

IV. Financial Sector

In the last Report period, there has been a rise in volatility in exchange rates and credit costs due to domestic and external shocks. In this period, the rebalancing process in economic activity became more apparent and credit growth rates continued to slow down. Banks' loan supply appetite decreased and credit standards were tightened due to elevated liquidity-side uncertainties. With the effect of banks' prudent stance coupled with the TFRS 9 implementation, some upward revisions were observed in loans under close monitoring. There has been some additions to the NPL due to exchange rate developments and slowing economic activity and hence the non-performing loan balance has increased. In the upcoming period, the outlook for the asset quality of the banking sector will be driven by financing costs, and the size and duration of the slowdown in economic activity. The asset quality will be supported by continued macroprudential measures and restructuring, once the legal and operational framework of restructuring, on which sector representatives and regulatory authorities have been working on for a while, are completed and become fully operational.

The tightening in global supply conditions and volatility in exchange rates due to international and domestic developments put a spotlight on the indicators of the sector's liquidity structure. With the support of the measures taken by the CBRT and other policy-making authorities towards ensuring efficient functioning of markets and supporting banks' liquidity positions, banks remain resilient against liquidity risk. Amid increased cost of foreign financing, above 100 percent of syndicated loans were rolled over in this Report period and this suggests that the sector's debt rollover capacity is high. External debt rollover ratio has decreased due to the slowdown in firms' investments, the decline in FX borrowing appetite and the decrease in banks' demand for external financing. The sectors' liquidity buffers are at a sufficient level and banks' liquid asset portfolio including FX-denominated RRs is sufficient to cover all their FX-denominated external debts due in one year. Meanwhile, the positive maturity outlook for banks' domestic and external security issues limits any likely risks.

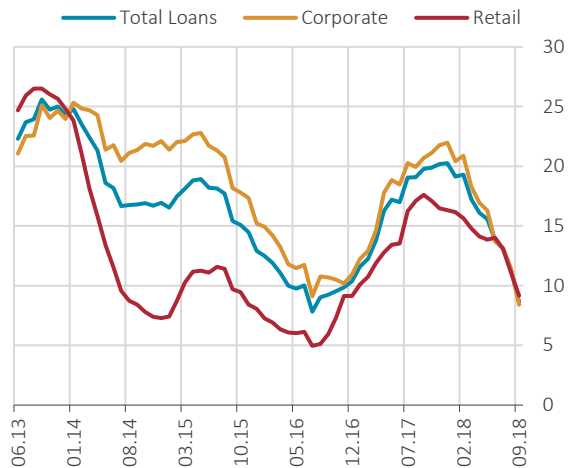
Compared year-on-year, the interest rate sensitivity risk that the sector's on and off-balance sheet TL-denominated assets and liabilities are exposed to through repricing channel has decreased while the same on the FX side has increased. The sector's FX net general position/ capital ratio is approximately 1%.

Profitability ratio of the sector has been stable. Net interest income has increased owing to the relative contribution of increased net interest margin. FX losses and capital market transaction profits stemming from derivative instruments balanced each other to a great extent.

IV.1 Credit Developments and Credit Risk

As the rebalancing process in economic activity became more manifest, credit growth slowed down. By September, FX-adjusted total credit growth rate was 8.6% (Chart IV.1.1).

Chart IV.1.1: Annual Loan Growth (FX-adjusted, %)

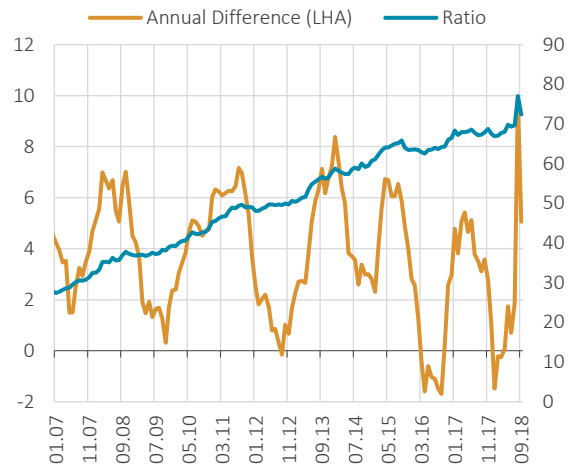


Source: CBRT

Latest Data: 09.18

Note: FX-indexed loans are included in FX loans and adjusted for exchange rates by using a weighted basket of 0.3 for the euro and 0.7 for the US dollar.

Chart IV.1.2: Credit/ GDP Ratio (%)



Source: CBRT, TURKSTAT

Latest Data: 09.18

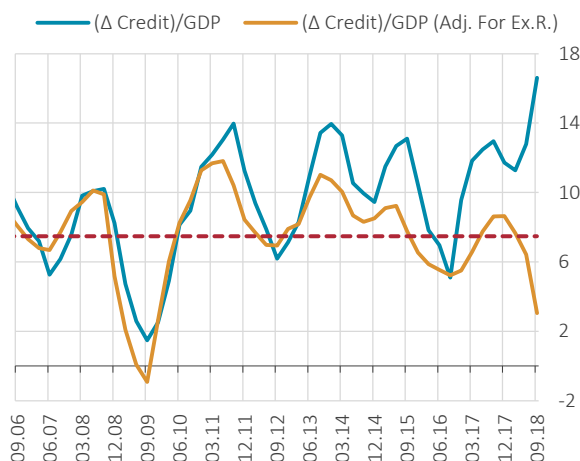
Note: The ratio takes the monthly stock of credit over the sum of GDP over the past 12 months.

The deceleration in demand for bank loans was mainly driven by both supply and demand-driven factors. While the demand-side factors affecting the deceleration have been the slowdown in economic activity, stagnation in investment demand and the rise in loan rates, the supply-side factors have been the rise in domestic and foreign funding costs and tightened credit conditions due to economic activity and credit risk. Another factor pushing down credit growth is the base effect generated by the increased credit volume owing to the Treasury-guaranteed KGF loans in 2017.

In this Report period, retail loans decelerated as well. The deceleration stemmed from the impact of sluggish domestic demand on household income and consumer confidence as well as financing conditions. The policy changes introduced in macroprudential measures regarding personal credit cards and retail loans influenced retail credit growth rates in the final quarter of 2018.

