deposits	49.5	58.9	68.5	74.5
Sector				
Total Gross Loans	105,698	157,440	217,846	257,160
NPLs / Total Gross Loans	6.0	4.8	3.8	3.6
Loans / Deposits	55.3	64.8	73.5	79.6

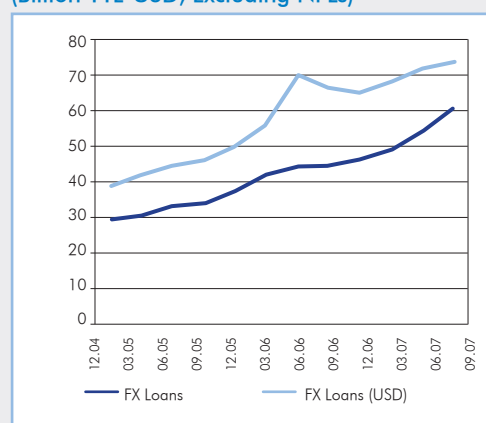
Source: BRSA-CBRT

(1) The first 5 and 10 banks have been taken into consideration according to their gross loans.

As of September 2007, the share in total loans of the first five and ten banks that represented the majority of loans extended decreased by 0.9 points and 0.5 points, respectively, compared to year-end 2006. However the NPL ratios did not change. The ongoing increase in the loans to deposits ratio of the sector is considered as a favorable development as it indicates an improvement in banks' intermediation functions. Likewise, the ongoing decline in NPL ratio of the sector is also assessed as a favorable development in terms of credit risk (Table III.1).

Chart III.3.
Currency Composition of Loans
(%, Excluding NPLs)

Source: BRSA-CBRT

Chart III.4.
FX Loans
(Billion YTL-USD, Excluding NPLs)¹

Source: BRSA-CBRT

(1) They were converted to USD using the CBRT buying exchange rate as of month-end.

The share of domestic currency loans in total loans, which was 69.1 percent at the end of 2006, rose to 70.5 percent in September 2007 (Chart III.3). The appreciation of the Turkish currency was influential in the decline observed in the share of FX loans in this period. Thus, FX loans⁹, which amounted to YTL 64.9 billion as of year end 2006, reached YTL 73.1 billion in September 2007 with a 12.6 percent-increase, whereas the said increase appears to be

⁹ FX-indexed loans are considered within the scope of foreign currency loans.

31.5 percent when the USD equivalent of those loans are taken into account. The growth rate of domestic currency loans was 20.7 percent in the same period (Chart III.4).

Table III.2. Loan Distribution by Size (% , Excluding NPLs)

	Total Loans				Number of Customers			
	2004	2005	2006	09.07	2004	2005	2006	09.07
Loans Greater than 1 Million YTL	43.6	41.5	42.1	39.4	0.03	0.04	0.05	0.05
Loans Between 501 Thousand YTL-1 Million YTL	6.0	4.5	4.6	4.9	0.03	0.03	0.05	0.05
Loans Between 101-500 Thousand YTL	8.4	10.6	12.1	13.6	0.15	0.27	0.43	0.53
Loans Between 51-100 Thousand YTL	3.9	5.6	6.7	7.7	0.22	0.40	0.67	0.85
Loans Less than 51 Thousand YTL	38.0	37.8	34.5	34.4	99.56	99.26	98.81	98.51
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: BRSA-CBRT

Distribution of loans by size suggest that in September 2007, the share of loans less than YTL 51,000 almost remained unchanged compared to year-end 2006, while the share of loans more than YTL 1 million declined and that the shares of other groups increased (Table III.2).

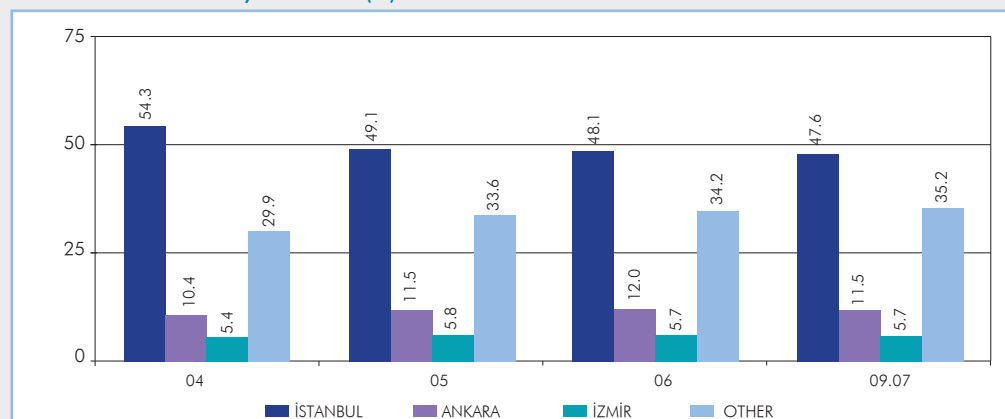
Table III.3. Maturity Structure of the Loans (% , Excluding NPLs)

	2004	2005	2006	09.07
Loans Between 0-12 Months	55.7	45.3	41.3	41.1
Loans Between 12 - 24 Months	17.9	23.3	17.8	15.8
Loans Greater than 24 Months	26.4	31.4	40.9	43.1

Source: CBRT

The maturity of loans continued to lengthen as of September 2007 (Table III.3). The increase in loans with a maturity longer than 24 months stemmed from other consumer loans, which have increased rapidly, mainly due to banks' campaigns targeted at wage earners in particular and housing loans.

Chart III.5. Distribution of Loans by Provinces (%)¹

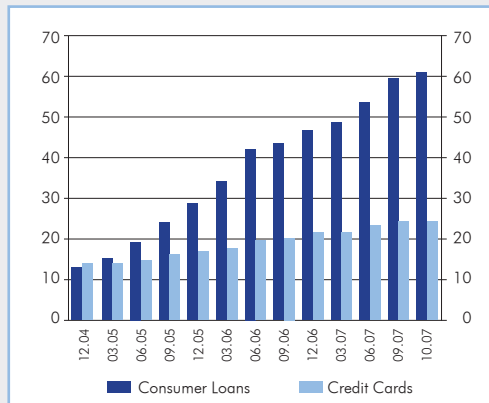


Source: CBRT

(1) Loans are compiled based on bank reporting under the scope of Central Bank Law No:1211, Article:44. They include corporate loans that are greater than ten thousand New Turkish Liras (inclusive) and retail loans that are greater than 5 thousand New 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. Therefore, they differ from the figures in the balance sheet-based analysis.

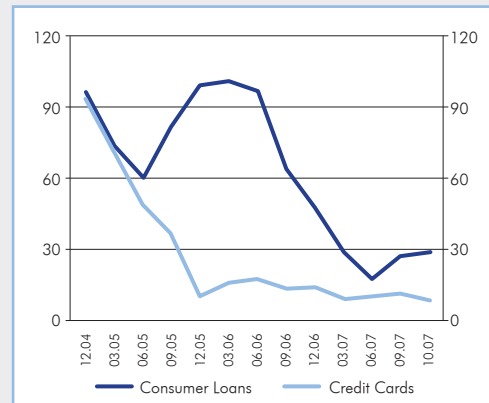
The geographical breakdown of loans shows that the shares of Istanbul and Ankara in total loans decreased in September 2007, whereas the shares of other provinces in total loans increased due to the rise in retail loans (Chart III.5).

Chart III.6.
Retail Loans
(Excluding NPLs, Billion YTL, %)



Source: CBRT

Chart III.7.
Real Annual Growth
Rates of Retail Loans (%)^{1,2}

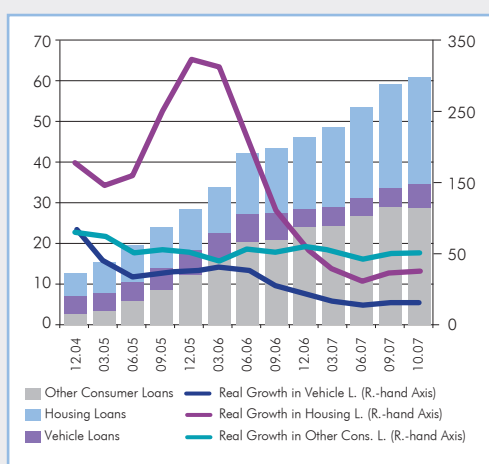


Source: CBRT

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

The rate of increase of consumer loans reaccelerated from June 2007 onwards. The rate of increase of credit cards¹⁰ stood at 8.8 percent in October 2007, its lowest level throughout the year (Chart III.7). It is considered that the rise in consumer loans was mainly attributable to the banks' long-term campaigns towards other consumer loans, rather than any change in interest rates (Chart III.6 and III.9).

