5. Financial Markets and Financial Intermediation

Overview

Acceleration of capital inflows towards emerging economies accompanied by policies pursued by the CBRT to bolster liquidity conditions since the publication of the previous Inflation Report led to improvements in both global and domestic financial conditions. Accordingly, the FCI calculated for Turkey by taking the weighted averages of various financial indicators, stood above the average in the second half of 2012 and remained on an upward track in the last quarter (Chart 5.a).

Chart 5.a.
Financial Conditions Index* and Economic Activity **

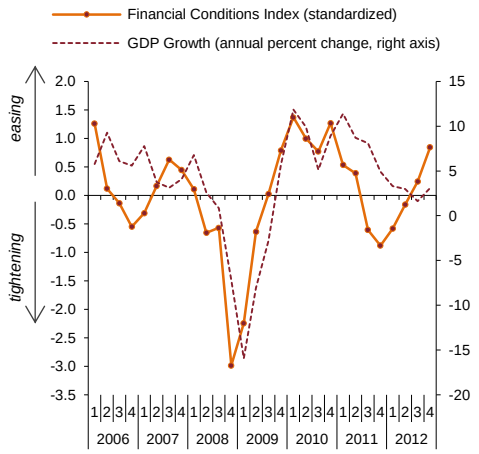
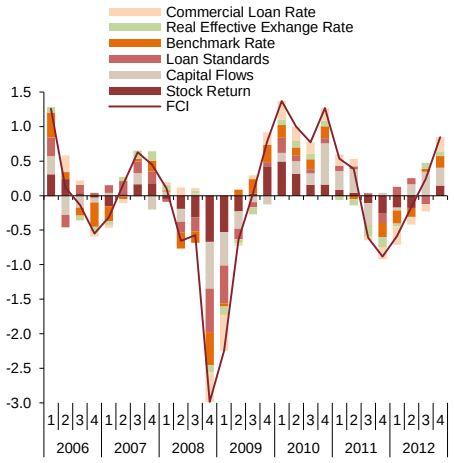


Chart 5.b.
Contributions to Financial Conditions



* For further details on financial conditions index, see CBRT Economic Notes No. 12/31 and Report 2012-IV, Box 5.2.
** Estimate for last quarter GDP growth.
Source: CBRT.

Parallel to the surge in the global risk appetite, ISE stock returns and capital flows contributed positively to financial conditions in the last quarter of 2012 (Chart 5.b). Despite the recovery in the risk perceptions for Turkey, the appreciation in the foreign exchange rate remained limited as a result of the policy implementations of the CBRT. Thus, the positive contribution of the currency appreciation to the FCI remained low. The CBRT's accommodative policies to bolster liquidity conditions and successful balancing of the economy as also confirmed by macroeconomic indicators as well as a credit rating upgrade by an international credit rating agency led the market rates to plummet; hence, the benchmark interest rate contributed positively to the FCI.

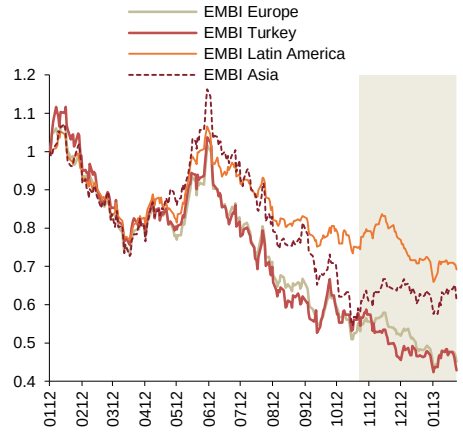
Loan demand improved amid plunging loan rates in the last quarter of 2012. Credit growth re-accelerated in the last quarter of the year, converging to previous years' averages. In other words, loan rates, which has had a tightening effect on financial conditions since the third quarter of 2011, started to support conditions in the last quarter of 2012. Meanwhile, having created an adverse effect on the FCI in the third quarter of 2012, loan standards had negligible contributions in the last quarter. Results of the Loan Tendency Survey suggest that loan demand followed a high course in the last quarter; however, banks have been cautious about easing lending conditions.

5.1. Financial Markets

Global Risk Perceptions

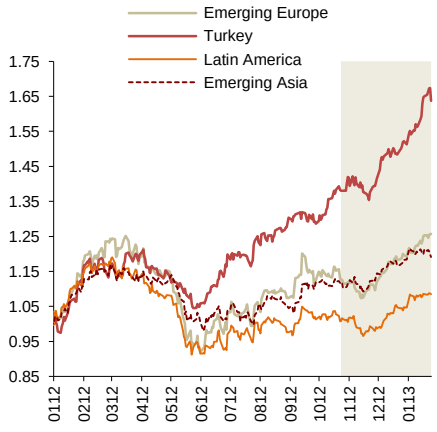
In the last quarter of the year, the global risk appetite improved on the back of sustained monetary easing policies implemented by advanced economies as well as alleviated possibility of a deepening crisis due to adopted measures by the European countries. In the meantime, fiscal cliff debates in the US stood as a factor to create uncertainty in global markets. In early 2013, risk appetite increased further owing to the better-than-expected outturn in the US and Chinese economies as well as postponement of fiscal cliff concerns in the US as a budget deal was reached.

Chart 5.1.1.
Relative EMBI Indices
(January 2012 =1)



Source: Bloomberg, CBRT.

Chart 5.1.2.
Relative MSCI Stock Market Indices
(January 2012 =1)



Source: Bloomberg, CBRT.

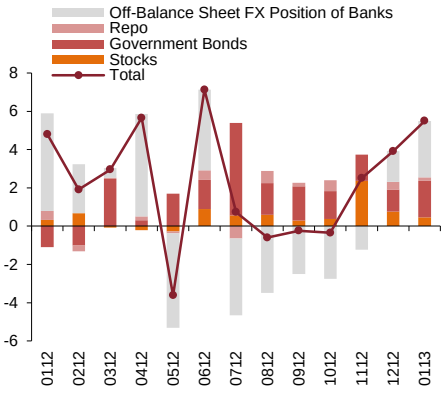
Amid the rise in the global risk appetite in the inter-reporting period, capital inflows towards emerging economies accelerated, particularly in stock

markets. As for Turkey, ongoing accommodative policies by the CBRT, the improvement in both price and financial stability as confirmed by the recently-released data, as well as a credit rating upgrade by an international credit rating agency accelerated the positive divergence of Turkey's risk premium and stock index from other emerging economies, which started in the second half of the year (Charts 5.1.1 and 5.1.2).

Portfolio Flows

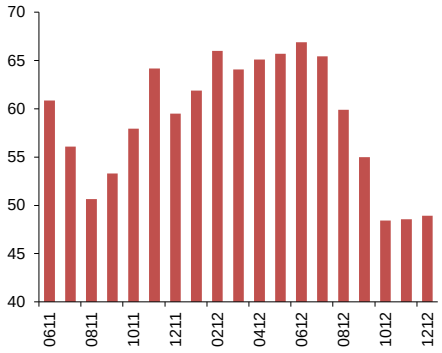
Soaring global risk appetite in addition to the above developments exclusive to Turkey have led to accelerated portfolio flows by non-residents in the stock market, particularly since mid-November. Moreover, share of non-residents in the GDBS market has remained on an upward track since the publication of the previous Inflation Report, especially in maturities longer than one year. All these are attributed to positive expectations regarding Turkey's medium and long-term macroeconomic performance.

Chart 5.1.3.
Portfolio Flows of Non-Residents*
(Billion USD)



* As of January 18, 2013.
Source: BRSA, CBRT.

Chart 5.1.4.
Share of Short-Term Cross Currency Swap Transactions



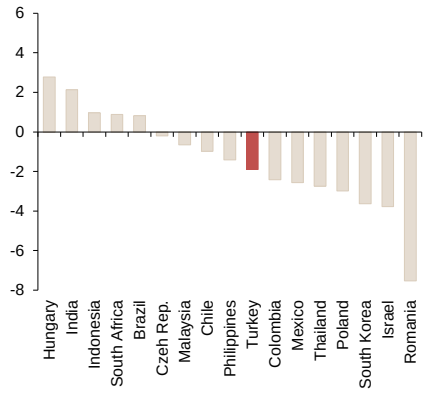
Source: CBRT.

The CBRT's positioning to ease liquidity conditions coupled with more evident effects of the foreign exchange reserve options mechanism, thus leading to capital flows in stock, GDBS and repo markets from mid-2012 to November. Nevertheless, off-balance sheet FX position of banks displayed a decline amid the lower need for short-term TL liquidity (Chart 5.1.3). Meanwhile, In December and January, both the higher global risk appetite and the favorable domestic developments caused a surge in portfolio flows by non-residents to Turkey. The CBRT's policies have been influential on the maturity structure of the TL currency swap transactions. Due to the CBRT's positioning to

ease liquidity conditions and the reserve options mechanism, the share of TL currency swap transactions with maturities shorter than 1-year displayed a decline in the third quarter of 2012 (Chart 5.1.4). In the last quarter, the share of short-term swap transactions remained broadly unchanged.

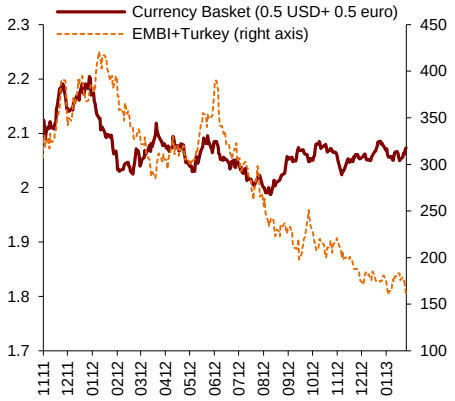
The recent rise in the global risk appetite and increased capital flows to emerging economies led to an appreciation in the currencies of many emerging economies against the USD, while the appreciation of the Turkish lira proved relatively more limited (Chart 5.1.5). This is attributed to the reserve options mechanism; higher fall in market rates relative to other emerging economies across all maturities; and the hike to FX required reserves in December. Despite the resulting plunge in the risk premium amid these developments, the currency basket followed a flat course in the last quarter (Chart 5.1.6).