The unhealthy prices observed in financial markets in August 2018 led to uncertainties in credit supply and pricing. The loan rates and credit spreads increased significantly due to banks' liquidity preferences and tightness in financial conditions. While increased exchange rate volatility compared to previous quarters decreased FX loans in newly extended loans, the rising exchange rates increased the share of FX loans in GDP and the annual change in Loan/GDP ratio (Chart IV.1.2). Similarly, the current and FX-adjusted presentation of annual net credit utilization clearly reveals the significant difference between the two series. In the last Report period, the FX-adjusted credit growth lagged behind the GDP growth due to tighter credit standards and decreased investment appetite (Chart IV.1.3). Thanks to the measures and the coordinated policies, uncertainties in the markets abated and the contracting effect of exchange rates on FX loan demand and supply decreased (Box I.1.1). Credit growth is expected to converge to its long-term trend as the impact of these measures on economic activity become more apparent.

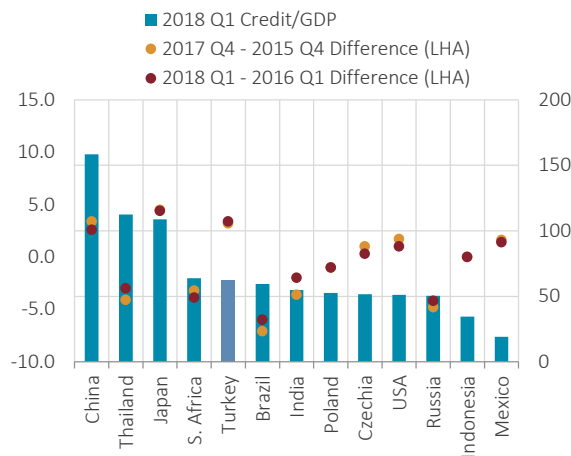
Chart IV.1.3: Annual Change in Credit Stock to GDP (%)



Source: BRSA, CBRT, TURKSTAT Latest Data: 09.18

Note: Shows the ratio of annual credit growth to GDP. Quarterly stock change in FX loans are calculated by taking the 3-month averages and the average of the related month is adjusted for exchange rates by converting to TL by using CBRT buying rates. The total FX-adjusted annual credit stock difference has been calculated by summing up 4-quarter differences in TL and FX-adjusted values. FX-indexed loans have been included in FX loans. The dashed line shows the long-term average since 2004 for the FX-adjusted value.

Chart IV.1.4: International Comparison of Credit/ GDP Ratio (% , Percentage points)



Source: BIS

Latest Data: 03.18

Note: Data covers all private non-financial sector credits, with the latest data available from 2018Q1. Two-year differences have been calculated between the first and fourth quarters of the years shown.

In the first quarter of 2018, the ratio of loans extended by banks to the non-financial sector as a share of GDP in Turkey was close to those of peer developing countries (Chart IV.1.4), while the two-year change in this ratio was relatively higher in Turkey. This was mainly due to the measures and incentives introduced to support the credit channel led by the Treasury-backed KGF loans, despite some slowdown in these loans in 2018. As utilization of loans in this scope has been decelerating, the change is expected to be close to the average.

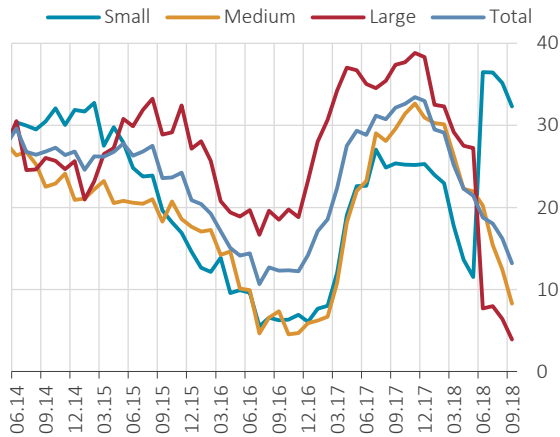
IV.1.1 Corporate Loans

The expected re-balancing in economic activity in the last Report period led to a slowdown in corporate loans. The course of corporate loans continues to be driven by the slowdown in TL loans and the moderate decline in FX loans due to exchange rate developments. The TL loan growth came at 13 percent as TL credit growth across all firm sizes decreased. In June, the firm sizes were re-defined by a Council of Ministers decree; therefore, there have been shifts between firm sizes. Even if there have been some sharp increases in credit growth rates initially, the overall downtrend was retained in the subsequent periods (Chart IV.1.5).¹

The positive impact of the measures and incentives on corporate loans that had been in place for over a year continued in 2018 as well, although with a decreasing trend. The re-payments of the KGF loans extended last year and the center of attraction limit of TRY 5 billion that was not used last year, were re-handled to be extended as an additional corporate loan facility at the amount of TRY 35 billion. In September, the FX-adjusted total corporate loan growth rate was 9.1 percent (Chart IV.1.1). Firms demanded mostly business loans in Turkish liras and loan maturities became shorter, they opted for credits with fixed installment amount or spot loans amid rising credit costs and decreased variable-rate rotative loans.

¹ The annual net sales revenue or total fiscal balance sheet for small-scale enterprises have been increased to TRY 25 million from TRY 8 million, and for medium-scale enterprises to TRY 125 million from TRY 40 million. Accordingly, while the small and medium-scale firm bases were expanded, that of large firms contracted.

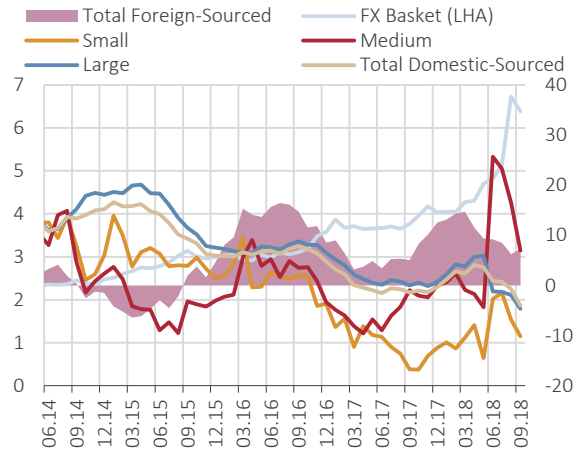
Chart IV.1.5: Annual Growth of TL Corporate Loans by Firm Size (%)



Source: CBRT Latest Data: 09.18

Note: FX-indexed loans have been excluded. Micro and Small SMEs are grouped together under the Small heading. The definitions of micro, small and medium-size enterprises were changed and announced on Official Gazette of 24 June 2018, and these changes influenced the breakdown in July. The annual net sales revenue or total fiscal balance sheet for small scale enterprises have been increased to TRY 25 million from TRY 8 million, and for medium-scale enterprises to TRY 125 million from TRY 40 million.