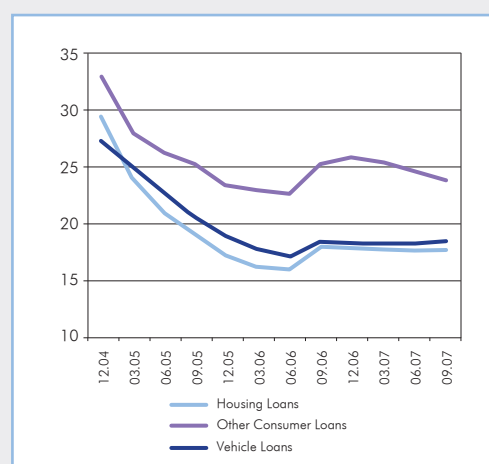
Chart III.8.
Consumer Loans by Type (Excluding NPLs,
Billion YTL, %)¹



Source: CBRT

(1) Other consumer loans are consumer loans excluding housing and vehicle loans.

Chart III.9.
Interest Rates (%)¹



Source: CBRT

(1) Weighted average interest rates.

¹⁰ Refers to the balance in the cash loans item, until credit card spendings and cash withdrawals are paid back to the Bank by the cardholder.

Annual growth rates of housing and other consumer loans had declined until June 2007, whereas they regained pace from that date onwards with the easing of political uncertainties despite no significant change in interest rates. Meanwhile, the real rate of increase in other consumer loans exceeded that of housing loans in 2007 and the share of other consumer loans in total consumer loans continued to increase. On the other hand, the downward trend of vehicle loans continues (Chart III.8).

Table III.4 Housing Loans for Selected Countries (%)

	Housing Loans / Total Loans			Housing Loans / GDP		
	2004	2005	2006	2004	2005	2006
Belgium	26.5	26.1	27.6	27.8	31.7	34.2
Czech Republic	20.6	23.8	26.4	7.8	9.7	12.0
Germany	31.6	31.8	32.0	43.0	42.9	42.3
Ireland	28.2	28.4	27.6	50.0	58.8	63.4
Greece	25.8	29.1	31.3	19.6	23.7	26.8
France	28.2	29.1	30.2	26.0	28.8	31.8
Latvia	24.2	25.2	30.4	11.9	19.4	29.0
Lithuania	18.4	21.3	24.4	5.5	9.1	12.6
Hungary	19.6	19.1	19.1	9.4	10.2	11.9
Poland	13.1	16.9	21.3	4.3	5.4	7.6
Portugal	36.5	38.0	39.8	49.4	53.4	59.2
United Kingdom	50.9	51.2	51.8	71.0	78.0	84.0
EU25	33.6	34.3	34.6	39.4	42.9	45.7
Turkey ¹	2.7	8.2	10.6	0.6	2.5	3.8

Source: EU Banking Structures, October 2007

(1) Housing Loans/ Total Loans ratio for Turkey is 10.8% and Housing Loans/GDP ratio is 4.2% in June 2007.

The share of housing loans in total loans and in the GDP is below the EU average (Table III.4). However, household liabilities in Turkey are expected to increase gradually in the upcoming years and converge to EU levels in the long term due to the housing loan utilization that is likely to increase further along with ongoing economic stability, the decline in interest rates and the spread of the mortgage system.

Table III.5. Sectoral Composition of Corporate Loans (%)^{1,2}

	Loans (excluding NPLs)			FX Loans / Total Loans		
	2005	2006	09.07	2005	2006	09.07
1 Wholesale and Ret. Trade, Brokerage, Repair of Mot. Veh.	19.2	22.9	19.8	38.2	37.5	36.8
2 Transport, Storage and Communication	5.7	7.9	7.9	68.8	54.7	54.3
3 Textile and Textile Product Industry	8.7	6.5	6.2	70.5	66.7	65.8
4 Construction	6.5	6.4	8.1	59.5	50.3	51.5
5 Industry of Tobacco, Beverages and Food	7.3	5.5	5.9	47.9	46.2	44.5
6 Manufacture of Basic Metals and Fabricated Metal Prod.	5.5	5.5	5.8	73.9	73.5	70.9
7 Sources of Electricity, Gas and Water	4.0	5.2	4.3	96.0	93.4	95.4
8 Agriculture, Hunting and Forestry	4.7	4.6	4.7	19.5	17.3	17.0
9 Manufacture of Machinery and Equipment	3.1	3.6	3.6	60.2	45.9	38.9
10 Hotels and Restaurants (Tourism)	3.1	3.4	3.1	77.6	75.8	72.2
Total of 10 Sectors	67.9	71.4	69.3	55.8	51.7	50.6

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 New 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 accrued interest and exclusive of non-cash loans. Therefore, they differ from the figures in the balance sheet-based analysis.

(2) Excluding Financial Intermediation.

According to Central Bank Risk Center data, the share of the ten selected sectors in total corporate loans was 69.3 percent as of September 2007. Meanwhile, the sector with the largest share in total corporate loans is still the “Wholesale and Retail Trade, Commissions and Motor Vehicles Services”, with a total share of 19.8 percent. The share of the “Construction” sector in total corporate loans increased, while that of the “Textile and Textile Products Industry” continues to decline. In the first nine months of 2007, although the amount of FX loans used by firms exceeded domestic currency loans, their share in total loans declined due to the appreciation of the Turkish currency (Table III.5).

Box 8. **Loan Monitoring System**

The objective of the loan monitoring system is to enable banks and other financial institutions to monitor the total amount of loans utilized by their customers from the entire system, to provide the relevant banks and other financial institutions with up-to-date and consolidated information about their current or potential customers and to assist them in their decisions on credit utilization. In Turkey, this function is performed by the Central Bank Risk Center and the Credit Registry Bureau established by the banks.

The Risk Centralization system, which was established in 1951 within the structure of the Central Bank pursuant to Article 44 of the Central Bank Law No.1211, involves the collection and compilation of data on credit limits and risks of customers of banks, financial leasing companies, factoring companies, finance companies and other financial institutions operating in Turkey which shall be determined by the Central Bank and the Banking Regulation and Supervision Agency, along with feedback of consolidated information to the related banks and other institutions. The system allows the exchange of positive and negative credit data on firms and individuals.

Moreover, the Credit Registry Bureau established in 1995 carries out the exchange of retail credit data pertaining to its 34 member banks and financial institutions.

According to the Doing Business Report 2008 published by the World Bank and International Finance Corporation (IFC), the loan monitoring system in Turkey meets five of the six criteria of the evaluation and remains above the OECD average. Only 21 of the 178 countries analyzed in the report met all criteria and ranked higher than Turkey.

On the other hand, the recent developments in the financial sector, cessation of the monitoring and supervision duties of the Central Bank and exclusion of the operations of the Risk Center from Central Bank’s main duties have brought up the need to carry out these activities in another agency other than the Central Bank as in some other countries.

In this context, in the Quarterly Action Plan for 2007 of the Government announced on 8 October 2007, the assignment of the Risk Center operations to the Banks Association of Turkey, which is a legal public entity founded with Banking Law No.5411, was envisaged in order to improve the financial system.

III.1.2. Non-Performing Loans

In September 2007, non-performing loans increased by 19.9 percent compared to the same period last year and reached YTL 9.3 billion.

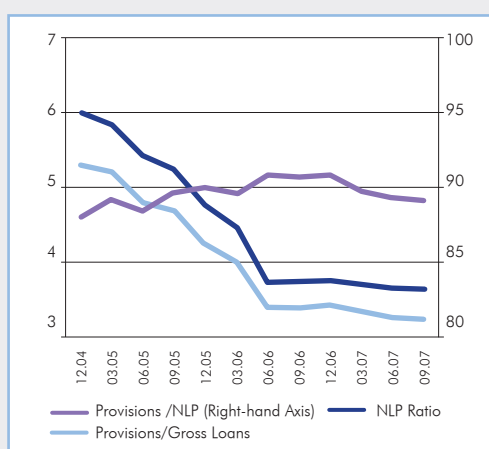
Table III.6. Total NPLs (Million YTL) ¹

	2004	2005	2006	09.07
Loans and Other Receivables with Limited Collectibility	595	813	1,149	1,496
Doubtful Loans and Other Receivables	415	775	820	1,343
Loans and Other Receivables Classified As Loss	5,342	5,907	6,212	6,478
Total NPLs	6,353	7,495	8,182	9,316

Source: BRSA-CBRT
(1) Excluding İller Bank.