Chart 5.1.5.
TL and Emerging Market Currencies*



* Percentage change during October 25, 2012 and January 25, 2013.
Source: Bloomberg.

Chart 5.1.6.
Currency Basket and the Risk Premium



Source: Bloomberg.

The CBRT closely monitors changes in the global risk appetite and portfolio flows. Moreover, it implements policies to curtail risks to be led by these developments on variables like the exchange rate and loans in terms of financial stability.

Policies pursued by the CBRT have also undeniably significant contributions to alleviate the volatility in the exchange rate (Box 5.1). In the second half of the year, implied volatility of exchange rate that started falling upon the decline in risk premia of emerging economies maintained a decreasing track in the last quarter. In this period, implied volatility of the Turkish lira followed a low course both in short and medium-term maturities compared

to the currencies of emerging economies with current account deficits (Charts 5.1.7 and 5.1.8). Box 5.2 shows that the CBRT's new policies alleviated the expected volatility in the USD/TL rate; and also decreased the "skewness" that implies the expectation of depreciation in the exchange rate besides the "kurtosis" that denotes expectations of excessive movements in both directions.

Chart 5.1.7.
Implied Volatility of Exchange Rates*
(1-Month Ahead, Percent)

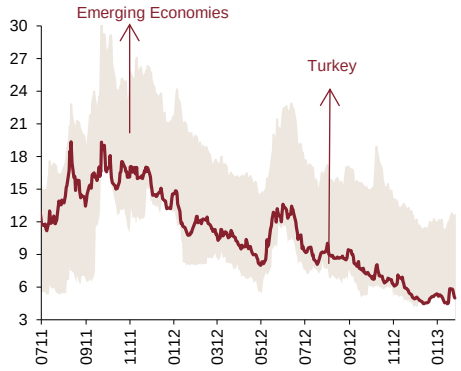
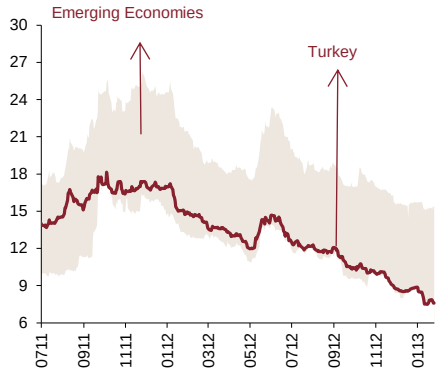


Chart 5.1.8.
Implied Volatility of Exchange Rates*
(12-Month Ahead, Percent)



* Emerging economies with current account deficit include Brazil, Chile, Czech Republic, Hungary, Mexico, Poland, South Africa, Indonesia, Romania and Colombia.
Source: Bloomberg, CBRT.

In view of the favorable developments in international liquidity conditions besides the flow of liquidity in FX markets, the CBRT terminated its intermediary activities in the FX Depot Markets as of January 2, 2013. Moreover, the maturity of foreign exchange deposits that the banks can borrow from the CBRT in USD and euro within their borrowing limits at the FX Depot Markets was pulled down from one month to one week on December 25, 2012. Additionally, lending rates in this market, which used to be 4.5 percent for the USD and 5.5 percent for euro, were raised to 10 percent for both currencies. Furthermore, on 2 January 2013, intra-day foreign exchange selling auctions were suspended.

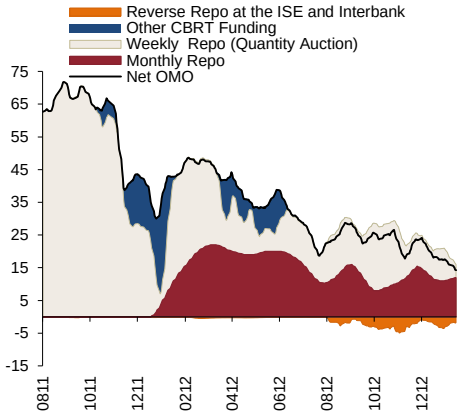
Monetary Policy Implementation

The improvement in the inflation outlook, the favorable course of financial-risk-related variables like loans and the current account deficit besides the more pronounced economic balancing have led to a gradually more accommodative monetary policy since the second half of the year. However, uncertainties regarding the global economy persisted in the last quarter of the year, causing the CBRT to maintain a flexible monetary policy framework, while considering macro financial risks as well. Under the current circumstances of accelerated capital inflows, so as to balance risks to financial stability, interest

rates were kept low on the one hand, and macro prudential measures were sustained, on the other. Improvement in risk perceptions for Turkey, vigorous use of the reserve options mechanism and the mild course of commercial loans enabled a measured reduction in the upper limit of the interest rate corridor. Consequently, the interest rate corridor was narrowed by a 50-basis points O/N lending rate cut in November. Moreover, in order to bolster financial stability, reserve options coefficients were slightly raised in November and the policy rate was reduced by 25 basis points in December. In order to support financial stability amid accelerated capital inflows, the interest rate corridor was slightly narrowed in January, and reserve requirements were tightened modestly.

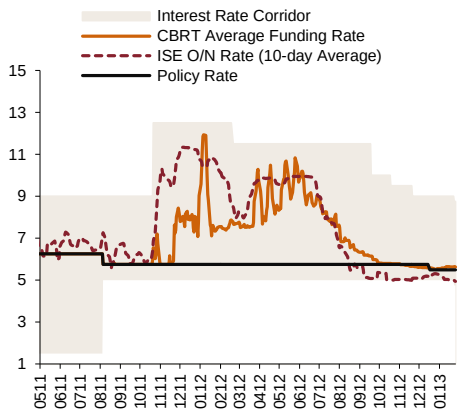
In accordance with the CBRT's accommodative monetary policy implementation, average funding rate remained close to the policy rate in the last quarter, following almost a flat course. During this period, the CBRT funded the market mostly through one-week repo held under the quantity auction method besides monthly repo transactions held under the traditional auction method. In addition, so as to ensure that interest rates in the money markets settle at the O/N borrowing rate, which is the lower band of the interest rate corridor, the financial system was provided with excess liquidity, which was withdrawn at the ISE money markets through O/N transactions (Chart 5.1.9). Accordingly, O/N repo rates at the ISE remained close to the lower limit of the corridor (Chart 5.1.10).

Chart 5.1.9.
CBRT Funding
(2-Week Average, Billion TL)



Source: CBRT.

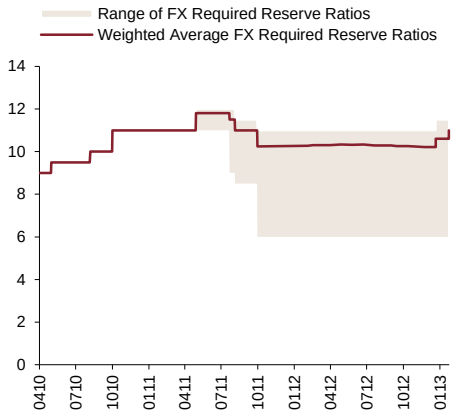
Chart 5.1.10.
O/N Rates at the ISE Repo-Reverse Repo Market*
(Percent)



* Banks obtaining funds from non-bank financial establishments at the ISE Repo-Reverse Repo Market are liable for holding required reserves corresponding to 11 percent of the funds they obtain. Therefore, cost of these interest rates formed at this market for banks is higher than overnight repo rate.
Source: ISE, CBRT.

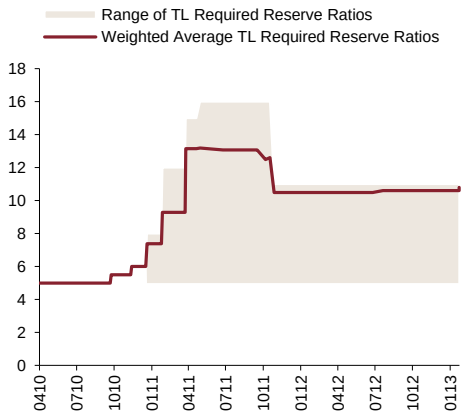
In order to bolster financial stability and extend the maturity of the FX-denominated liabilities of the banking sector, FX reserve requirement ratio for deposits with 1 year or longer maturities besides other FX liabilities with maturities longer than 3 years was raised by 0.5 percent in December. Thus, the average FX required reserve ratio was raised from 10.2 percent to 10.6 percent. FX required reserve ratio was raised by 0.5 percentage point for the same maturities in January. Thus, the average FX required reserve ratio went up to 11 percent (Chart 5.1.11). TL required reserve ratio for deposits with 1 year or longer maturities besides other FX liabilities with maturities longer than 3 years was raised by 0.25 percentage points and the average reserve requirement ratio increased from 10.6 percent to 10.8 percent in January (Chart 5.1.12).

Chart 5.1.11.
FX Required Reserve Ratios
(Percent)



Source: CBRT.

Chart 5.1.12.
TL Required Reserve Ratios
(Percent)

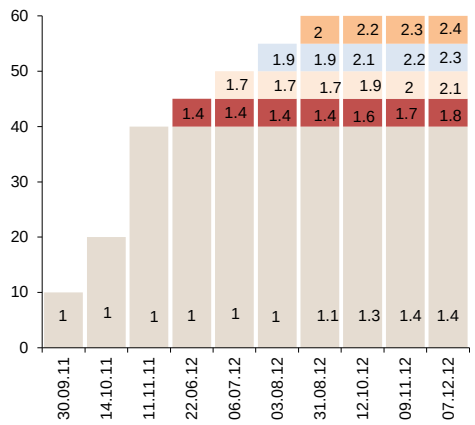


Source: CBRT.