Chart IV.1.6: Annual Growth of FX Corporate Loans by Firm Size and Exchange Rates (FX-adjusted %, TL)

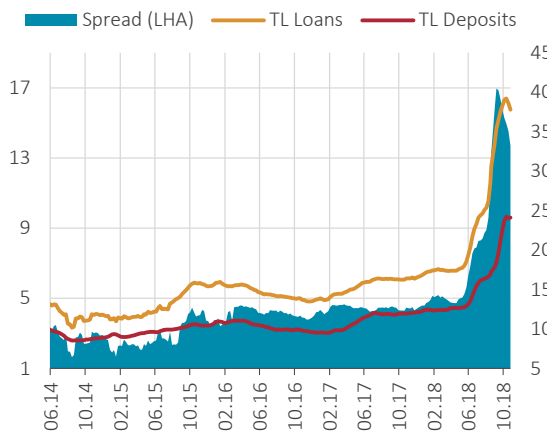


Source: CBRT Latest Data: 09.18

Note: Total external FX credit growth includes the foreign FX loans and other FX liabilities of all non-financials in USD, excluding foreign branches and affiliates of domestic banks. FX-indexed TL loans have been included in calculations. Micro and Small SMEs are grouped together under the Small heading. The weighted FX basket uses weights of 0.3 for the euro and 0.7 for the US dollar. The definitions of micro, small and medium-size enterprises were changed and announced on Official Gazette of 24 June 2018, and these changes influenced the breakdown in July.

As of September 2018, firms' FX-adjusted total FX loans obtained from domestic banks have shrunk, while FX loans obtained from abroad continued to grow at a slower pace (Chart IV.1.6). This was mainly driven by the decreased investment demand and the ban introduced on FX-indexed borrowing and the article that establishes a connection between FX revenues of firms with a loan balance less than 15 million with FX borrowing of these firms as per an amendment to the Law No:32 Regarding the Protection of the Value of Turkish Currency. In the following period, developments in FX loans were determined by the level and volatility in exchange rates. In this period, large firms' loan preferences shifted from FX loans to TL loans although the regulation on FX borrowing did not cover large firms.

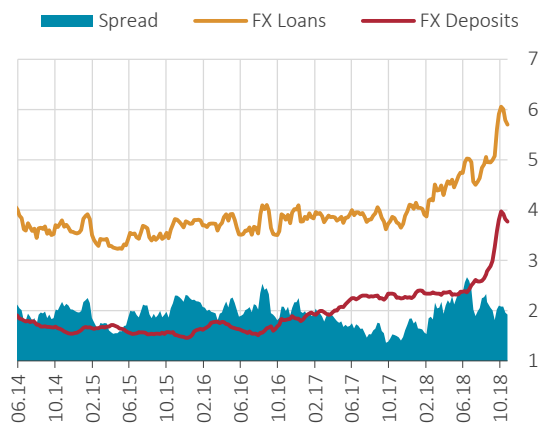
Chart IV.1.7: TL Corporate Loan Rates and Spreads (4-week MA, %)



Source: CBRT Latest Data: 26.10.18

Note: Overdraft accounts and corporate credit cards, as well as loans with zero interest starting from July 2015 are excluded.

Chart IV.1.8: FX Corporate Loan Rates and Spreads (4-week MA, %)

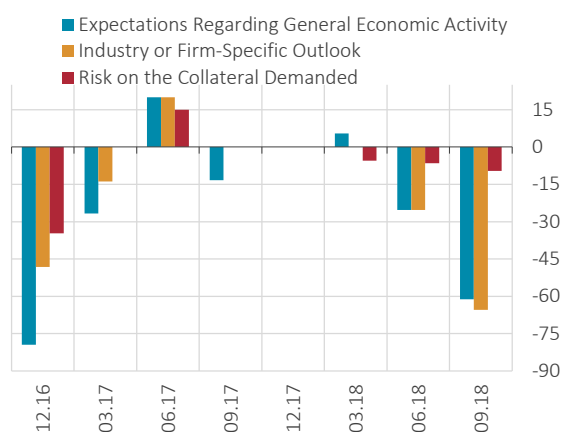


Source: CBRT Latest Data: 26.10.18

In the previous Report period, TL loan and deposit rates remained flat, whereas, as of May, they assumed an uptrend due to banks' diminished supply appetite and liquidity preferences. On the back of the movements in loan rates, the loan-deposit rate spread has widened and credit standards for TL loans have become tighter. In the first half of the year, the FX deposit rates remained mostly flat while FX loan rates moved upwards due to the rise in foreign funding costs. The rise in country risk premia, which started to climb as of mid-June due to increased uncertainties about EMEs, urged banks to behave prudently about FX liquidity. Consequently, FX deposit rates started to climb. Nevertheless, the FX loan-deposit rate spread followed a trend consistent with historical trends.

Interest rates on loans and deposits for both TL and FX reached the highest level in August -when fluctuations in financial markets were heightened- and then decreased slightly (Chart IV.1.7 and IV.1.8). According to the results of the Bank Loans Tendency Survey in September, the reasons for banks' increasing TRY and FX loan rates were driven by their expectations over the economic outlook, their sensitivity to credit risk and profit motive. The widening loan-deposit rate spread in commercial loans indicates that financial conditions have tightened in this Report period.

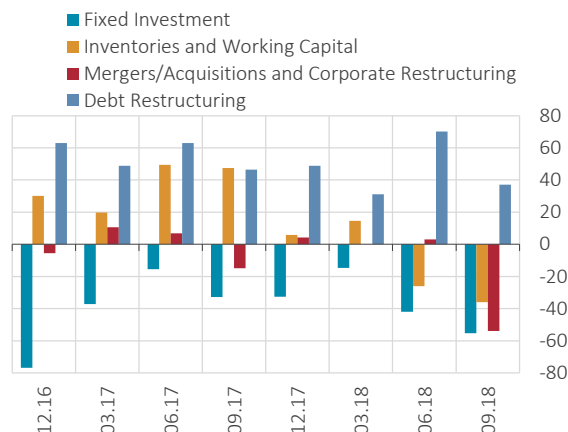
Chart IV.1.9: Factors Contributing to Corporate Loan Supply (Net % Change)



Source: CBRT Latest Data: 09.18

Note: The quarterly survey asks respondents to compare the current quarter to the previous. Zero is the neutral state indicating no change.

Chart IV.1.10: Factors Contributing to Corporate Loan Demand (Net % Change)



Source: CBRT Latest Data: 09.18

Note: The quarterly survey asks respondents to compare the current quarter to the previous. Zero is the neutral state indicating no change.

According to the Bank Loans Tendency Survey, firms' demand for loans with investment purposes has decreased. On the supply side, banks' credit standards have become tighter gradually throughout 2018. In the upcoming period, the credit trends will be determined by expectations about economic activity and developments in financial markets.