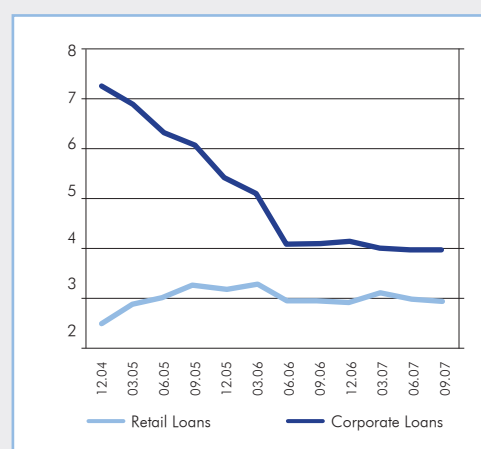
When the distribution of non-performing loans is analyzed, the share of loans and other receivables classified as loss maintains its dominance in the total non-performing loans in 2007 (Table III.6).

Chart III.10.
NPL Ratio and Provisions to NPLs (%)



Source: BRSA-CBRT

Chart III.11.
NPL Ratios for Retail Loans¹ and Corporate Loans² (%)



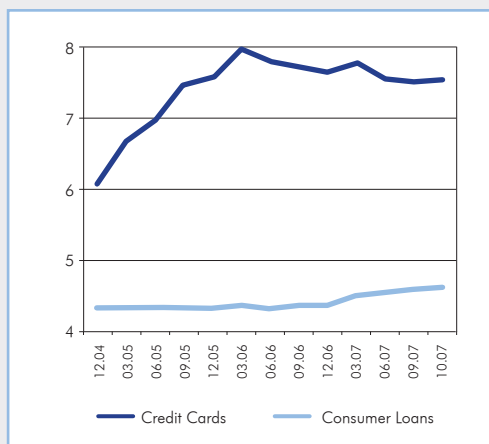
Source: BRSA-CBRT

(1) Retail Loans=Consumer Loans + Credit Cards
(2) Corporate Loans=Total Loans -Retail Loans

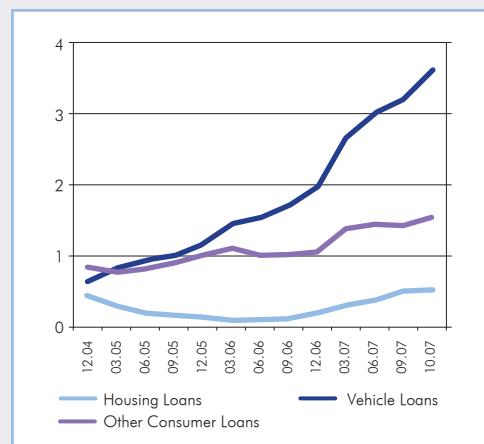
Despite the increasing amount of non-performing loans, the NPL ratio¹¹ maintained a horizontal course in 2007 due to the increase in credits. The provisions to the credits ratio remained at nearly the same level in 2007 as a result of the ongoing high provisioning policy regarding non-performing loans (Chart III.10).

When the development of non-performing loans is analyzed with respect to economic agents, it is seen that in September 2007, the NPL ratios for both retail loans and corporate loans did not change much compared to the year-end and that the NPL ratio for corporate loans is still above that of retail loans (Chart III.11).

¹¹ Non-Performing Loan Ratio = Gross Non-Performing Loans / Gross Loans

Chart III.12.
NPL Ratios for Retail Loans (%)

Source: CBRT

Chart III.13.
NPL Ratios for Consumer Loans (%)¹

Source: CBRT

(1) Other consumer loans are consumer loans excluding housing and vehicle loans

The NPL ratio of credit cards, which increased to 7.5 percent by March 2007, entered a downward trend from this date onwards and became 7 percent in October 2007 (Chart III.12). The said decline indicates that consumers have repaid their debt via other consumer loans bearing a relatively lower interest rate.

The NPL ratio of consumer loans has displayed an upward trend since the second half of 2006 (Chart III.12). While vehicle loans dropped, their NPL ratio increased to 3.6 percent as of October 2007 due to the rise in the NPL volume (Chart III.13). Moreover, in 2007, the upsurge in the NPL volume of other consumer loans and housing loans is remarkable.

Table III.7. NPL Ratios for Some Selected Sectors (%)¹

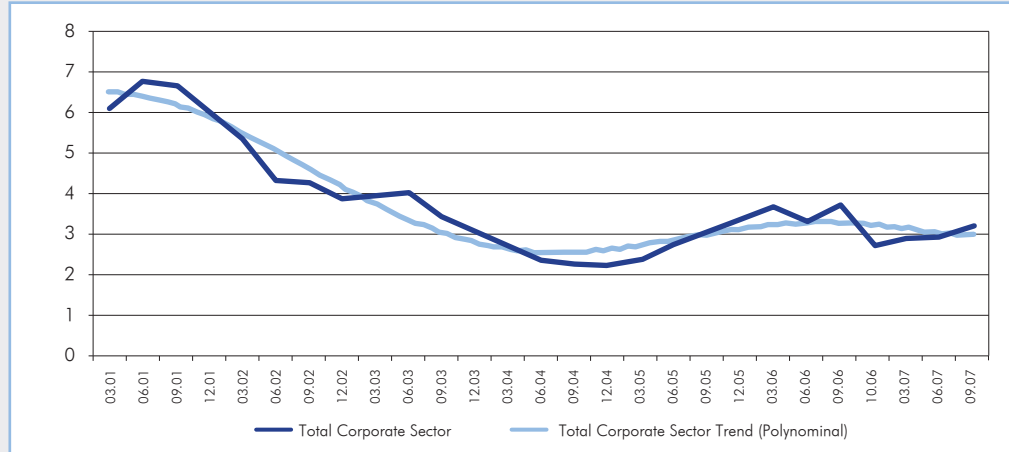
	2004	2005	2006	09.07
1 Wholesale and Ret. Trade, Brokerage, Repair of Mot. Veh.	5.2	3.9	2.3	3.1
2 Transport, Storage and Communication	2.1	3.4	1.3	1.2
3 Textile and Textile Product Industry	8.1	10.0	11.2	12.3
4 Construction	4.9	4.3	4.0	3.0
5 Industry of Tobacco, Beverages and Food	5.9	3.8	3.8	4.0
6 Manufacture of Basic Metals and Fabricated Metal Prod.	4.1	2.7	0.9	1.1
7 Sources of Electricity, Gas and Water	0.3	0.2	0.2	0.1
8 Agriculture, Hunting and Forestry	4.7	3.4	3.1	3.2
9 Manufacture of Machinery and Equipment	4.4	5.0	2.1	2.0
10 Hotels and Restaurants (Tourism)	5.9	3.1	2.4	2.6
Total of 10 Sectors	5.0	4.4	3.1	3.4

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 New Turkish Liras (inclusive); extended to real and legal bodies; by banks (including external loans used by firms with the intermediation of banks). Therefore, they differ from the figures in the balance sheet-based analysis.

According to the Central Bank Risk Center data, the downward trend observed in the NPL ratios of the chosen ten sectors reversed in 2007. As of September 2007, the downward trend in the NPL ratio of the "Construction" sector continues (Table III.7).

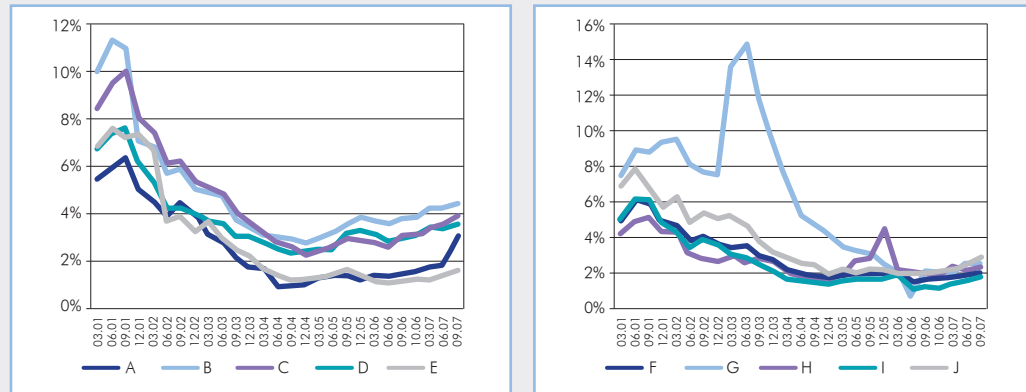
Chart III.14.
Default Rate for Total Corporate Loans (Number, %)



Source: CBRT

In the analysis of firms by sectors, the average default rate, which is calculated by dividing the number of loans monitored in the NPL accounts to total number of credits, rose to 3.2 percent in 2007 from 2.7 percent of year-end 2006 (Chart III.14).