Moreover, FX reserve options coefficients were raised by 0.1 percentage point in November for all tranches bigger than 40 percent. Meanwhile, gold reserve options coefficients in all tranches were raised by 0.2 percentage point in November; and by 0.1 percentage point in December and January (Charts 5.1.13 and 5.1.14). Currently, coefficients corresponding to the last tranche of the FX and gold reserve options stand at 2.4.

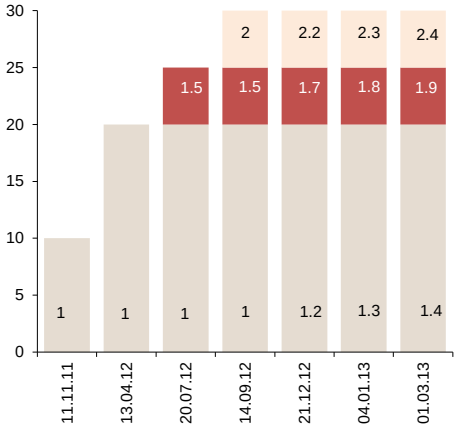
Although the reserve options mechanism enabled banks to establish Turkish lira required reserves at lower costs, increase in the reserve options coefficients within time gradually raised the cost of this facility, which is still largely utilized by banks (Charts 5.1.15 and 5.1.16). In the maintenance period from 18 January to 1 February 2013, the utilization ratio of this facility by banks for FX and gold was 89 percent and 83 percent, respectively.

Chart 5.1.13.
FX Reserve Options Coefficients



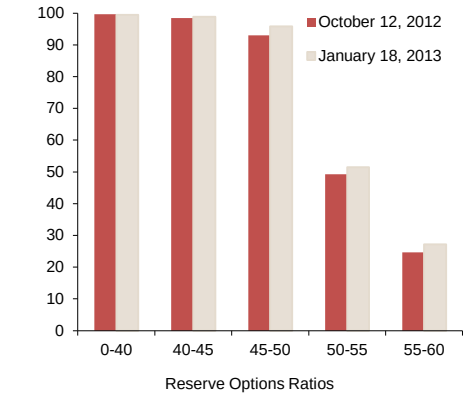
Source: CBRT.

Chart 5.1.14.
Gold Reserve Options Coefficients



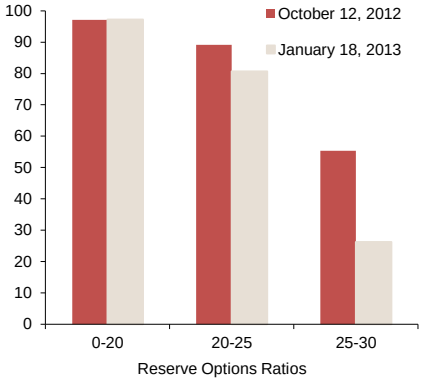
Source: CBRT.

Chart 5.1.15.
Banks' Use of FX Reserve Options Tranches
(Percent)



Source: CBRT.

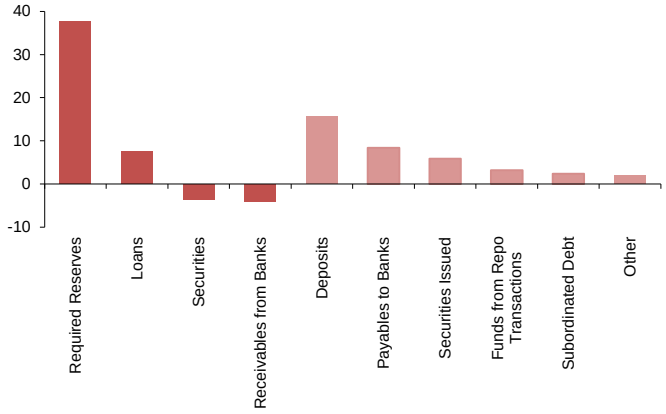
Chart 5.1.16.
Banks' Use of Gold Reserve Options Tranches
(Percent)



Source: CBRT.

Changes in FX-denominated balance sheet items entail significant information regarding the funding of reserve requirement liabilities held in foreign currency. Analysis of the changes in FX-denominated balance sheet items as of September 2011, which marks the start of the facility, suggests that banks increased especially deposits, payables to banks besides securities issued, while they reduced receivables from banks (Chart 5.1.17).

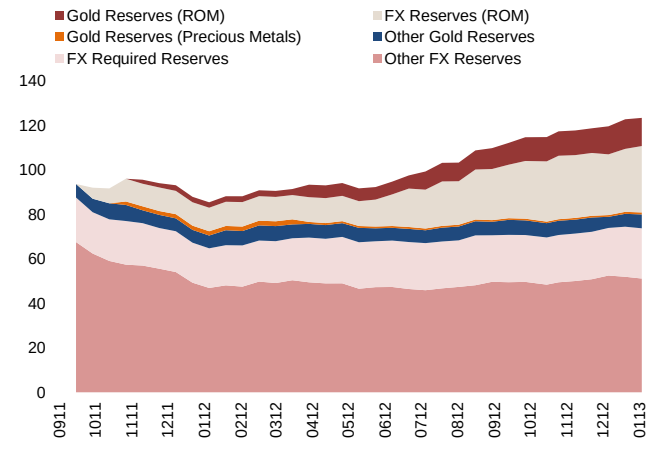
Chart 5.1.17.
Changes in Selected FX Items in Banks' Balance Sheet
(Billion USD)



* From September 2011 to November 2012.
Source: BRSA, CBRT.

Due to the increase in the foreign exchange and gold reserve options coefficients, the amount of foreign exchange and gold withdrawn by the CBRT from the market through ROM remained on an upward track (Chart 5.1.18). Moreover, due to the rise in FX reserve requirement ratios in December besides the rise in TL and FX required reserve ratios in January, a liquidity of approximately USD 850 million and USD 2 billion will be added to the FX reserves of the CBRT in January and February, respectively.

Chart 5.1.18.
CBRT FX Reserves*
(Billion USD)



* As of January 18, 2013.
Source: CBRT.

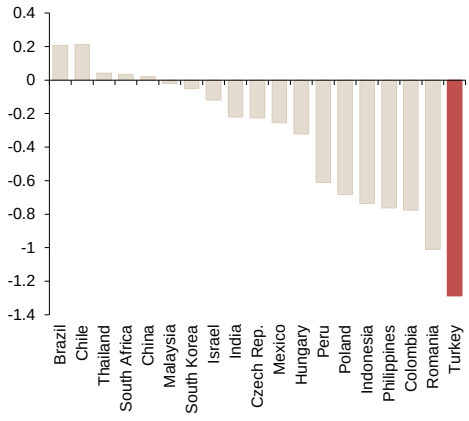
With a view to facilitating the liquidity management of banks and help them project their total funding costs, the CBRT continued to announce the funding amount besides the upper limit for the one-month repo auction amount

pertaining to the days of quantity auctions in the last quarter of the year. In the context of the TL liquidity projections, the lower limit of funding on the policy rate, which was TL 0.5 billion in October and November, was reduced to TL 0.2 billion in December. Meanwhile, the upper limit of the funding was set as TL 6.5 billion in the last quarter of the year. In the context of the one-month repo auctions held under the traditional method, the upper limit was set as TL 4 billion in the last quarter of the year; and was reduced to TL 3 billion in January. Furthermore, due to waning of the informative value, the announcement of the minimum funding amount to be obtained through one-week repo auctions was suspended on January 2, 2013. On the other hand, the total amount of bids for each auction was raised to maximum 30 percent of the announced auction amount, which is to be effective from January 2, 2013.

Market Rates

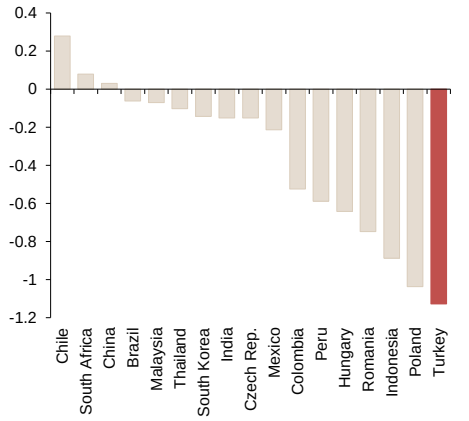
In the last quarter of the year, amid the increase in the global risk appetite and policy rate cuts by the central banks of emerging economies, market rates displayed a decline both in short and long-term maturities in emerging economies (Charts 5.1.19 and 5.1.20). Turkey's market rates displayed a relatively larger decline and neared the averages of other emerging economies (Charts 5.1.21 and 5.1.22).

Chart 5.1.19.
Changes in 5-Year Market Rates in Q4*
(Percent)



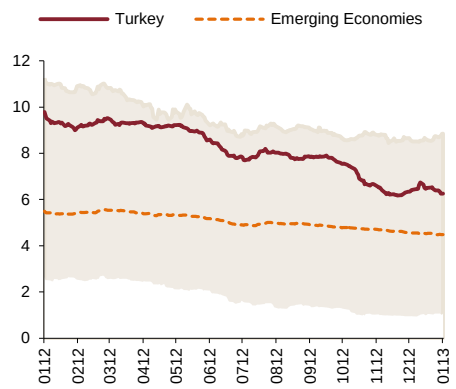
* During October 24, 2012 and January 25, 2013.
Source: Bloomberg, CBRT.

Chart 5.1.20.
Changes in 6-Month Market Rates in Q4*
(Percent)



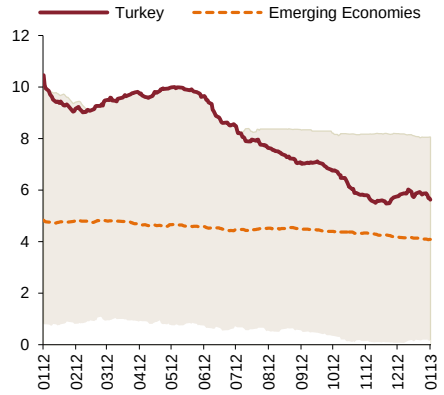
* During October 24, 2012 and January 25, 2013.
Source: Bloomberg, CBRT.