According to the results of the Bank Loans Tendency Survey, the standards that the banks applied to corporate loans, which remained unchanged in 2017, tightened significantly in the second and third quarters of 2018. While credit standards became tighter for small and medium-sized firms, tightening for large-sized firms remained limited. In this period, TRY-denominated and short-term commercial loans, which have an important role in credit growth, saw tighter standards. The tightening mainly stemmed from expectations about the general economic activity as well as outlook for the sector and firms. The impact of risk factors specific to collateral was relatively low on credit standards (Chart IV.1.9). All these developments can be interpreted that recently, there has been a rise in banks' prudence level.

In the previous Report period, demand for TRY and FX loans had decreased on the back of the re-balancing process in economic activity. The credit costs and general economic activity stand out as the key factors affecting demand for commercial loan growth. According to the data obtained from the

Survey, in the last Report period, credit demand mainly stemmed from debt restructuring purposes (Chart IV.1.10). Historically, weaker cash flows at times of slower economic activity boost credit demand. To sum up, the Bank Loans Tendency Survey suggests that corporate loans were not only affected by supply-side factors but also by credit demand dynamics.

IV.1.2 Retail Loans

Throughout 2018, retail loans, which displayed a milder outlook compared to corporate loans, grew by 7.8 percent in September annually (Chart IV.1.11). Amid a general downtrend in credit growth rates, different retail loan types decoupled over the year. The rise in credit card and general purpose loan growth rates was relatively high, and that in housing and vehicle loans was lower. Consumer loans recorded the highest rise among consumer loan types. In September, general purpose loans increased by 10.7 annually. Housing loans, which started the year in a subdued state, slightly increased in March on the back of the VAT decrease and picked up in June owing to low-rate housing loan campaign. In September, the annual growth rate of housing loans was 5 percent. In the upcoming term, the main factors that will affect housing loans are expected to be loan rates, level of house prices and demand-driven factors that are influenced by monthly housing loan installment amounts.

Chart IV.1.11: Annual Growth of Retail Loans (%)

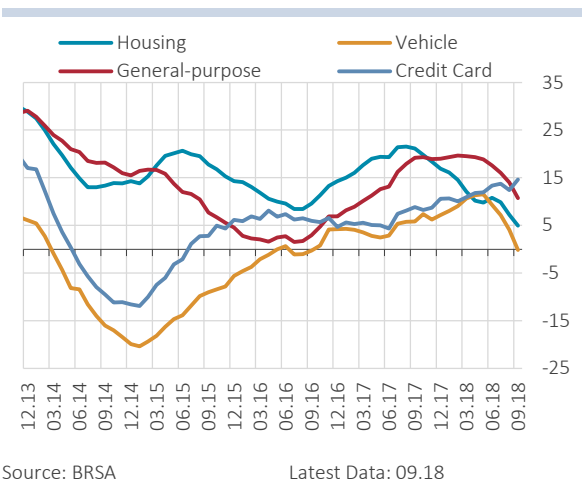
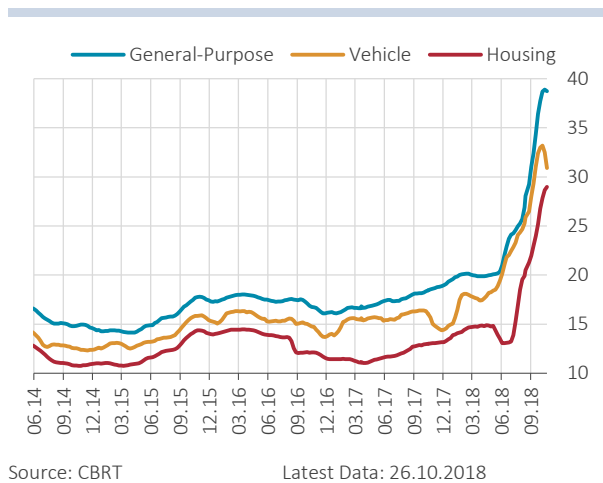


Chart IV.1.12: Retail Loan Rates (4-week MA, %)

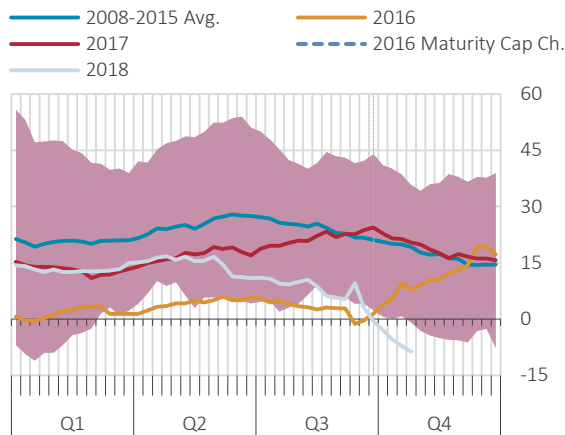


As of the second quarter of 2018, the growth rate of housing loans remained below the long-term average as well as the previous year's growth rates which can be attributed to the rise in housing loan rates curbing housing loan demand (Chart IV.1.12). Consequently, recovery in housing market is expected to be sensitive to tax incentives introduced for housing loans, price developments and loan rates.

Personal credit card balances, which had been increasing rapidly until August 2018, became flatter in the following period mainly due to the base effect, decreasing consumption demand because of employment reasons and installment cap introduced for certain consumption spending types. Moreover, the installment ban on jewelry, telecommunication and some perishable consumption spending is expected to have a decreasing impact on credit card balances.

Despite the decline in banking system's share in retail vehicle loan market, vehicle loans increased until May. The vehicle loan growth can be mainly attributed to exchange rate developments and the base effect. As of May, the relatively weak trend in vehicle loans extended by banks stemmed from the rapid rise in vehicle prices because of exchange rate developments.

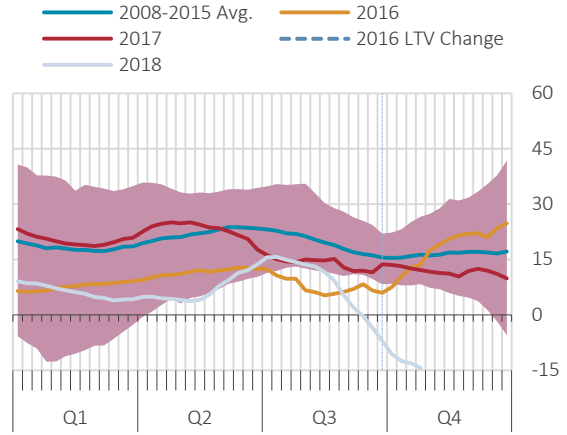
Chart IV.1.13: Weekly Growth Rates of General Purpose Loans (13-week MA, Annualized %)



Source: CBRT Latest Data: 26.10.18

Note: 2016 has been shown to include the week that the changes to maturities took effect. The pink shaded area marks the highest and lowest of the values used in the 2008-2015 averages.