Chart III.15.
Default Rates for Some Selected Sectors



Source: CBRT

A = Wholesale and Ret. Trade, Brokerage, Repair of Mot. Veh
 B = Textile and Textile Product Industry
 C = Industry of Tobacco, Beverages and Food
 D = Construction

E = Transport, Storage and Communication
 F = Manufacture of Basic Metals and Fabricated Metal Prod.
 G = Agriculture, Hunting and Forestry
 H = Sources of Electricity, Gas and Water

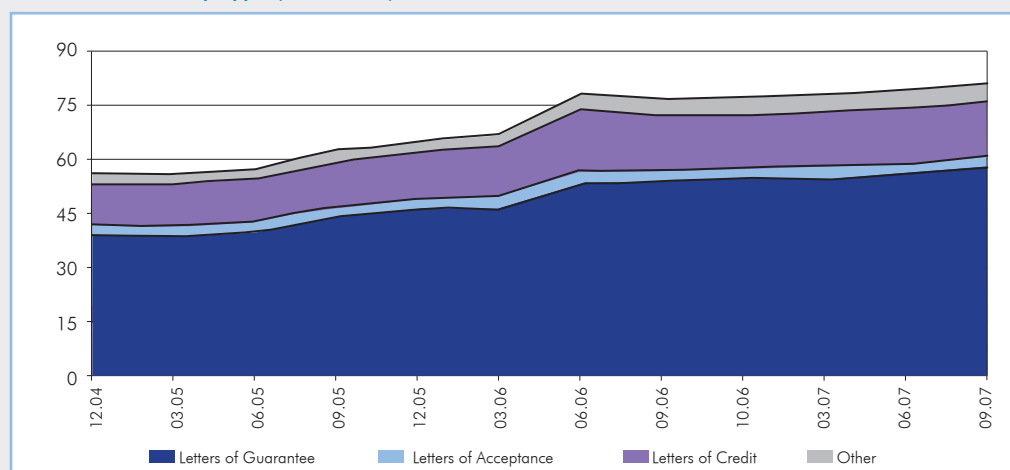
I = Manufacture of Machinery and Equipment
 J = Hotels and Restaurants (Tourism)

The average default rate of the selected 10 sectors, which was 2.2 percent in year-end 2006, increased to 2.8 percent in September 2007. Furthermore, default rates of “Wholesale and Retail Trade, Commissions and Motor Vehicles Services”, “Textile and Textile Products Industry”, “Food, Beverages and Tobacco Industry” and “Construction” sectors remained above the average default rate of the selected 10 sectors (Chart III.15).

By September 2007, default rates of “Transport, Storage and Communication” and “Construction” sectors rose compared to year-end 2006. The NPL ratio of the credits extended to these sectors declined due to the rapid increase in the credits extended to these sectors in 2007.

III.1.3. Non-Cash Loans

Chart III.16.
Non-Cash Loans by Type (Billion YTL)



Source: BRSA-CBRT

The ratio of banks' non-cash loans and commitments to total assets was 15.9 as of year-end 2006 and decreased to 15.4 percent as of September 2007. The said decline stemmed from the higher rate of increase in total assets (Chart III.16).

The ratio of non-cash loans, which are mainly composed of letters of guarantee and letters of credit, to cash loans, was 35.4 percent as of year-end 2006 and decreased to 32.7 percent as of September 2007. The share of foreign currency denominated non-cash loans was 60.4 percent.

III.1.4. Credit Risk Scenario Analysis

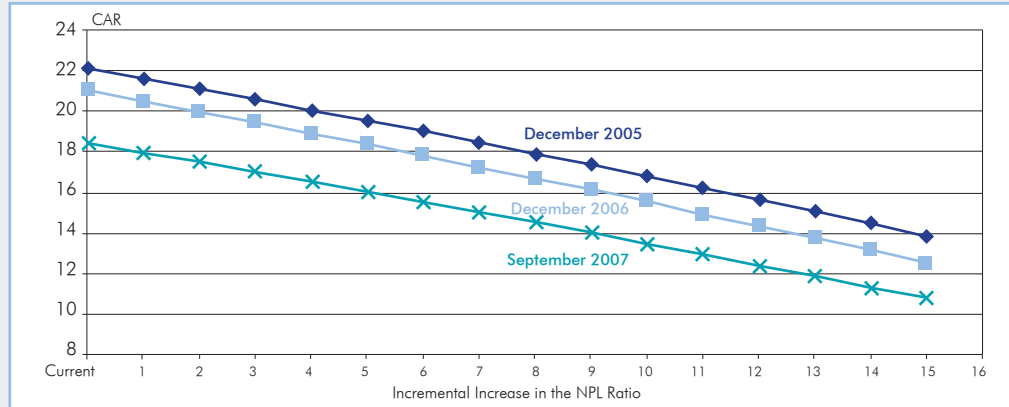
With the aim of assessing the credit risk that the banking sector might be exposed to, analyses were conducted on how the CARs of banks might be affected by a probable increase in NPL ratios as of September 2007.

Within this framework, scenario analyses were conducted under the following assumptions:

- i) The total credit amount of banks remains unchanged,
- ii) NPLs resulting from shocks have the same composition as the existing NPLs of banks. For banks, which did not have any NPLs before the shocks; in the event of a shock, their post-shock NPLs are classified as "loans and other receivables with limited collectibility", setting aside a 20 percent provision.
- iii) Post-shock NPLs are accounted in the 100 percent risk weight category for the calculation of pre-shock CARs.
- iv) There is no change in the total risk weighted assets and own funds of the sector except for the shocks.

Moreover, collateral amounts were not taken into account when calculating additional provisions.

Chart III.17.
Effects of Credit Shocks on the CAR of the Sector (%)¹



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

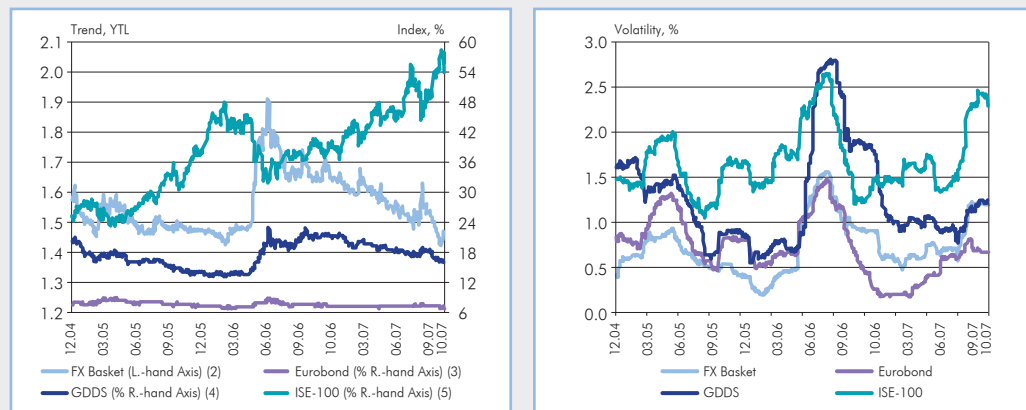
The scenario analysis focuses on the effects of 1-15 point-incremental increases in the NPL ratio on the CAR of the banking sector¹². Accordingly, the 15-point increase in the NPL ratio of the banking sector reduced the CAR of the sector by 8.5 points as of December 2006 and by 7.7 points as of September 2007 (Chart III.17). As a result of the maximum shock, the CAR of the sector decreased to 10.8 percent but still remained above the legal limit of 8 percent.

III.2. Market Risk and Scenario Analyses

In this section, along with the analysis of the effects of the developments in interest rate and FX risk on banks' balance sheets, two scenarios based on hypothesis and historical data were designed and their effects were analyzed.

III.2.1. Market Risk

Chart III.18.
Foreign Exchange Rate, Interest Rate and Equity Price Developments and Volatilities¹



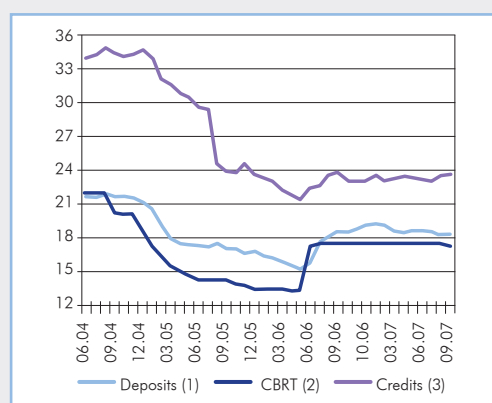
Source: CBRT
(1) For volatility calculations, standard deviation of daily logarithmic yield of the related market instrument (60 day moving average) is used.
(2) 50 percent of the Foreign Exchange Basket is in USD and the rest is in Euro.
(3) Based on USD denominated Eurobond interest rate with 2030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

The ISE index, which rose after the general elections implying continued political stability,

¹² Following the classification of loans as non-performing loans and the allocation of additional provisions, the post-shock capital adequacy ratio is calculated as (Own funds – Additional Provisions) / (Total Risk-Weighted Assets – Additional Provisions) x 100.