Chart 5.1.21.
5-Year Market Rates*
(Percent)



*As of January 25, 2013 for emerging economies in Chart 5.1.19.
Source: Bloomberg, CBRT.

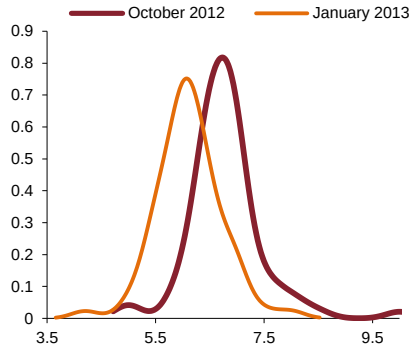
Chart 5.1.22.
6-Month Market Rates*
(Percent)



* As of January 25, 2013 for emerging economies in Chart 5.1.20.
Source: Bloomberg, CBRT.

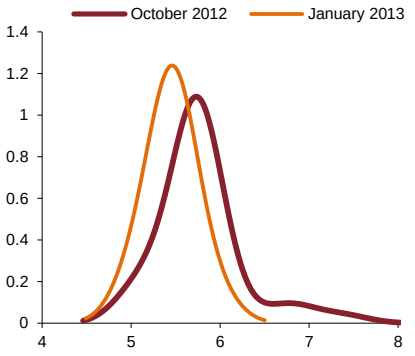
The fall in market rates across all maturities is attributed to the decline in inflation and policy rate expectations. After a protracted period, 12-month ahead inflation and policy rate expectations exhibited a decline in the last quarter of the year (Charts 5.1.23 and 5.1.24).

Chart 5.1.23.
12-Month Ahead Inflation Expectations



Source: CBRT.

Chart 5.1.24.
12-Month Ahead Policy Rate Expectations



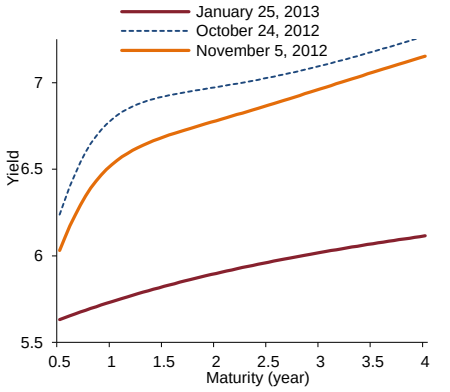
Source: CBRT.

In the inter-reporting period, long-term rates displayed relatively sizeable decline than the short-term rates, thereby causing the yield curve to flatten (Chart 5.1.25). The benchmark interest rate declined further, especially after the credit rating upgrade (Chart 5.1.26). The better-than-expected outturn in macro variables like inflation and the current account deficit besides the sluggish economic activity fuelled expectations for a policy rate cut and led to a decline in market rates. Following the December meeting of the MPC, the

benchmark rate edged up amid weaker expectations for a policy rate cut and profit-taking sales at the GDBS market.

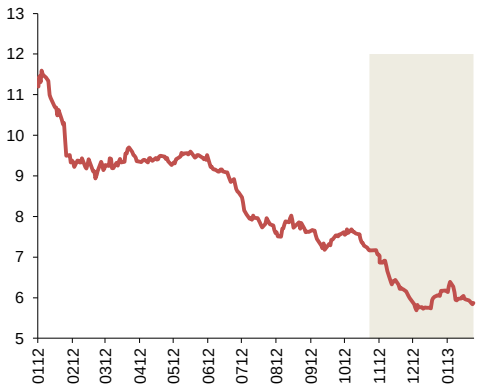
2-year real interest rates displayed a quarter-on-quarter decline due to relatively higher fall in 2-year interest rates than 2-year ahead inflation expectations (Chart 5.1.27). When compared with other emerging economies, Turkey ranked among the top countries as for the nominal interest rate; whereas it remained in the middle as for the real interest rate (Chart 5.1.28). Turkey is placed behind other emerging economies in terms of the real interest rate due to the divergence of inflation expectations across countries.

Chart 5.1.25.
Yield Curve*
(Percent)



* Calculated from the compounded returns on bonds quoted at the ISE Bonds and Bills Market by using ENS method.
Source: ISE, CBRT.

Chart 5.1.26.
Benchmark Interest Rate*
(Percent)

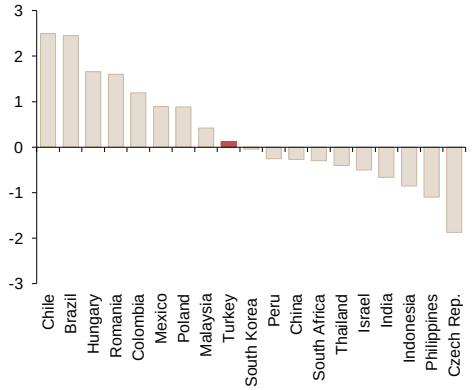


Source: ISE, CBRT.

Chart 5.1.27.
2-Year Real Interest Rates for Turkey*
(Percent)

* Calculated as the 2-year discounted bond returns derived from the yield curve, minus the 24-month-ahead inflation expectations from the CBRT 'Survey of Expectations.
Source: ISE, CBRT.

Chart 5.1.28.
2-Year Real Interest Rates*
(Percent)

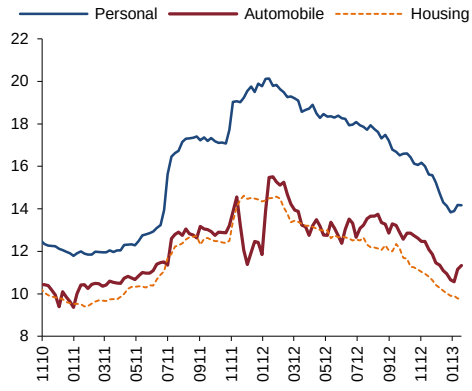


* As of January 25, 2013. Calculated as the 2-year government bond returns of countries minus the 2-year-ahead inflation expectations from the Consensus Forecasts.
Source: Bloomberg, Consensus Forecasts, CBRT.

Loan Rates and the Banking Sector Funding Costs

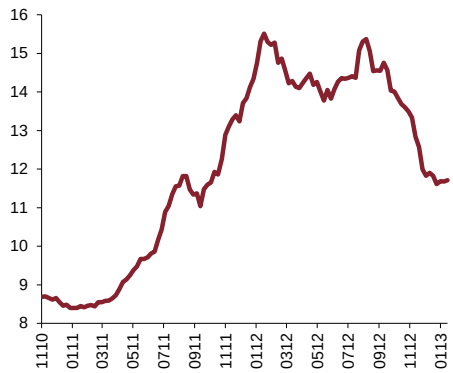
Upon higher global risk appetite and the CBRT's liquidity easing policies, market rates displayed a decline in the last quarter of 2012, which also spilled over into the rates of loans extended to the non-financial sector by the banking sector. Rates on consumer loans, which mostly consist of medium and long-term loans, move in tandem with the developments in the interest rates on securities of corresponding maturities (government domestic borrowing securities, currency swap transactions, etc.). On the other hand, rates on commercial loans, which have a shorter maturity than consumer loans, are more sensitive to the movements in the upper limit of the CBRT's interest rate corridor. The ongoing downtrend in consumer loans since February 2012 accelerated further following the CBRT's policy rate decisions taken in the last quarter of the year (Chart 5.1.29). Owing to the gradual cuts in the O/N lending rate, commercial loan rates, which remained elevated in the first nine months of 2012, declined by about 250 basis points in the last quarter of the year (Chart 5.1.30).

Chart 5.1.29.
Consumer Loan Rates
(Flow, Annualized, Percent)



Source: CBRT.

Chart 5.1.30.
TL Commercial Loan Rates
(Flow, Annualized, 4-Week Average, Percent)

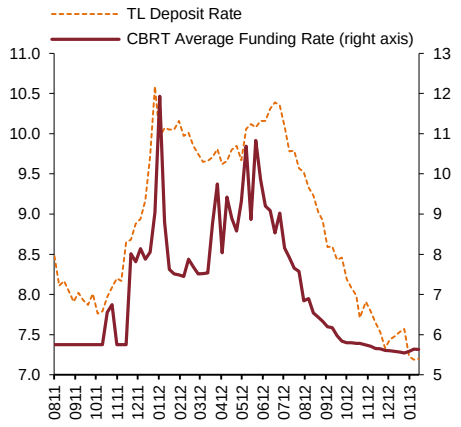


Source: CBRT.

Developments regarding the cost of the TL-denominated funding obtained by banks were mostly in accordance with the CBRT's policy-rate decisions since September 2012. Banks reduced the interest rate on deposits, their main source of financing, in line with the CBRT's gradual reduction of the average funding rate by around 500 basis points in the second half of the year. On the other hand, efforts of banks to improve their balance sheets at the year-end increased the demand for deposits, and deposit rates edged up in the last two weeks of 2012 owing to the competition among banks. However, deposit rates declined back in the first week of January (Chart 5.1.31). The evident fall in commercial loan rates in November and December led the spread between

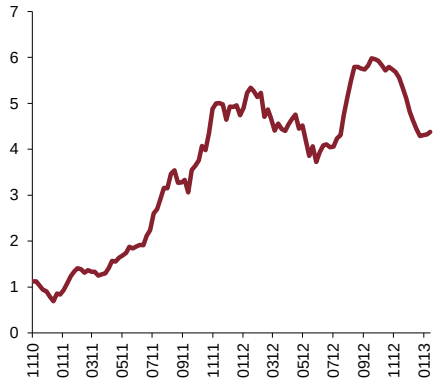
commercial loan rates and deposit rates to fall by around 150 basis points (Chart 5.1.32). However, the spread remains elevated in early January, compared to the period of excessive loan growth in preceding years.