Chart IV.1.14: Weekly Growth Rates of Housing Loans (13-week MA, Annualized %)



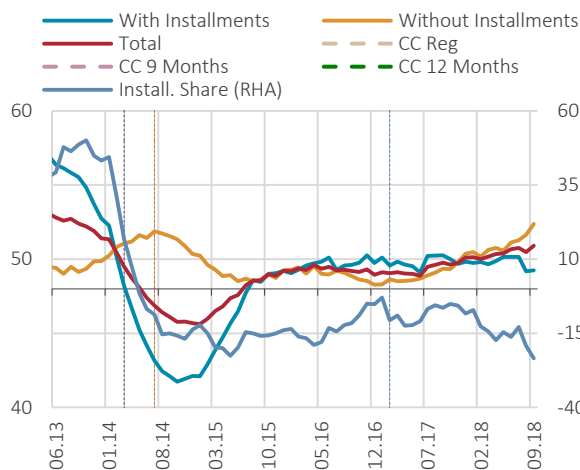
Source: CBRT Latest Data: 26.10.18

Note: 2016 has been shown to include the week that the changes to credit/value ratio limitation took effect. The pink shaded area marks the highest and lowest of the values used in the 2008-2015 averages.

As of the second quarter of 2018, the weekly growth rate of general purpose loans significantly decoupled from long-term averages (Chart IV.1.13). The general purpose loan growth, which had been hovering below the average of years between 2008 and 2015, showed some recovery in 2017 and converged to the averages on the back of the maturity cap and loan rate developments in 2016. However, the current shortening in maximum maturities and the rise in financing costs are likely to cause a slowdown in general purpose loans.

In this Report period, housing loans slightly picked up owing to low-rate housing loan campaigns and the weekly growth rates at the end of June were close to those recorded in 2017 (Chart IV.1.14). Nevertheless, housing loan growth dropped below the historical averages after a while.

Chart IV.1.15: Annual Growth of Personal Credit Card Balances (%)



Source: CBRT Latest Data: 09.2018

Note: The 2013 regulation linked minimum payments to card limits and new card limits to income. In February 2014, the number of monthly installments for payments with credit cards was limited to 9 months with some exceptions, and with another change in September 2016, the maximum number of monthly installments for payments with credit card payments was raised to 12 months, with some exceptions.

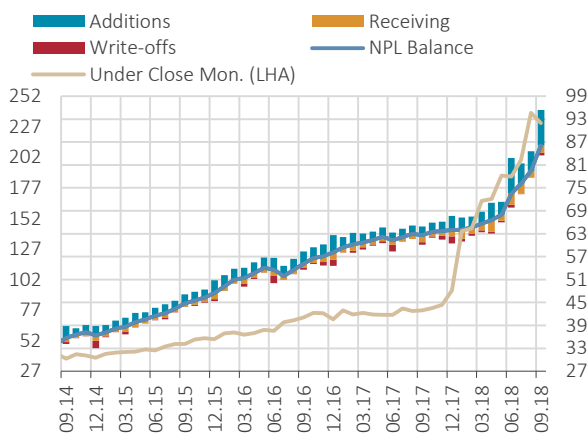
Credit card debt balances continued to increase and annual growth of credit card balances became 12 percent (Chart IV.1.15). After the limitation imposed on installments for certain consumption items, households' credit card balances excluding installments grew faster than their total credit card balances. This is attributed to the macro-prudential policies introduced in the last Report period and the slowing consumption demand due to stable employment rate.

IV.1.3 Non-Performing Loans

Compared to the last Report period, the recent additions to the NPL outpaced collections and the NPL balance increased by TRY 20 billion. The rise in closely monitored loans mainly stemmed from the increase in TRY equivalent of FX NPLs, transition to the new reporting system- the Turkish Financial Reporting Standards 9 (IFRS 9) standard-, and banks' prudent stance in response to decreased liquidity (Chart IV.1.16, Box IV.1.1). The NPL ratio for total loans has remained at around 3 percent since the last Report period. In the third quarter, the rise in exchange rates pulled up total loan balance and as a consequence, the NPL ratio, which displayed a limited rise in June and July, inched up to 3.2 percent in September (Chart IV.1.17).

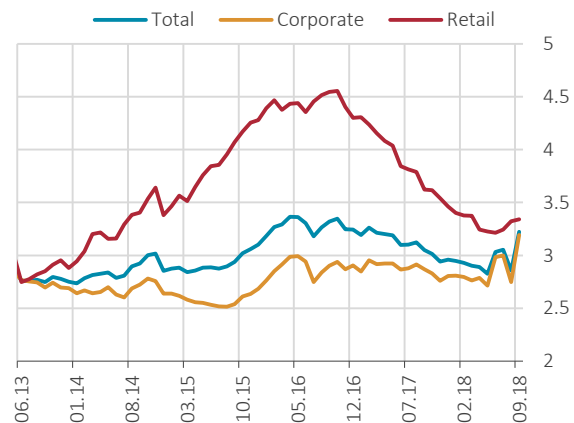
Another remarkable development regarding asset quality is the rise in closely monitored loans over the last quarter. This rise mainly stemmed from the increase in the TRY equivalent of FX closely monitored loans, banks' tightening of credit standards and increased cautiousness. The aim of the IFRS 9 that has been implemented since early 2018 is to make sure that any likely increase in credit risk is reflected on financial tables earlier. The new system allows banks to use subjective and internal credit risk models that are affected by macroeconomic outlook and international developments. This has led to discrepancies in classification between banks. The recent rise in closely monitored loan balance is mainly attributed to this change.

Chart IV.1.16: NPL and NPL Components (TRY Billion)



Source: CBRT Latest Data: 09.18

Chart IV.1.17: NPL Ratios (%)

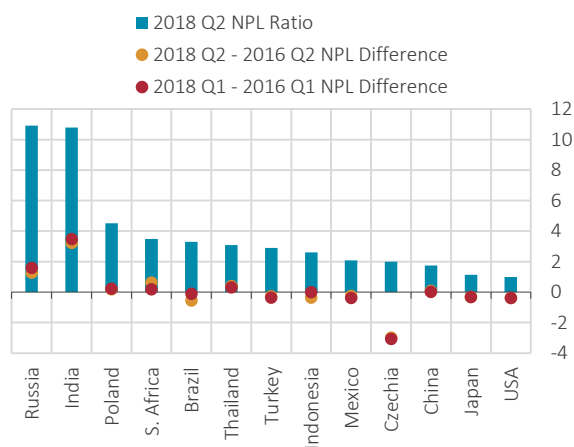


Source: BRSA Latest Data: 09.18

Despite the recent limited uptrend observed in the NPL ratios, both the NPL ratio for the second quarter of 2018 and the two-year change in the NPL ratio has been close to the NPL ratios of peer countries (Chart IV.1.18). In the upcoming period, the credit quality of the banking sector is expected to be influenced by financing costs that will be affected by exchange rates and interest rates and the course of the economic activity.