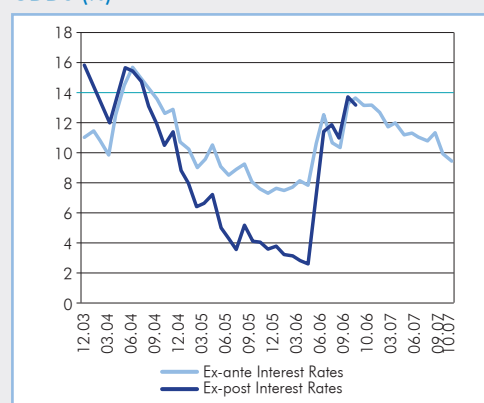
suffered a sharp decline at the end of July due to fluctuations in international markets resulting from concerns over the US subprime mortgage market. Hence, while the YTL depreciated, interest rates climbed slightly. However, the effects of the fluctuations in international markets on Turkish financial markets have been limited and short-term. Towards the end of 2007, the favorable outlook in the markets was restored. Interest rates started to decline, the ISE index started to rise and the YTL has begun to appreciate again. Nevertheless, the upward trend in volatility in financial markets continues (Chart III.18).

Chart III.19.
Interest Rates (%)



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

Chart III.20.
Ex-ante¹ and Ex-post² Real Interest Rates of GDDS (%)

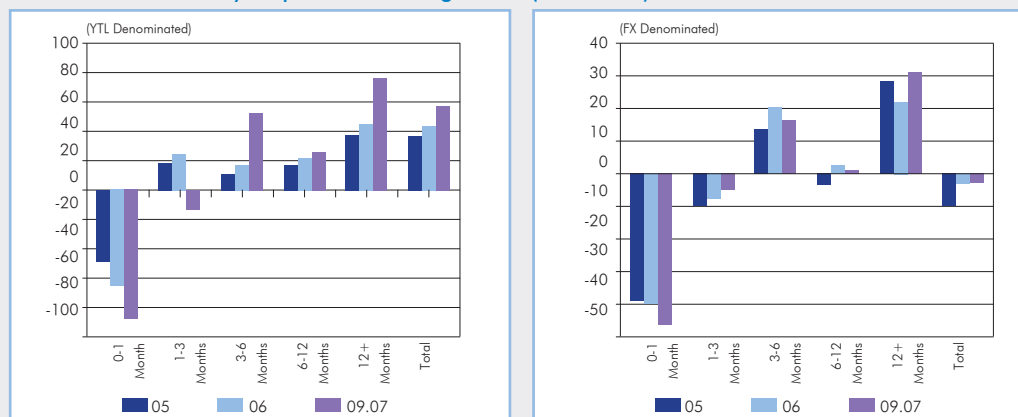


Source: Calculated by using the data of CBRT, ISE and TURKSTAT.
 (1) Ex-ante interest rate = $\left(\frac{1 + \text{nominal interest rate}}{1 + \text{expected inflation rate}} \right) - 1 \times 100$
 (2) Ex-post interest rate = $\left(\frac{1 + \text{last year's nominal interest rate}}{1 + \text{realized inflation rate}} \right) - 1 \times 100$
 As expected inflation rate, yearly ex-ante CPI figures in the bi-weekly Survey of Expectations published by the CBRT are used.

In 2007, interest rates of deposits and loans followed a stable course (Chart III.19). The rise in the difference between interest rates of deposits and those of loans mainly stemmed from the increased share of loans with high interest rates in total loans extended as of the second half of 2006.

The expected real interest rate declined to 9.48 percent in October 2007 from its end-year 2006 value of 13.1 percent (Chart III.20).

Chart III.21
Interest Rate Sensitivity Gap of the Banking Sector (Billion YTL)^{1,2}

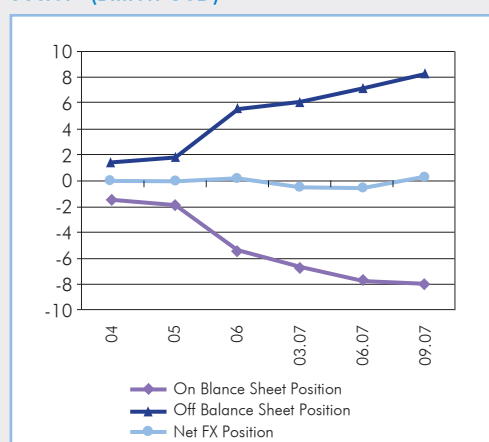


Source: BRSA-CBRT
 (1) Time to re-pricing is used.
 (2) Excluding SDIF bank.

In terms of the days to re-pricing period of the banking sector, it is observed that the interest-sensitive YTL and FX gaps were mainly concentrated in the 0-1 month maturity bracket in September 2007 and that there is an increase in the gap compared to December 2006 (Chart III.21).

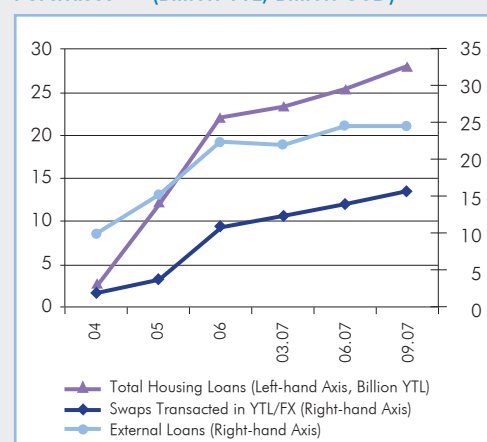
Meanwhile, the banking sector, which had a positive sensitivity gap in the 1-3 month-maturity bracket in December 2006, ran a deficit in the September 2007 period. While the total YTL denominated positive sensitivity gap rose by 14.2 billion YTL, the foreign currency-denominated negative sensitivity gap declined by 0.1 billion YTL (Chart III.21).

Chart III.22.
Foreign Exchange Position of the Banking Sector¹ (Billion USD)



Source: BRSA
(1) Participation Banks are included

Chart III.23.
Financing of Housing Loans and Swap Purchases^{1,2} (Billion YTL, Billion USD)



Source: BRSA – CBRT
(1) "External Loans" consist of syndication and securitization loans.
(2) "The banks which extend housing loans are taken into consideration"

The short position aversion tendency of the banking sector continued in 2007 as well. The on-balance sheet short position is leveled off with off-balance sheet position and the course of net general position is balanced (Chart III.22).

The main reason for the banking sector to have a high on-balance sheet short position is the funding of YTL denominated loans by foreign currency resources. Banks convert a portion of their long-term foreign currency loans from abroad into Turkish currency through swap operations, and extend long-term housing loans. This mainly stems from the fact that the short-term structure of deposits makes the funding of long-term loans, chiefly housing loans, difficult (Chart III.23).

The total amount of the banking sector's selected derivative assets in YTL (transacted in YTL/foreign currency), which balances its on-balance sheet short position with the off-balance sheet long position, was almost USD 25.4 billion by September 2007. A portion totaling USD 23.1 billion of this amount is conducted with financial sector institutions .

III.2.2. Scenario Analyses

III.2.2.1. Interest and Exchange Rate Shocks

In this section, the individual and collective effects of interest rate increase and appreciation of exchange rates on the banking sector are analyzed under two different scenarios assuming that the shocks occur independently.

Under Scenario A, the case where the Turkish lira depreciates by 30 percent against other currencies, the interest rates for the Turkish currency and foreign currencies increase by 6 and 5 points, respectively, and Eurobond prices decline by 5 percent, is analyzed.

Under Scenario B, the case where the Turkish lira depreciates by 30 percent, interest rate increases are twice the interest rate fluctuations during the 2006 May-June period, and Eurobond prices decrease by 5 percent, is analyzed¹³.

Table III.8. Interest and FX Rate Increase Scenarios

	SCENARIO A	SCENARIO B
A. Depreciation of YTL	30 percent depreciation of YTL against other currencies	30 percent depreciation of YTL against other currencies
B. Interest Rate Increase-YTL	Re-pricing of YTL interest sensitive assets and liabilities falling in 0-1 and 1-3 month maturity brackets at 6 points higher	Re-pricing of YTL interest sensitive assets and liabilities falling in 0-1, 1-3, 3-6 month maturity brackets at 9, 8, 11 points higher, respectively.
C. Interest Rate Increase-FX	Re-pricing of YTL interest sensitive assets and liabilities falling in 0-1 and 1-3 month maturity brackets at 5 points higher	Re-pricing of YTL interest sensitive assets and liabilities falling in 0-1, 1-3, 3-6 month maturity brackets at 1.1, 0.7, 1.1 points higher, respectively.
D. Trading Portfolio-YTL ¹	6 points increase in market interest rates of YTL denominated fixed income securities in the trading portfolio	Increase in market interest rates of YTL denominated fixed income securities in the trading portfolio by 9, 8, 11 points for the 0-1, 1-3, 3-6 month maturity brackets, respectively.
E. Eurobond Portfolio	Decrease in prices of Eurobonds in the trading portfolio by 5 percent	Decrease in prices of Eurobonds in the trading portfolio by 5 percent

(1) BRSA defines the trading portfolio as "Securities in the trading portfolio" and "Securities available for sale" in accordance with the description of the Basel Committee.