Chart 5.1.31
TL Deposit Rate and the CBRT Average Funding Rate



Source: CBRT.

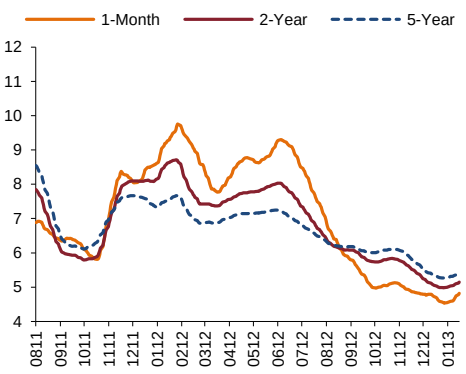
Chart 5.1.32
TL Commercial Loan and Deposit Rate Spread



Source: CBRT.

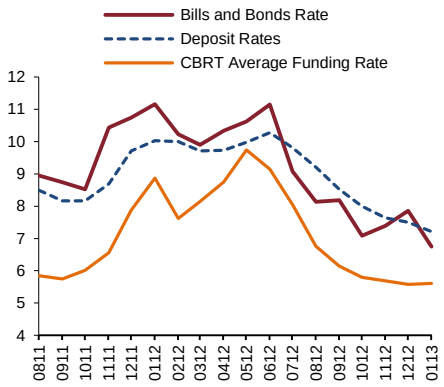
Amid considerable decline in short-term TL liquidity needs of banks in the second half of 2012, TL currency swap rates declined across all maturities, particularly in the short-term (Chart 5.1.33).

Chart 5.1.33
TL Cross Currency Swap Rates



Source: Bloomberg.

Chart 5.1.34
Primary Market Rates on Domestic Issues of Bills and Bonds by Banks



Source: PDP, CBRT.

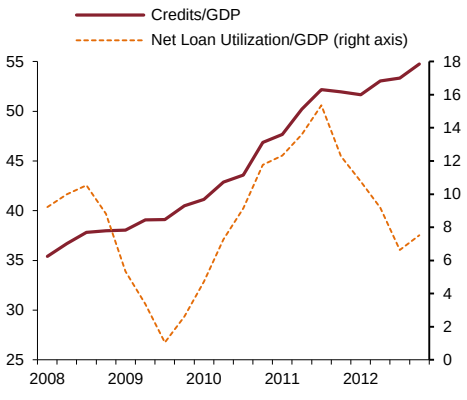
Despite the relatively smaller share in the balance sheet, domestic issues of bills and bonds by banks are getting more widespread as a source of funding for the banking sector. Primary market rates on domestic issues of bills and bonds by banks are more strongly related to the CBRT's average funding rate; yet they hover close to the deposit rates (Chart 5.1.34).

The utilization rate of reserve options mechanism depends mainly on the developments in FX-denominated funding costs of banks. In fact, despite the recent rise in reserve options coefficients, FX-denominated funding is still less costly than TL funding, thus causing the utilization rate of reserve options mechanism to remain high. Low interest rates in international markets, the ongoing fall in the borrowing risk premium of domestic banks in Turkey besides the decrease in FX deposit rates, albeit limited, prove that banks are facing no difficulty regarding FX funding costs.

5.2. Credit Volume and Monetary Indicators

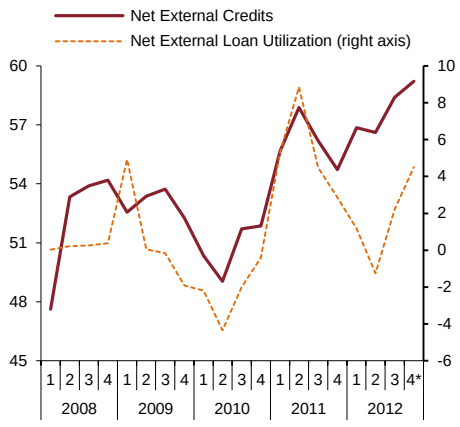
Loan started to grow excessively in 2010. The excessive loan growth was controlled by the CBRT's new monetary policy implementation, which was enforced in the last quarter of 2010 taking financial stability into account alongside price stability. The excessive loan growth was also contained by the coordinated policy actions of other institutions with the CBRT. The ratio of net credit utilization of domestic banks to national income peaked in the third quarter of 2011, and has settled on a stable downtrend for four consecutive quarters (Chart 5.2.1).

Chart 5.2.1.
Domestic Credit Stock and Net Loan Utilization
(Percent of GDP, Annualized)



* Estimate.
Source: CBRT.

Chart 5.2.2.
External Credits of Firms and Net Annual Loan Utilization (Billion USD)



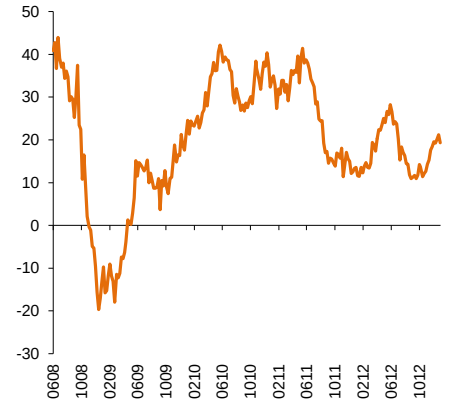
* As of November 2012.
Source: CBRT.

Having accelerated substantially from 2010 to the mid-2011, use of net external credits of domestic firms decelerated in the subsequent four quarters (Chart 5.2.2). The net financing obtained by the real sector from non-resident institutions and establishments edged up in the third quarter and in October.

Thus, external credits extended to firms registered a growth by 8.2 percent in USD in November 2012 compared to end-2011.

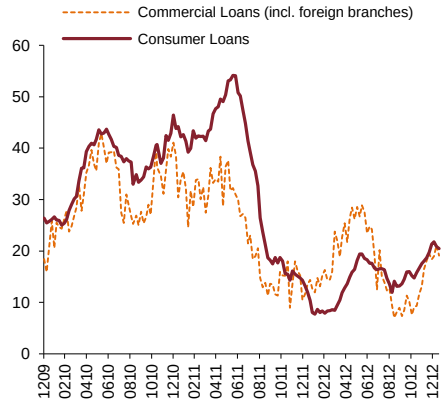
The quarterly growth of credits extended to the real sector by domestic banks went down to 11 percent in the third quarter, which is marked by a pronounced deceleration in economic activity. However, in the last quarter of the year, due to the resurgence of loan demand upon the plunge in loan rates besides more supportive liquidity conditions, the quarterly growth of credits accelerated and neared averages of the preceding years (Chart 5.2.3). Consequently, credits extended to the non-financial sector registered a year-on-year uptick by 18.4 percent at end-2012; and grew by 19.3 percent at an annualized basis in the last quarter. Accordingly, consumer loans and commercial loans gained considerable momentum in the last quarter of the year (Chart 5.2.4). Thus, in the last quarter, which was marked by a surge in capital inflows, credits saw a faster rate of increase compared to the previous quarters. These developments prove the significance of macro prudential measures for balancing financial stability risks.

Chart 5.2.3.
Growth Rate of Real Sector Loans
(Total Loan Growth Rate, Adjusted for Exchange Rate, 13-Week Average, Annualized, Percent)



Source: CBRT.

Chart 5.2.4.
Growth Rates of Commercial and Consumer Loans
(Adjusted for Exchange Rate, 13-Week Average, Annualized, Percent)

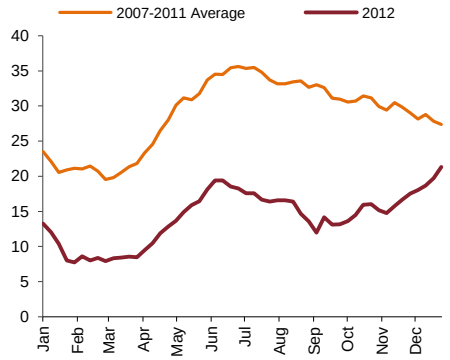


Source: CBRT.

Consumer loan rates, which have declined mildly since the onset of the year, displayed a relatively marked fall in the last quarter. The improvement in consumer confidence in November and December accompanied by falling interest rates led to a brisk loan demand from households. Growth in consumer loans, which was sluggish in the third quarter compared to the preceding years, gained considerable pace in the last quarter (Chart 5.2.5). Across subcategories, the rise in consumer loans was driven mostly by housing loans, and partly by automobile loans (Chart 5.2.6). Growth in personal loans mostly

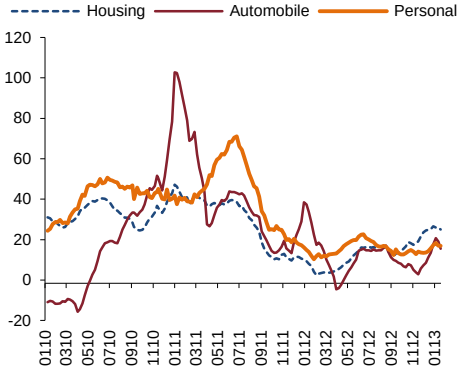
remained flat in the second half of the year; but slightly accelerated in December.

Chart 5.2.5.
Consumer Loan Growth
(Adjusted for Exchange Rate, 13-Week Average, Annualized, Percent)



Source: CBRT.

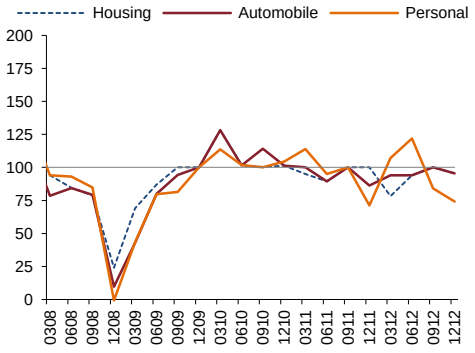
Chart 5.2.6.
Weekly Growth Rates of Consumer Loans
(13-Week Average, Annualized, Percent)



Source: CBRT.