The NPL ratios of FX corporate loans that are mostly used by large-scale corporate loans remained flat in the first half of the year and slightly increased in June and July. On the back of the exchange rate developments, the TRY balance of FX loans rose and corporate NPL ratios stood at 2.2 percent in September and decoupling in NPL ratios by firm scales remained unchanged. NPL ratios of SME loans have remained the same and stood at 5.2 percent in September (Chart IV.1.19).

Chart IV.1.18: International Comparison of NPL Ratios and Differences (%)

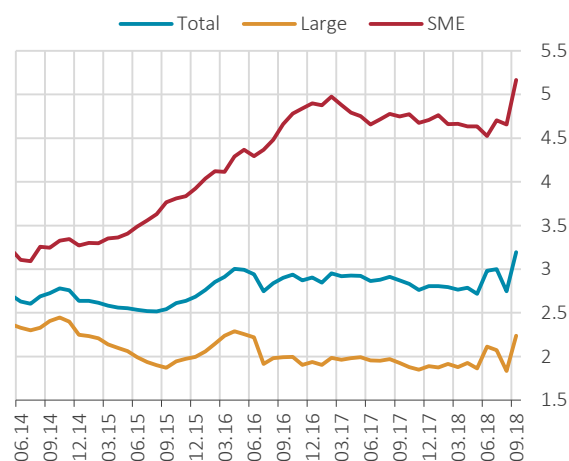


Source: IMF-IFS, BRSA

Latest Data: 06.18

Note: As data for China, Japan and Thailand have not been updated yet, bars show 2018Q1 values with the two year differences taken over 2017Q4.

Chart IV.1.19: Corporate NPL Ratios (%)



Source: CBRT

Latest Data: 09.18

Recently, some measures have been taken regarding restructuring of loans. The first one of these measures was the *Regulation on Restructuring of Debts to the Financial Sector* issued by the BRSA in August governing restructuring of receivables of banks and other financial institutions. Secondly, the Financial Restructuring Framework Agreement was jointly prepared by the BAT (Banks Association of Turkey) and the BRSA and announced in September. As per the Framework Agreement, debtors, who have a total cash and non-cash debt of more than TRY 100 million to creditors by the date of application, who are not under legal prosecution and who do not have a rule of bankruptcy are eligible to restructure their debts within two years.

Execution of a Restructuring Agreement with the debtor and the creditor institutions that hold two thirds of the receivables in the Consortium, shall be binding against all the remaining members of the Consortium and therefore, debts of the debtor shall accordingly be restructured by all the member creditor institutions. Moreover, other creditors can join the restructuring process besides the creditor financial institutions. The restructuring allows firms to repay their debts over a reasonable period based on their capacity of generating cash flows. These developments are expected to curb NPL increase once the legal and operational complementary factors are put into practice and fully implemented.

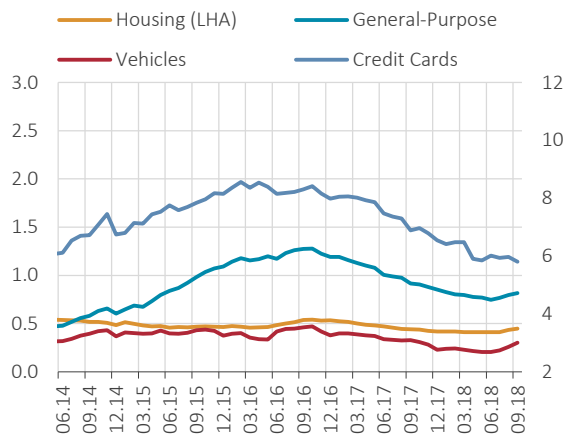
Meanwhile, the Board of Directors of the BAT has issued a recommendation regarding restructuring of credits of firms with a total cash debt below TRY 15 million and a total cash and non-cash debt of TRY 25 million. In the same recommendation, creditors were advised to extend the maturities of the spot loans that they have extended and that are due till April 2019 as well as commercial loans with installments.

The retail loan quality is also supported by broad-ranging macroprudential measures such as those establishing links between credit cards and income, introducing maturity contraction for consumer loans and bringing loan-to-value limitation on housing and vehicle loans. The sustained growth in credit card balances and general purpose loans in the previous Report period affected retail loan NPL ratios positively.

While NPL ratios of general purpose loans and credit cards decreased in the first and second quarters of 2018, NPL ratios of housing and vehicle loans remained flat. In the third quarter, NPL ratios in total retail loans and retail loan sub-items displayed a limited rise. While NPL ratio of personal credit cards was approximately 6 percent in September, NPL ratio of general purpose loans was 4.7 percent. NPL ratios of

housing loans, which are at historically low levels, remained at 0.4 percent. NPL ratio of vehicle loans came at 3 percent (Chart IV.1.20).

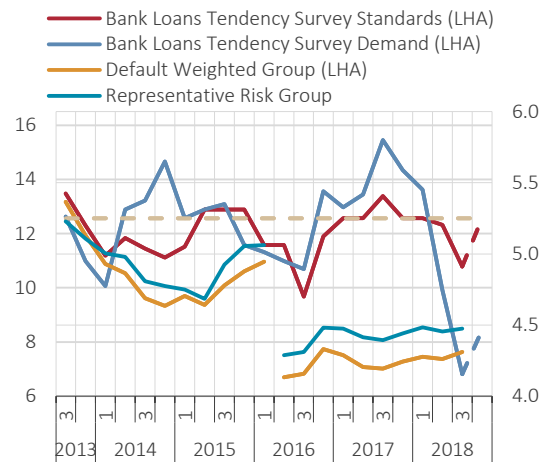
Chart IV.1.20: NPL Ratios of Retail Loans (%)



Source: BRSA

Latest Data: 09.18

Chart IV.1.21: New General Purpose Loans and the Survey (Average Risk Group)



Source: CBRT

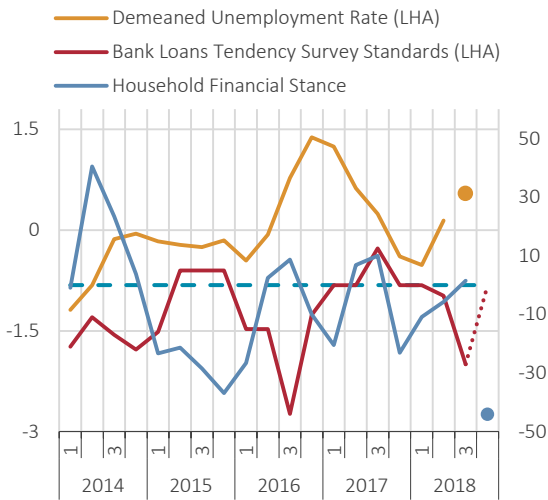
Latest Data: 09.18

Note: Standards and demand values from the Survey are only for general-purpose loans, expectations are shown with dashed lines. The survey results, which are reported as net percentage change, have been re-scaled and the zero point showing the neutral level is shown in dashed lines. The representative and default weighted risk groups show a plain average and default probability weighted average of RLS (Retail Loan Score) groups for general purpose loan customers. Following a methodological change in the second quarter of 2016, the series have shifted and should be evaluated independent of their past levels.