FXNGP data were used in calculating the effects of exchange rate appreciation on the sector. While calculating the impact of interest rate increases on the sector, the re-pricing gap method, which complements the standard method and is recommended by the Basel Banking Committee, was employed. In this framework, the difference between interest rate-sensitive assets and liabilities in the time to repricing period maturity brackets of 0-1, 1-3, and 3-6 months were used. In the scenario analyses based on repricing, it was assumed that:

- The interest rate sensitivity of banks' assets and liabilities has remained unchanged throughout the analysis period,
- Demand deposits are not interest rate-sensitive,
- There are no new fund inflows or outflows,
- The interest rate increase would last for 3 months in scenario A and for 6 months in scenario B.

The loss of value to be induced by the rise in interest rates on Turkish currency-denominated discount securities and Eurobond portfolio within the trade portfolio have also been calculated.

¹³ GDDS interest rates have been taken into account for the interest rate increases following the May-June 2006 fluctuations.

Table III.9 Results of Market Risk Scenarios ¹ (Million YTL)

	Scenario A			Scenario B		
	2005	2006	09.07	2005	2006	09.07
A. YTL Depreciation						
a. Total	-73	80.4	68.5	-73	80.4	68.5
Profit (Loss)/Equity (%)	-0.2	0.2	0.1	-0.2	0.2	0.1
b. Banks Gaining Profits	71	269.7	226.3	71	269.7	226.3
c. Banks Suffering Losses	-143	-189.4	-157.8	-143	-189.4	-157.8
Loss of Banks Suffering Loss/Equity (%)	-0.5	-1.4	-0.5	-0.5	-1.4	-0.5
B. Interest Rate Increase						
a. YTL	8	-172.2	-1,070	483	258.3	-276.8
b. FX	-352	-290.2	-362.7	-62	-2	-57.2
Profit (Loss) due to Interest Rate Increase (a+b)	-345	-462.4	-1,432	421	256.3	-334.0
Profit (Loss) due to Interest Rate Increase/Equity (%)	-0.8	-0.9	-2.3	1	0.5	-0.5
C. YTL Trading Portfolio						
Loss in Value due to Interest Rate Increase	-1,480	-1,549	-1,935	-2,583	-2,701	-3,362
Loss in Value due to Interest Rate Increase/Equity (%)	-3.6	-3	-3.1	-6.3	-5.2	-5.4
D. Eurobond Portfolio						
Loss in Value	-518	-632	-710	-518	-632	-710
Loss in Value/Equity (%)	-1.3	-1.2	-1.1	-1.3	-1.2	-1.1
E. Total Impact						
Profit/Loss	-2,415	-2,563	-4,008	-2,752	-2,997	-4,338
(Profit/Loss)/Equity (%)	-5.9	-5	-6.4	-6.7	-5.9	-6.9
Current CAR of the Sector (%)	21.2	19.8	17.8	21.2	19.8	17.8
After-Shock CAR of the Sector² (%)	20	18.8	16.7	19.8	18.6	16.6

(1) Excluding SDIF bank, T. Kalkınma Bank, İller Bank and Eximbank.

(2) After-shock profit/loss amounts under the scenarios are assumed to affect only equity but not the risk weighted assets.

III.2.2.1.1. Depreciation of YTL

Due to the exchange rate shock, the banking sector incurs a profit in September 2007 as in December 2007 owing to its long position. Meanwhile, the amount of losses of the banks arising from their open positions caused by the exchange rate shock and the share of that loss in equities diminished as of September 2007 (Table III.9).

III.2.2.1.2. Interest Rate Increases and Loss in Value

i) As a result of the scenarios A and B, the YTL and FX denominated net interest income declines as of September 2007.

In Scenario A, the decline in interest income in September 2007 results from the increasing short position in the 0-1 month maturity bracket and long position in the 1-3 months maturity bracket turning into a short position in Turkish currency and the increase in the open position in the 0-1 month maturity bracket in foreign currency. As for Scenario B, the long position of Turkish and foreign currency in the 3-6 month-maturity bracket leads to a more limited decline in interest income compared to Scenario A.

As of September 2007, the ratio of the impact of the interest rate rise scenario to equities displayed an increase compared to December 2006, albeit the growth in equities.

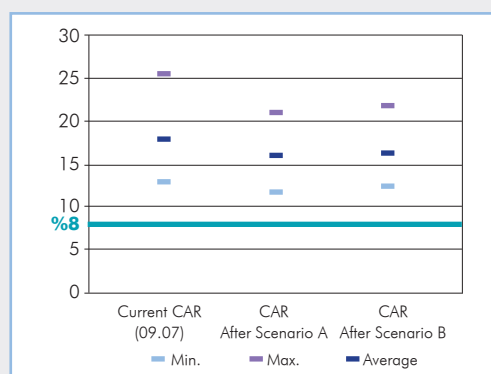
ii) As of September 2007, the loss in the market value of Turkish currency denominated discount securities arising from interest rate increases augmented in both scenarios compared to December 2006. Nevertheless, the rise in the ratio of these losses to equity was limited.

iii) Despite an increase in the loss of value in the Eurobond portfolio compared to December 2006, the ratio of the loss to equity diminished.

In conclusion, even though the effect of the scenarios strengthened as of September 2007, primarily due to the increase in interest rates, this impact was not strong enough to push down the CAR of the banking sector below the legal limit.

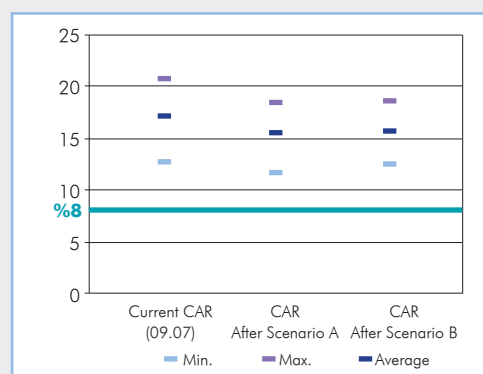
When the effects of Scenario A and B on the CARs of the 10 largest banks with respect to their asset size are analyzed, even though their maximum, minimum, and average CAR levels did not decline below the legal limits, the negative impact on the CAR is more significant compared to end-2006.

Chart III.24.
Impacts of the Scenarios on the Largest 10 Banks of the Sector¹



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

Chart III.25.
Impacts of the Scenarios on the Largest 10 Private Banks of the Sector¹



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

Box 9.

Stress Tests Conducted within the Context of Financial Sector Assessment Program

Within the context of the Financial Sector Assessment Program (FSAP) stress tests have been carried out to assess the sensitivity of the banking system to the main risk factors. These analyses were made through “top-down” approaches applied to the whole sector and “bottom-up” approaches to a set of major deposit taking banks. The stress tests included sensitivity analyses which covered interest rate risk, credit risk, and liquidity risk and scenario analyses which assessed the possible impacts of the shocks applied to a group of macroeconomic variables on the financial position of banks. The Financial System Stability Assessment Report (FSSA) was published on the IMF website¹⁴. The report made the following assessments;

Sensitivity Analysis: Market Risk

Analysis revealed that the sector in general is resilient to market price shocks, there is a large negative gap between interest rate sensitive assets and liabilities at the short end and

¹⁴ See FSSA report at (www.imf.org/external/pubs/ft/scr/2007/cr07361.pdf).

interest rate increase shocks has a negative impact on profitability. However, the high initial capital level of the sector limits the impact on solvency and in respect of FX shocks, exchange rate movements exercise negligible impact owing to the sector's almost square position in FX.

The outcome is that the results of the bottom-up approach carried out for a group of deposit taking banks are similar in quality, but the results related to the bank portfolio are higher than the sector's results. The increase in the yield curve shock on its own or in combination with YTL depreciation resulted in notable capital impairment in a few banks.

Sensitivity Analyses: Credit Risk

Shocks were applied to assess how the banking sector would be affected in an event of a deterioration in credit quality and the results indicated that all banks were above the 8 percent legal CAR but almost half of them were below the 12 percent target CAR. The results for the whole sector revealed that only 4 percent of the regulatory capital was influenced.