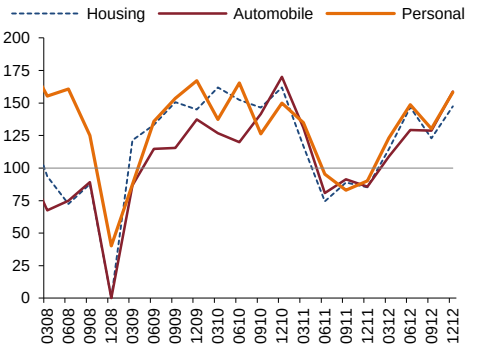
The divergence in the subcategories of consumer loans was mostly fuelled by the preferences of banks; and the household loan demand displayed no such divergence. In fact, results of the Loan Tendency Survey of Banks pertaining to the last quarter of 2012 pointed to a surge in loan demand of consumers, while lending conditions regarding housing and automobile loans remained virtually unchanged by banks; yet lending standards for personal loans were tightened further amid concerns regarding overall economic activity (Charts 5.2.7 and 5.2.8). On the other hand, it was stated by banks that they expected a rise in all subcategories of retail loan demand in the first quarter of 2013.

Chart 5.2.7.
Consumer Loan Standards
(Net Change)



* Banks are requested to state the direction of their lending standards. have changed. Net percentage change of indexed responses show the direction of the change in credit supply. The index is calculated as (Eased Somewhat+ Eased Considerably)-(Tightened Somewhat+ Tightened Considerably)+100. The index above 100 denotes easing in lending standards.
Source: CBRT.

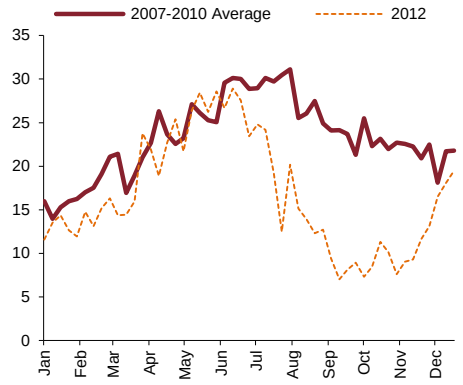
Chart 5.2.8.
Consumer Loan Demand
(Net Change)



* Banks are requested to state the change in the demand for credit. Net percentage change of indexed responses indicates the direction of the change in credit demand. The index is calculated as the sum of (Increased Somewhat+Increased Considerably)–(Decreased Somewhat + Decreased Considerably) +100. Index values greater than 100 signify increase in credit demand.
Source: CBRT.

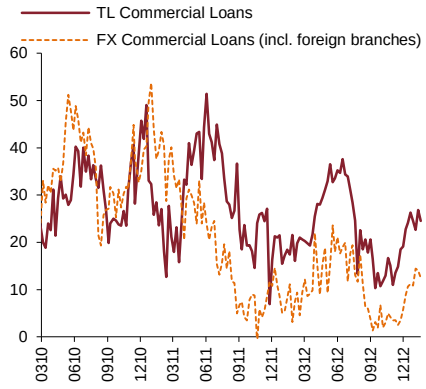
The growth of commercial loans, which plunged in the second half of 2012, has settled into a marked pace of recovery since November (Chart 5.2.9).

Chart 5.2.9.
Commercial Loan Growth
(Adjusted for Exchange Rate, 13-Week Average, Annualized, Percent)



Source: CBRT.

Chart 5.2.10.
Growth Rates of TL and FX Commercial Loans
(Adjusted for Exchange Rate, 13-Week Average, Annualized, Percent)

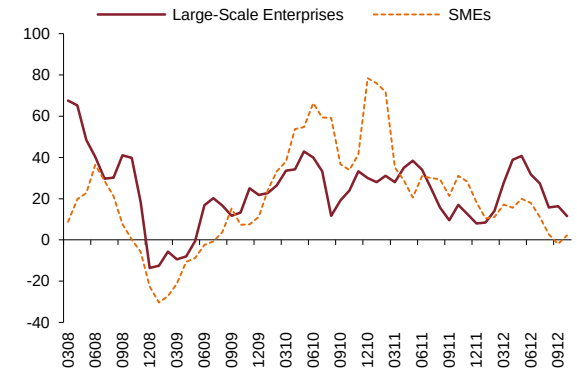


Source: CBRT.

Responses of banks to the Loan Tendency Survey point to a rise in loan demand of firms (particularly the SMEs). Analysis of loan demand by maturities suggests that short-term loan demand remained unchanged; while long-term loan demand edged up. Restructuring of the firms' liabilities besides increase in inventories and the need for working capital have been the leading factors to determine the loan demand of enterprises in the last quarter of the year. Moreover, the fall in investment-oriented loan demand halted in the last quarter. In fact, FX commercial loans, which are mostly used in the financing of investment expenditures, have gained momentum in tandem with the rising course of TL commercial loans since November, thus pointing to an increase in investment-oriented loan demand (Chart 5.2.10).

The break-down of business loans by scale reveals that loans extended to the SMEs plunged in September and October 2012 (Chart 5.2.11). Nonetheless, this trend is estimated to have reversed as of November.

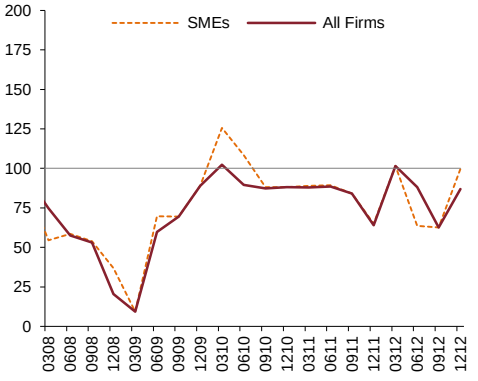
Chart 5.2.11.
Commercial Loan Growth Rates by Scale*
(Nominal, Adjusted for Exchange Rate, 3-Month Average, Annualized, Percent)



Source: BRSA.

This stemmed from tighter lending conditions due to the deteriorating expectations of banks regarding economic activity coupled with the constraints on capital adequacy as of the second quarter. As for the last quarter of the year, an improvement was seen in the lending standards towards SMEs (Chart 5.2.12).

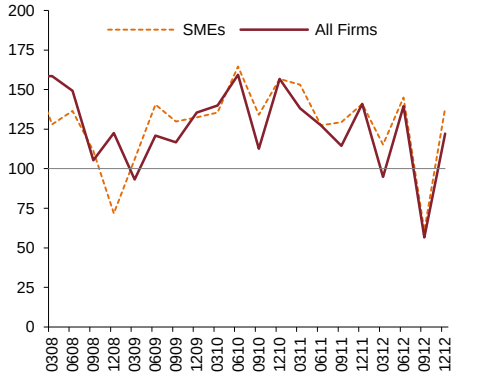
Chart 5.2.12.
Commercial Loan Standards
(Net Change)



* Banks are requested to state the direction of their lending standards. have changed. Net percentage change of indexed responses show the direction of the change in credit supply. The index is calculated as (Eased Somewhat+ Eased Considerably)-(Tightened Somewhat+ Tightened Considerably)+100. The index above 100 denotes easing in lending standards.

Source: CBRT.Source: CBRT.

Chart 5.2.13.
Commercial Loan Demand
(Net Change)



* Banks are requested to state the change in the demand for credit. Net percentage change of indexed responses indicates the direction of the change in credit demand. The index is calculated as the sum of (Increased Somewhat+Increased Considerably)–(Decreased Somewhat + Decreased Considerably) +100. Index values greater than 100 signify increase in credit demand.

Source: CBRT.

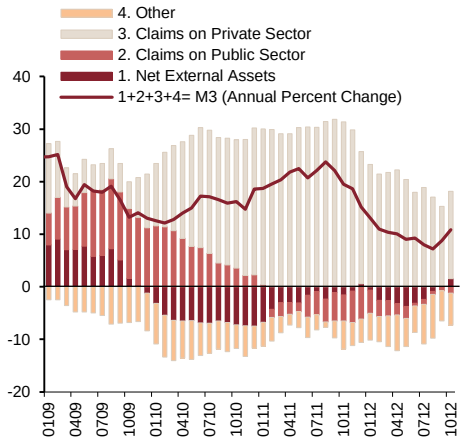
The resurgence in the loan demand of enterprises and households in the last quarter of the year is expected to continue into the first quarter of 2013. Nevertheless, lending conditions, which were tightened by banks in the first three quarters of 2012, were kept almost unchanged in the last quarter of the year, despite rising demand. However, the probability of a brisker loan demand, increased competition among banks as well as accommodative liquidity

conditions may cause banks to ease loan supply. In such a case, the CBRT shall take measures to contain loan growth by an appropriate policy mix.

Monetary Indicators

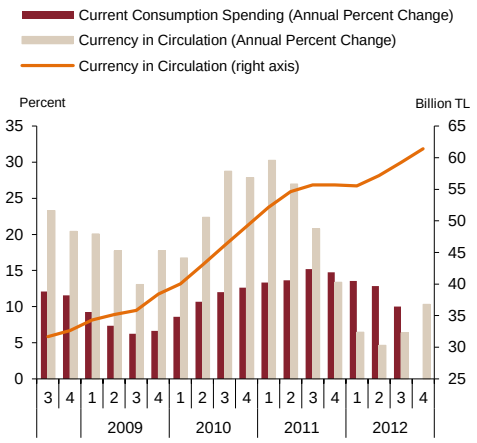
Parallel to the rise in credits extended to the private sector, the annual growth of M3, the broad measure of money supply, trended upwards in the last quarter of the year. Nevertheless, Claims on the Public Sector sustained their negative contribution to M3 growth. Meanwhile, Net External Assets gave out positive numbers after a protracted period, which was attributed to the increase in the external assets of the CBRT. Lastly, the item Other, maintains its power to generate non-deposit funding resources for the banking sector in line with the bank profits (Chart 5.2.14). Even though the seasonally adjusted currency issued stood below the level implied by the strong trend it displayed following 2009, its annual rate of increase continued to rise in the fourth quarter (Chart 5.2.15). The currency in circulation item, which is mostly used as a means of payment in cash transactions, exhibits a similar outlook to the developments in current consumption expenditures. The rise in the currency in circulation in the last quarter of the year is consistent with the expectation of a mild increase in the economic activity.