With the effect of the recent rebalancing in economic activity, the general downtrend in credit demand and supply was also observed in general purpose loans. The Bank Loans Tendency Survey results suggest that in the third quarter, banks tightened credit standards for general purpose loans, and the decrease in demand for these loans further accelerated. Meanwhile, the average riskiness and default-weighted riskiness of general purpose loan applicants calculated by using the Personal Credit Score (PCS) and likelihood of default slightly increased (Chart IV.1.21). The decrease in the Household Financial Stance Index suggests that the tightening will continue (Chart IV.1.22).

The vintage analysis, which displays the change in NPL ratios of general purpose loans by periods they were extended, allows comparing loans extended in different periods with respect to re-payment performances. Accordingly, it is observed that loans extended as of 2014 have a better re-payment performance compared to the previous year (Chart IV.1.23). This trend is also observed in loans extended in the last two Report periods and this shows that there has been no structural change in the banks' preferences regarding customer profiles. This is attributed to extended maturities on the back of the macroprudential measures introduced in 2016.

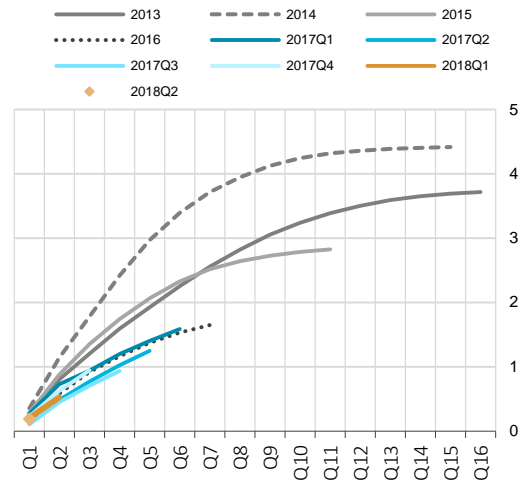
Chart IV.1.22: Credit Standards and the Economic Outlook (% , Net % Change)



Source: CBRT Latest Data: 10.18

Note: The standards shown are only for general-purpose loans, expectations are shown with dashed lines. Zero is the neutral stage indicating no change. Negative values suggest tighter standards. Seasonally adjusted monthly labor force statistics are used to calculate the unemployment rate over 3-month periods which are then demeaned. Household financial stance data is rescaled to fit the RHA. The July-August averages for the unemployment series representing 2018Q3 and the latest household survey data from October representing 2018Q2 are shown with a marker.

Chart IV.1.23: General Purpose Loan Vintage Curves (%)



Source: CBRT Latest Data: 09.18

Note: The vintage analysis reports NPL ratios cumulatively in the quarter following the issuance of a loan.

In the upcoming period, the impact of economic developments and fluctuations in exchange rates and interest rates on financial tables of corporate sector firms as well as the impact of these developments on banking sector's asset quality and financial structure will be closely monitored. In the framework of the New Economy Program, the BRSA has been authorized with coordinating the evaluations regarding detecting banks' current financial structures and asset quality.

Box IV.1.I

Decomposing the Change in Non-Performing Loan Ratio

One of the key indicators used in assessment of asset quality is the share of NPL in gross loans, which is calculated based on stock data and includes exchange rate changes. Methods such as vintage and cost of risk analyses made by using stock data while measuring the credit risk can fix the mathematical fallacy resulting from the calculation of the NPL ratio. However, this ratio is a widely-used asset quality indicator due to the simplicity of the calculation method and the fact that it allows for international comparisons. As the gross performing loan portfolio that constitutes the basis for NPL calculation consists of TL and FX loans, decomposing the change in the NPL ratio becomes more of an issue in assessing the asset quality. As a matter of fact, the NPL ratio, which declines despite an unchanged NPL balance due to the increased denominator effect during the periods of strong loan growth, can increase mechanically during the periods of contraction, induced again by the denominator effect. The Turkish banking sector's share of FX loans in total loans is above 40 percent, which makes it difficult to interpret the NPL ratio at times of significant exchange rate movements. In times of a drastic depreciation in the TL, the TL equivalent of FX loans grows and the NPL ratio trends down, whereas, in the opposite case, it increases owing to the appreciation of the TL.

In this scope, alongside alternative parameters that cover flow NPL developments such as the cost of risk, the use of an FX-adjusted NPL ratio should also be considered. Breaking down the effects of loan growth, NPL balance and changes in exchange rates on the NPL ratio may provide a significant contribution to a sound and in-depth analysis of the asset quality. This box explores the interactions leading to a change in NPL ratio as well as the contributions of the related variables to this change, and analyzes the recent NPL ratio developments in Turkey.

Methodology

The NPL ratio is calculated with the formula below:

$$NPL\ Ratio = \frac{NPL}{Gross\ Loan} = \frac{NPL}{NPL + Performing\ Loan}$$

In such an equation, which is non-linear and consists of multiple variables, it becomes difficult to identify the contributions of the variables to the ratio. In such cases, the equation can be linearized using a Taylor approximation. To demonstrate in simple terms, the following definitions can be made using the non-performing loan balance and performing loan variables only while calculating the NPL ratio:

$$NPL = x,$$

$$Performing\ loan = y$$

$$NPL\ ratio = f(x, y).$$

For the NPL ratio, the formula $f(x, y) = \frac{x}{x+y}$ is established. When x and y change by h_1 and h_2 , the new ratio will be $f(x + h_1, y + h_2)$, so the change in NPL ratio can be calculated with the formula below:

$$f(x + h_1, y + h_2) - f(x, y) = \frac{h_1}{x} x f_x(x, y) + \frac{h_2}{y} y f_y(x, y) + (h_1^2 A + h_2^2 B + h_1 h_2 C + e)$$

When both sides of the equation are multiplied by 100, the change in NPL ratio (basis point) is found on the left side and we have the contribution (basis point) of variables' percentage change to the total change on the right side. The following deductions can be made from this equation:

- xf_x and yf_y multipliers show contributions to the change in NPL.
- The error margin is proportional to the absolute values of the changes (h_1 and h_2) in indicators
- More precise results can be derived from high frequency data that are expected to show less change.