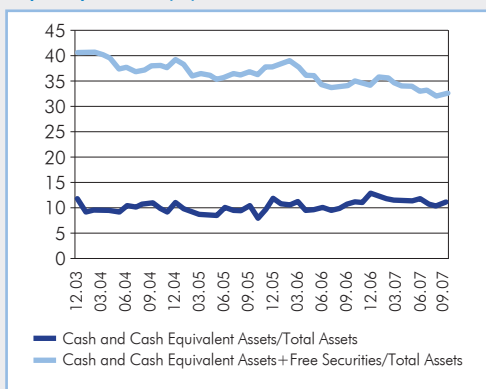
Scenario Analyses

The main risk factors that the financial sector might be exposed to were discussed within the context of four macroeconomic scenarios (a zero net capital inflow, permanent increase in oil prices, a boom-bust scenario, fiscal slippage). In terms of its impact on regulatory capital, the scenarios with the worst consequences are the net zero capital inflow into Turkey since it leads to a deterioration in the quality of the bank's credit book and permanent increase in oil prices.

III.3. Liquidity Risk¹⁵

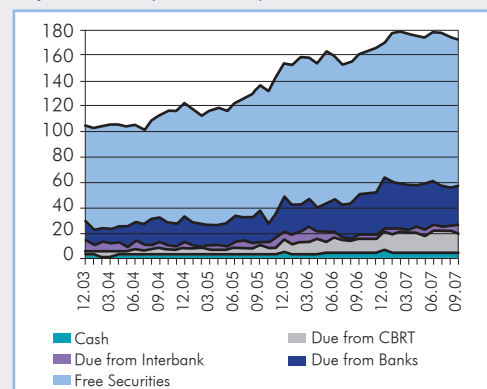
The liquid assets of the banking sector, which are comprised of cash and cash equivalent assets that fluctuate within a certain band, have been declining since early 2007, while the ratio of these assets to total assets was realized as 10.5 in September 2007. The course of this ratio was driven by the movements in the "due from the banks" item. When the free securities not used as collateral or for repo transactions are taken into consideration, this ratio displayed a tendency to decline and was 32.1 percent in September 2007 (Chart III.26).

Chart III.26. Liquidity Ratios (%)^{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.27. Liquid Assets (Billion YTL)

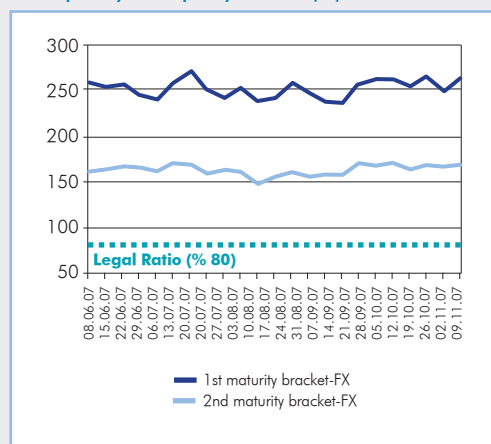


Source: BRSA-CBRT

¹⁵ Participation banks were included in the assessments made in this chapter.

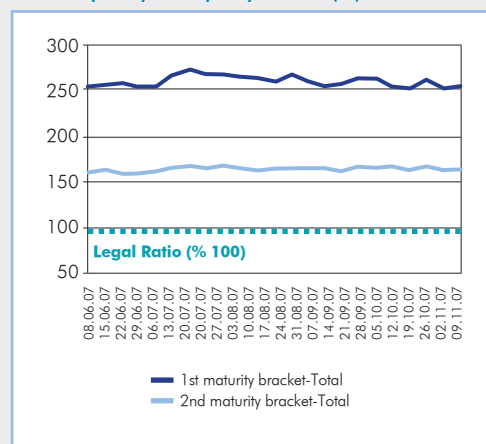
Within the cash and cash equivalent assets, due from the banks has the largest share. Free securities, which can be accepted as collateral by the Central Bank to provide liquidity in the event of a temporary liquidity shortage, continued to be an important asset item of the banks and in September 2007, the ratio of these assets to total assets was 21.6 percent. Moreover, the free portfolio/deposits ratio was 36.1 percent in September 2007¹⁶ (Chart III.27).

Chart III.28.
FX Liquidity Adequacy Ratios (%)



Source: BRSA-CBRT

Chart III.29.
Total Liquidity Adequacy Ratios (%)



Source: BRSA-CBRT

Pursuant to the “Regulation Relating to the Measurement and Assessment of Liquidity Adequacy of Banks”, which was published by the BRSA and was put into effect on June 1, 2007 in order to ascertain that banks have adequate cash assets and inflows that will fully and duly meet their cash outflows and to ensure more efficient liquidity management by the banks, liquidity adequacy ratios of the banking sector for the 1st and 2nd maturity brackets¹⁷ are well above the legal ratio¹⁸ for both total and foreign currency (Chart III.28 and Chart III.29).

Although the liquidity adequacy of the banking sector is above the limits stipulated by law, recent volatilities in global markets once more highlighted the importance of liquidity risk management. Even though the Central Bank is able to provide Turkish currency liquidity in exchange for collateral within the framework of the program in implementation, it is important for banks to keep focusing on cautious and effective liquidity management.

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. For this purpose, ratios projecting the risks and fragilities of the banking sector were selected and these ratios were utilized to form the index with certain weights. Six sub-indices (asset quality, liquidity, exchange rate risk, interest rate risk, profitability, and capital adequacy ratio) were used in forming the index (Box 10).

¹⁶ Participation banks were not included in this calculation.

¹⁷ Assets and liabilities with remaining maturity between 0-7 days are included in the 1st maturity bracket and those between 0 to 31 days are in the 2nd.

¹⁸ These ratios, for both maturity brackets, were defined as 100 percent for total liquidity and 80 percent for foreign currency liquidity.

Box 10. 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 ⁴	Negative	0.50
Interest Rate Risk	(Interest Sensitive YTL Assets with a Maturity up to 1 Month – Int. Sensitive YTL Liabilities with a Maturity up to 1 Month) / Equity ⁵	Negative	0.50
	(Interest Sensitive FX Assets with a Maturity up to 1 Month – Int. Sensitive FX Liabilities with a maturity up to 1 Month) / Equity 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.

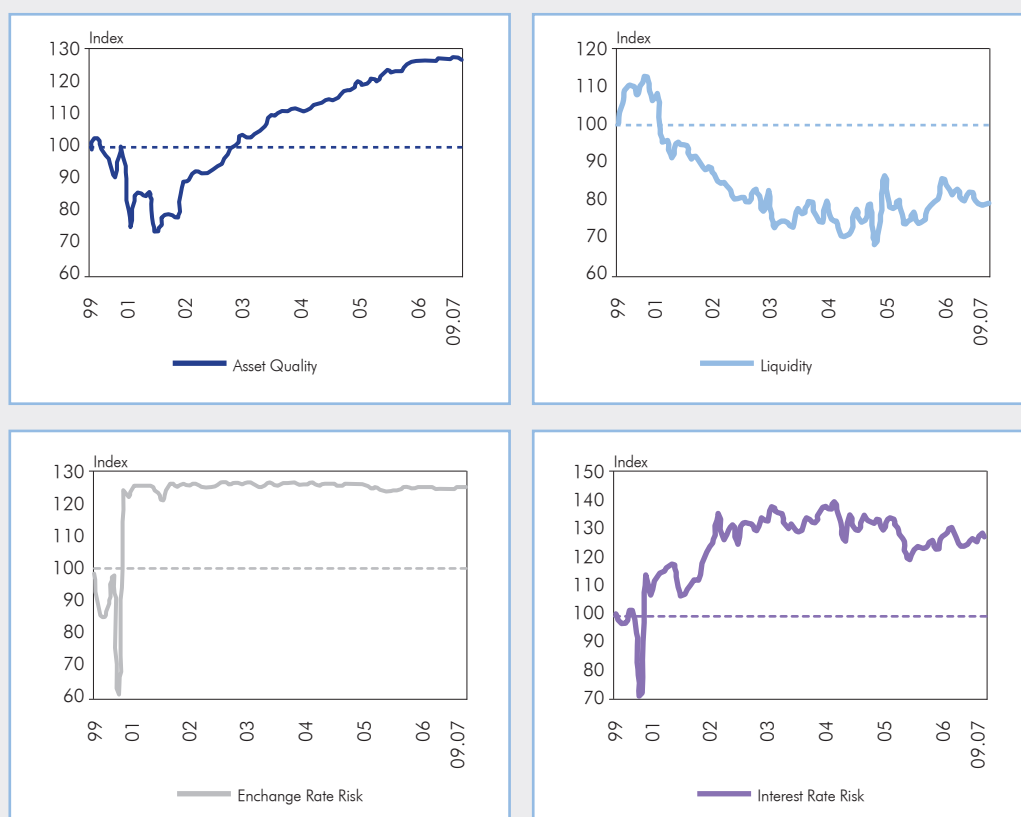
(3) Own funds is the regulatory capital, and it is different from the equity in the balance sheet. The calculation is in absolute values.