Chart 5.2.14.
Balance Sheet Decomposition of M3
(Contributions to Annual M3 Growth)



Source: CBRT.

Chart 5.2.15.
Currency in Circulation and Current Consumption Spending*
(Seasonally Adjusted)



* Consumption spending includes private and public consumption excluding furniture, household appliances, transport and communication services at current prices.
Source: TurkStat, CBRT.

Box 5.1 Reserve Options Mechanism and the Exchange Rate Volatility

2008-2009 global crisis proved that low and stable inflation does not guarantee macroeconomic stability by itself (Borio, 2011). Accordingly, finding a solution on incorporating financial stability into the implementation of monetary policy without prejudice to the price stability objective has been discussed by both academicians and policy makers since then. In this regard, as of the last quarter of 2010, the CBRT has started to implement a flexible monetary policy regime that observes both price stability as well as financial stability utilizing the new policy mix (Başçı and Kara, 2011).

In this flexible monetary policy implementation by the CBRT, instruments such as the policy rate, the interest rate corridor, liquidity management and required reserve ratios are jointly utilized (CBRT, 2012). Furthermore, since September 2011, the CBRT has been implementing reserve options mechanism, which enables Turkish banks to hold FX or gold reserves in increasing tranches in place of their Turkish Lira reserve requirements.

ROM, a unique monetary policy tool tailored by the CBRT, has essentially been developed to alleviate the adverse effects of the excess capital flow volatility on macroeconomic and financial stability (CBRT, 2012). By using this mechanism, the CBRT also seeks to enhance its FX reserves, support FX liquidity of banks and also ease effects of the capital flow volatility on exchange rates and financial markets (Alper, Kara and Yörükoğlu, 2012). ROM is expected to act as an automatic stabilizer since it allows banks to freely use their FX assets according to their liquidity needs.

This Box analyzes effects of this mechanism on exchange rate volatility by adopting GARCH models. The study uses the daily change in the currency basket, which is calculated as 0.5*(Euro/TL) + 0.5*(USD/TL). The data set covers the period from 10.15.2010 to 10.15. 2012.[1]

[1] As of 10.15.2012, remuneration on required reserves was terminated. In general, zero or very low interest rates on required reserves are considered to be a prerequisite for using required reserves as an effective policy tool. Hence, this date was chosen as the initial point for the analysis.

In order to analyze how the exchange rate volatility has changed after implementing Reserve Options Mechanism, the below GARCH (1,1) model has been used.[2] The change in the exchange rate is the dependent variable in the level equation in Model 1, and the dummy variable representing the period with ROM is present in the variance equation.

Model 1:

$$R_t = \beta_0 + \beta_1 R_{t-1} + \beta_2 R_{t-4} + \beta_3 R_{t-5} + \varepsilon_t \qquad (1.a)$$

$$\varepsilon_t \sim N(0, h_t) \qquad (1.b)$$

$$h_t = \alpha_0 + \alpha_1 \varepsilon_{t-1}^2 + \alpha_2 h_{t-1} + \alpha_3 D_{ROM} + u_t \qquad (1.c)$$

Variables used in Model 1 are explained below:

$R_t = \ln\left(p_t / p_{t-1}\right) * 100$, p_t: currency basket

$$D_{ROM} = \begin{cases} 0, before\ ROM\ (10.15.2010 - 09.29.2011) \\ 1, after\ ROM\ (09.30.2011 - 10.15.2012) \end{cases}$$

Model results suggest that exchange rate volatility declined during the implementation of ROM with a statistical significance of 1 percent (Table 1).[3]

Table 1. Model Results

Variance Equation		
	Coefficients	Probability
C	0.009	0.007
ε_{t-1}^2	0.021	0.226
h_{t-1}	0.960	0.000
D_{ROM}	-0.007	0.003

[2] GARCH(1,1) is selected over other GARCH specifications as it is the most frequently used model in describing volatility in the literature as well as in market analyses.

[3] As we are only interested in the exchange rate volatility, the results of the variance equation are given.

Below GARCH (1,1) model has been used in order to differentiate the effect of ROM from other factors on reducing exchange rate volatility. Similar to Model 1, Model 2 includes the change in the currency basket as the dependent variable in the level equation, while ROM_t, the variable that represents the amount of foreign currency held in place of TL reserve requirements within ROM is included in the variance equation. As control variables, Model 2 includes $RVIX_t$, the change in VIX which well captures the fluctuations in the global capital flows; DMS_t, which is the amount of FX sold by the CBRT via auctions or interventions and the dummy variable D_{EPS} which is equal to 1 on the days of additional monetary tightening by the CBRT.[4,5,6]

Variables used in Model 2 are explained below:

Model 2:

$$R_t = \beta_0+\beta_1 R_{t-1}+\beta_2 R_{t-4} + \beta_3 RVIX_t + \beta_4 DMS_t + \beta_5 D_{EPS} + \beta_6 ROM_t + \varepsilon_t \quad (2.a)$$

$$\varepsilon_t \sim N(0, h_t) \quad (2.b)$$

$$h_t = \alpha_0 + \alpha_1 \varepsilon_{t-1}^2 + \alpha_2 h_{t-1} + \alpha_3 RVIX_t + \alpha_4 DMS_t + \alpha_5 D_{EPS} + \alpha_6 ROM_t + u_t \quad (2.c)$$

$$RVIX_t = \ln\left({VIX_t}/{VIX_{t-1}}\right) * 100, \ VIX_t\text{: value of the VIX}$$

$$DMS_t = \frac{\text{The daily amount of FX sold by CBRT through auctions and interventions}}{Gross\ FX\ Reserves\ of\ the\ CBRT}$$

$$D_{EPS} = \begin{cases} 0, other\ days \\ 1, days\ of\ additional\ monetary\ tightening \end{cases}$$

$$ROM_t = \frac{\text{The amount of FX reserves held in place of TL reserve requirements}}{Gross\ FX\ Reserves\ of\ the\ CBRT}$$

Model 2 results are displayed in Table 2. Accordingly, Reserve Options Mechanism is found to be effective on reducing the exchange rate volatility with a statistical significance of 5 percent. Furthermore, additional monetary tightening is also statistically significant at 5 percent in reducing exchange rate volatility. This result is compatible with the findings in Akçelik et al. (2012).

[4] VIX is included as a control variable in similar studies analyzing exchange rate volatility (Cairns et al. 2007).
[5] The dummy variable for the days of additional monetary tightening is included in the model since Akçelik et al. (2012) show that additional monetary tightening has a significant role in reducing volatility of the Turkish lira exchange rate. Moreover, the daily amount of FX sold by CBRT is included in the model as it may also affect the exchange rate volatility.
[6] ROM_t and FXS_t variables are divided by the CBRT's gross FX reserves for normalization.

Table 2. Model Results

Variance Equation		
	Coefficients	Probability
C	0.016	0.036
ε_{t-1}^2	0.001	0.967
h_{t-1}	0.956	0.000
$RVIX_t$	0.002	0.070
DMS_t	0.792	0.555
D_{EPS}	-0.012	0.043
ROM_t	-0.048	0.032

In sum, ROM is found to be statistically significant in reducing the exchange rate volatility in the period of analysis. Hence, ROM is considered to be an effective monetary policy instrument in lessening FX volatility which arises due to fluctuations in capital flows.

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Box 5.2 The Monetary Policy of the CBRT and the USD/TL Exchange Rate Expectations: A Cross-Country Comparison

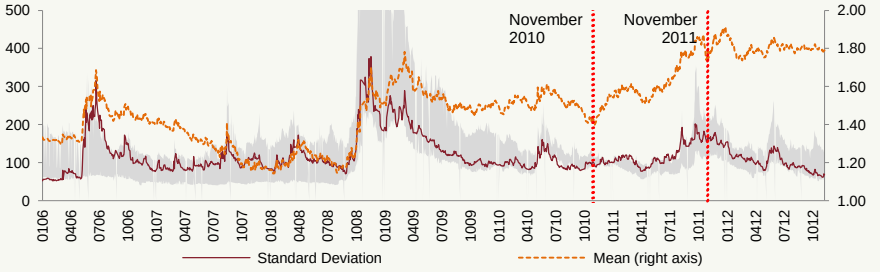
In the aftermath of the global crisis, advanced economies implemented monetary easing policies, thereby causing accelerated capital flows. In order to avoid financial risks that may be led by the surge in capital flows, the CBRT adopted a new monetary policy mix in November 2010 and started to utilize various complementary policy tools without prejudice to its price stability objective.[7] Meanwhile, the CBRT has assumed a new approach since November 2011, which signals that excessive exchange rate volatility would not be tolerated under the scope of its price and financial stability policies. During this period, reserve options mechanism was introduced gradually against excessive exchange rate volatility and additional monetary tightening was delivered by effectively using the upper limit of the interest rate corridor.[8] Accordingly, volatility of the USD/TL exchange rate as well as its skewness and kurtosis, which reflects asymmetric exchange rate movements and excessive movements in both directions, respectively, are expected to decline via this policy.

Given the findings by Değerli and Fendoğlu (2013), this Box conjectures on the effect of the CBRT policies by analyzing the course of indicators on the distribution of exchange rate expectations. Based on Malz (1997) and Aydın, Değerli and Özlü (2010), the above-mentioned study analyzes the distribution of exchange rate expectations in Turkey and peer emerging economies. Volatility, skewness and kurtosis statistics are measured for each country using exchange rate distributions derived from option contracts. Consequently, the state of the high moments in the USD/TL rate relative to peer countries is analyzed as well as the effects of the recent CBRT policies on these moments.[9]

A Cross-Country Analysis between Turkey and Other Emerging Economies

In this section, volatility, skewness and kurtosis of USD/TL are compared to peer country currencies in Charts 1-3.