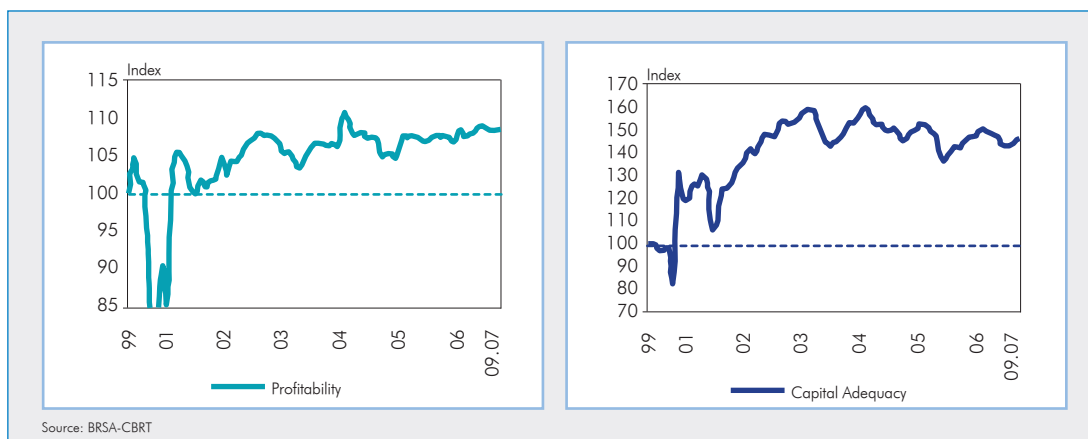
(4) Foreign exchange net open position is the sum of on and off balance sheet foreign currency positions. The calculation is in absolute values.

(5) The calculation is in absolute terms.

(6) Free capital is calculated by deducting fixed assets from equity.

Chart III.30. Financial Strength Sub-Indices





The assessment of the sub-indices that form the FSI is as follows (Chart III.30);

i. Asset Quality Index: The Asset Quality Index, which was 122.6 at the end of 2006, rose slightly to 122.9 in September 2007 in response to the decline in both the share of fixed assets in total assets and NPL ratio.

ii. Liquidity Index: The Liquidity Index, which was 85.6 by end-2006, dropped to 78.9 in September 2007 with the decline in the share of liquid assets in total assets.

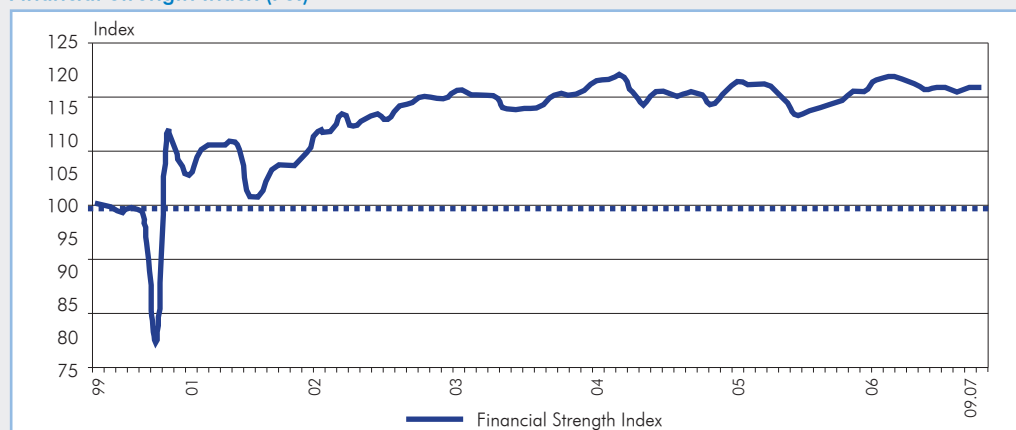
iii. Exchange Rate Risk Index: The Exchange Rate Risk Index, which displayed a stable course, became 125.1 in September 2007. This stability was a result of the limited open position of the banking sector.

iv. Interest Rate Risk Index: The Interest Rate Risk Index, which was 126.9 in December 2006, declined to 125.8 in September 2007. The increase in the ratio of the difference between YTL-denominated interest-sensitive assets up to 1 month and interest sensitive liabilities up to 1 month to equity was instrumental in this decline of the interest rate risk index.

v. Profitability Index: The index, which was 106.9 at the end of 2006, rose to 108.4 in September 2007 due to the increase in both the return on assets and return on equity of the banking sector.

vi. Capital Adequacy Ratio: With the decline in the Capital Adequacy Ratio, the index that was 146.3 at the end of 2006 declined to 145.9 in September 2007.

Chart III.31.
Financial Strength Index (FSI)



The Financial Strength Index monitored as an indicator of the stability of the banking sector followed a high course throughout 2007 despite the decreases in the Capital Adequacy Index, Interest Rate Risk Index, and Liquidity Index

Box 11.
Turkey Financial Sector Assessment Program¹⁹

Due to the integration of financial markets as a result of globalization that gained pace in the 1980s, financial crises do not only affect the countries where they emerge, but almost the whole world. Hence, it has been realized that country-based solutions are not enough and therefore, the strength and stability of the financial system at the global level has become an important issue. In order to stop the contagion of crises, the development of standards applicable by all countries and the strengthening of financial infrastructures have become part of the agenda. Consequently, with the cooperation of the IMF and the World Bank, the Financial Sector Assessment Program (FSAP) was initiated in 1999. The FSAP is a comprehensive assessment aimed at identifying the weaknesses by analyzing the developments of the financial sectors of countries. The FSAP is conducted with the support of national central banks, financial sector regulatory and supervisory authorities, and representatives from private sector. The goals of the FSAP are to:

- Identify the strengths and weaknesses of the financial sectors of countries and state the risks,
- Avoid the occurrence and spread of financial crises,
- Identify international best practices and compliance with standards,
- Analyze the relation between the macroeconomic structure and the financial sector
- Determine improvement and technical assistance needs,
- Support the process of building the correct infrastructure and policies to strengthen and improve the financial sector.

Turkey-FSAP assessment conducted jointly by the IMF and the World bank started in 2005 with the contribution of all the institutions and agencies involved in the financial sector under the coordination of the Undersecretariat of Treasury. Following the studies, the Financial System Stability Assessment Report (FSSA) containing an assessment regarding the Turkish financial sector was published on the IMF website.

The report underlined that Turkey's financial system has strengthened markedly over the last five years, has developed rapidly and became more integrated internationally and effective regulation, supervision and supporting infrastructure were needed to reduce the systemic impact of any shock that may impinge upon the financial system. Progress has been made on this issue but more efforts were needed. It was also stated that as policies to maintain macroeconomic stability, such as a commitment to a declining path of inflation and fiscal consolidation were the preconditions for the development of a sound financial sector, the authorities would need

¹⁹ FSSA report can be reached at (www.imf.org/external/pubs/ft/scr/2007/cr07361.pdf).

to remain unwavering in their commitment to sound policies to reinforce confidence and create room for the new financial markets to flourish.

Vulnerabilities determined in the report can be summarized as:

- Macroeconomic volatility that could especially stem from the large current account deficit,
- While the credibility of economic management has been strengthened over the past five years, the confidence of savers and investors may still be fragile,
- Continued risks from sustained credit expansion although credit growth has slowed since June 2006,
- Interest rate risks borne by banks mainly due to maturity mismatch between government securities and housing loans and deposits,
- Sovereign risk borne by banks due to large holdings of public sector debt ,
- Lending in foreign currency, which still accounts for almost one third of bank loans, exposing banks to foreign currency risk indirectly via credit risk.

The main recommendations for the short-term were stated in the FSSA report; to complete and implement the regulations associated with the new Mortgage Law and pass the Insurance Law, implement all regulations for the new Banking Law, ensure that foreign-currency linked domestic currency loans are subject to similar constraints as foreign currency loans, review major corporate shareholders' regulatory treatment to remove residual privileges, review and amend procedures for handling failing banks, and ensure active involvement of all relevant agencies, to ensure timely and cost-effective action.

The main recommendations for the medium-term were; to phase out transaction taxes, complete the privatization of public banks, refine data collection and analysis in the banking sector, conclude the Memoranda of Understanding (MoUs) with foreign supervision authorities, review mechanisms to ensure the financial independence of supervisory agencies, establish mechanisms to generate more reliable data on insurance companies' provisions and capital, resolve problems regarding the privatization of the ISE, and adapt the Capital Markets Law in 2008.