Chart 1. Volatility of Expected USD/TL Rate*

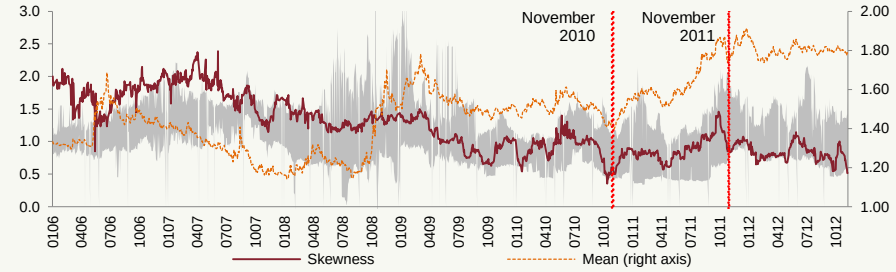


* The lower and upper bound of the gray region denote minimum and maximum values for the exchange rate volatility in 10 emerging market economies with a recent history of current account deficit.

[7] For further details on these tools, see Başçı and Kara (2011) and Kara (2012).
[8] For details, see Alper, Kara and Yörükoğlu (2012), Akçelik et al. (2012), Küçüksaraç and Özel (2012).
[9] For details on the dataset and the methodology, see Değerli and Fendoğlu (2013).

Chart 1 shows that the volatility of USD/TL rate soared in November 2010 relative to other currencies, whereas the volatility started to decline in the aftermath of November 2011 when the upper limit of the interest rate corridor was actively used. Meanwhile, volatility has declined considerably starting from mid-2012.[10]

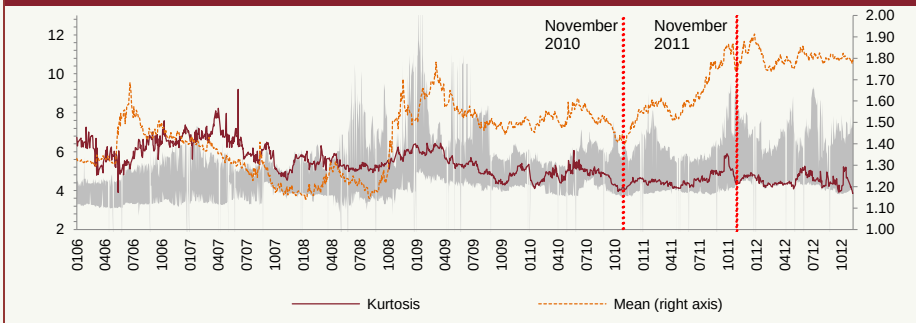
Chart 2. Skewness of Expected USD/TL Rate*



* The lower and upper bound of the gray region denote minimum and maximum values for the exchange rate volatility in 10 emerging market economies with a recent history of current account deficit.

Particularly starting from November 2011, the skewness of the exchange rate is moderate or even low in Turkey compared to other emerging economies (Chart 2). This may be interpreted as the relatively lower expectation for a rapid depreciation in exchange rate (high skewness) in Turkey than other emerging economies, or for a lower likelihood of a sudden stop in capital flows.

Chart 3. Kurtosis of USD/TL Exchange Rate Expectations*



* The lower and upper bound of the gray region denote minimum and maximum values for the exchange rate volatility in 10 emerging market economies with a recent history of current account deficit.

Chart 3 displays that kurtosis of the expected exchange rate in Turkey is lower than other emerging market currencies particularly after November 2011. This indicates that expectations for an excessive appreciation or depreciation in TL are relatively lower compared to currencies of similar countries. In other words, tail risks are comparatively limited in Turkey. This finding may indicate that the CBRT's stance of intolerance for a potentially excessive volatility in exchange rate was found to be credible by market players.

[10] Volatility is measured as the standard deviation of the distribution for the risk-neutral expected exchange rate. In order to avoid scale differences, standard deviation is normalized and set to 100 on 3 January 2011. The means denote the average value of the distribution for the risk-neutral expected exchange rate for each day.

These findings i.e. lower volatility, skewness, or kurtosis of the expected USD/TL rate in the recent period may well be due to the comparatively mild global economic climate, which is specific to the second period in the analysis. Therefore, it is useful to present the moments and the ranking of USD/TL rate relative to other emerging market currencies.

Table 1. Intertemporal Analysis of Implied Moments of USD/TL Expectations and Comparison to Other Emerging Economies (Lowest Ranking=11)

(1) Period	(2) Mean	(3) Maximum	(4) Minimum	(5) Standard Deviation	(6) Ranking
	VOLATILITY				
January 2006 – October 2008 (Before the Global Crisis)	108.83	324.67	51.61	40.64	3.47
January 2006 – October 2010 (Before the New Policy Mix)	118.59	378.49	51.61	49.64	4.94
November 2010 – September 2011 (New Policy Mix: First Period)	**113.28**	**201.57**	**76.75**	**25.95**	**2.90**
December 2011 – November 2012 (New Policy Mix: Second Period)	**104.74**	**158.61**	**61.14**	**24.61**	**7.04**
	SKEWNESS				
January 2006 – October 2008 (Before the Global Crisis)	1.62	2.39	0.85	0.29	1.72
January 2006 – October 2010 (Before the New Policy Mix)	1.37	2.38	0.35	0.40	3.12
November 2010 – September 2011 (New Policy Mix: First Period)	**0.84**	**1.46**	**0.50**	**0.17**	**5.99**
December 2011 – November 2012 (New Policy Mix: Second Period)	**0.83**	**1.14**	**0.51**	**0.13**	**7.31**
	KURTOSIS				
January 2006 – October 2008 (Before the Global Crisis)	5.92	9.19	3.91	0.73	1.41
January 2006 – October 2010 (Before the New Policy Mix)	5.59	9.19	3.90	0.78	2.88
November 2010 – September 2011 (New Policy Mix: First Period)	**4.51**	**5.06**	**4.04**	**0.21**	**7.43**
December 2011 – November 2012 (New Policy Mix: Second Period)	**4.51**	**5.25**	**3.85**	**0.29**	**7.78**

The most striking result in Table 1 is the remarkable change in the volatility of USD/TL after November 2011, compared to similar country currencies (e.g. ranking declines to 7.04 from 2.90; column 6). This finding may hint that the USD/TL volatility to be low during active policy implementation may be owed to policy implementation rather than to external factors. As for the skewness of the exchange rate, the expected depreciation of USD/TL relative to other currencies is comparatively low (ranking declines from 5.99 to 7.31; column 6). Meanwhile, the ranking of the kurtosis of USD/TL declines only marginally between two periods (ranking declines from 7.43 to 7.78; column 6). Before the global crisis and prior to the adoption of the new policy mix, the skewness and the kurtosis of the exchange rate decline remarkably. During these periods, USD/TL has the highest skewness and kurtosis among emerging economies, whereas after the adoption of the new policy mix, skewness and kurtosis decline significantly. The decline in kurtosis is particularly notable, thereby implying that the new policy mix is able to contain the excessive appreciation or depreciation of the TL.

It should be noted that the use of interest rate corridor for reducing exchange rate volatility led to higher volatility in short-term interest rates. Indeed, the mean volatility of interest rate is higher especially in the second period where additional policy instruments were utilized. Yet, it has ranked only slightly higher compared to the interest rate volatility in similar emerging market economies (Chart 4 and Table 2; column 6).[11]

Chart 4. Short-term Interest Rate Volatility (Active Exchange Rate Policy Period)

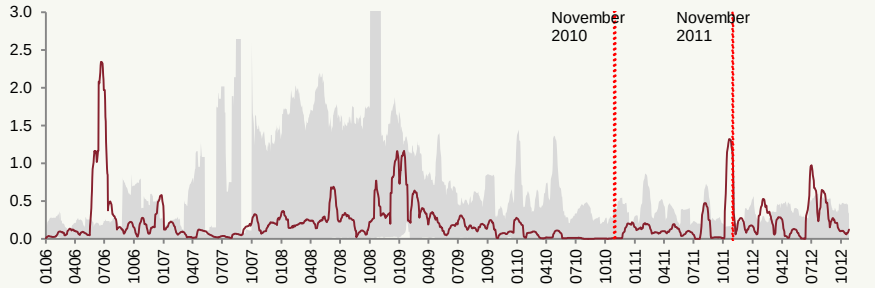


Table 2. Short-term Interest Rate Volatility and Comparison to Other Emerging Economies (Lowest Ranking=11)

INTEREST RATE VOLATILITY						
(1) Period		(2) Mean	(3) Maximum	(4) Minimum	(5) Standard Deviation	(6) Ranking
January 2007 – October 2010 (Before the New Policy Mix)		0.19	1.16	0.001	0.21	4.34
November 2010 – November 2012 (New Policy Mix)	Whole Period	**0.22**	**1.32**	**0.00**	**0.25**	**3.71**
	First Period	**0.11**	**0.47**	**0.00**	**0.10**	**4.49**
	Second Period	**0.26**	**0.97**	**0.001**	**0.22**	**3.20**

In sum, the volatility, skewness and kurtosis of the USD/TL rate have been hovering below the moments of other country currencies. The findings suggest that, through the potential effect of the CBRT's recent policy instruments, the CBRT's signals of intolerance for excessive volatility in exchange rates were found credible. In particular, after the implementation of the new policy mix, i.e. the kurtosis, the likelihood of excessive movements in the exchange rate has declined remarkably. This in turn implies that a sudden stop is considered to be less likely by economic agents in the new policy mix period.

[11] 1-month Interbank lending rate is used and the volatility is measured as the 20-day moving average of the standard deviation.

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