The contribution of each single variable to the change in any ratio affected by a group of variables can be calculated using the above method. Contributions to the change are found by multiplying the contribution multipliers (such as xf_x , yf_y , zf_z) calculated using partial derivatives by the percentage change in related variables.

Exchange Rate Effect

For a more comprehensive analysis of the factors affecting the change in NPL ratio in the Turkish banking sector, the performing loan balance in TL, the performing loan balance in USD and exchange rate variables have also been added to the above equation. The TL equivalent of the FX-denominated performing loan entails exchange rate conversion. However, if it is classified as NPL, it is registered using the exchange rate applicable during the period of the reclassification, leaving the total NPL stock unaffected from exchange rate changes. In this case, the variables can be updated as:

$$\begin{aligned} NPL &= x, \\ TL \text{ performing loan (TL)} &= y, \\ FX \text{ performing loan (US dollar)} &= z, \\ Applicable US dollar rate &= t, \\ NPL \text{ ratio} &= f(x, y, z, t). \end{aligned}$$

Exchange rate effect-added NPL ratio can be expressed with the formula: $f(x, y, z, t) = \frac{x}{x+y+zt}$

The contribution of each variable to the total change is found out after partial derivative operations.

Recent NPL Ratio Developments

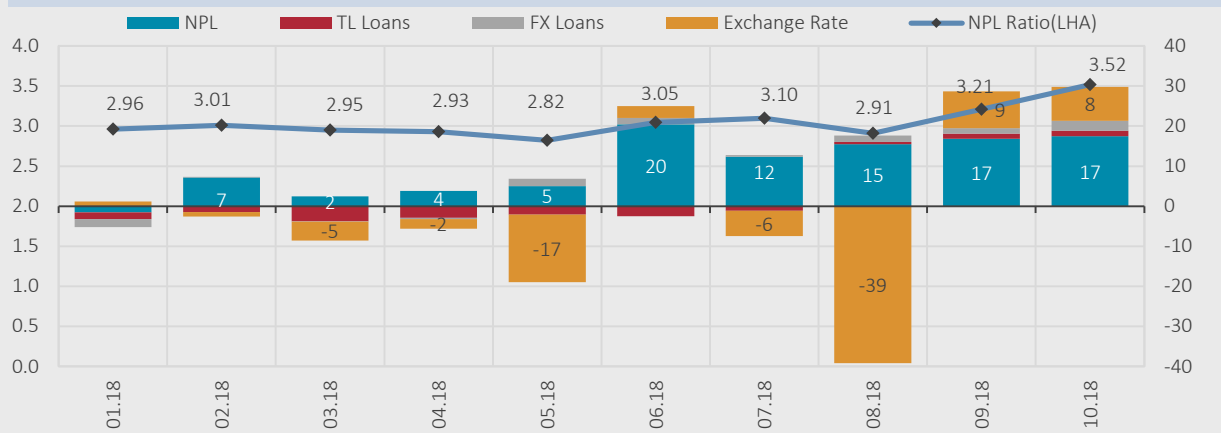
The NPL ratio that had been on a moderate rise from the end of 2017 to the end of July 2018, decreased by 20 basis points by the end of August and rose by 60 basis points in the following period (Chart IV.1.1.1).

An analysis of contributors of the 2018 NPL ratio developments indicates that the increase in exchange rates was influential in NPL ratio materializing 52 basis points lower than its existing level during the first 10 months of 2018. The NPL net additions that constituted the FX-adjusted main contribution and that accelerated slightly from June 2018 onwards put upward pressure on the NPL ratio. In fact, the monthly average increase driven by the NPL during the June-October 2018 period was 16 basis points. In 2018, exchange rate increases had an impact on the denominator and led the NPL ratio to decline by 17 basis points and 39 basis points in May and August, respectively (Chart IV.1.1.1).

In August, the NPL ratio receded to 2.9 percent from 3.1 percent due to the depreciation in the TL despite the increase in the NPL balance. From early September to late October, the decrease in exchange rates reversed the mechanical effect and strengthened the upward pressure of the

increased NPL balance on the NPL ratio. In September and October, the exchange rate-driven contribution to total NPL ratio was 17 basis points.

Chart IV.1.I.1: Contributions to the Change in NPL Ratio (Percentage, Basis Points)



Source: CBRT

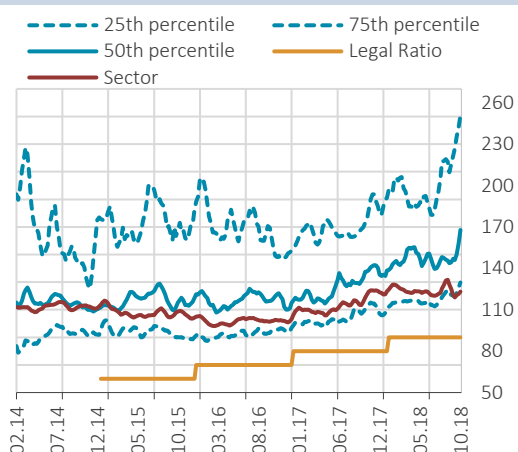
Performing loan growth decelerated significantly in line with the recent macroeconomic balancing process. The effect of this deceleration on the change in NPL ratio remained more limited compared to the NPL balance driven changes. In September and October, the FX-adjusted NPL ratio increased by 7 basis points in total, with contributions of TL and FX-denominated performing loans by 3 basis points and 4 basis points, respectively.

In Turkey, the volatility in NPL ratio rises during periods of heightened volatility in exchange rates, depending on the weight of FX loans. The recent contributions to the change in NPL ratio suggest that the largest contribution came from changes in exchange rates. Accordingly, exchange rate changes are mainly monitored on the denominator side of the calculation. The NPL balances that have recently posted a modest increase have been influential in the FX-adjusted NPL ratio. In light of these explanations, approaches based on mathematical effects and dynamic structure, instead of merely the numerical development and level of asset quality, should be considered as prerequisites to make an in-depth and sound analysis.

IV.2 Liquidity Risk

Developments in domestic markets in August 2018, in addition to the global factors affecting the risk appetite towards EMEs highlighted the risks related to the banking sector's liquidity outlook. Accordingly, the CBRT and other policy making institutions implemented a series of measures to support effective functioning of financial markets. Tightening financial conditions on both global and local scales affected banks' potential ability to access to sources of foreign funding and following a number of developments including credit rating agencies' decisions regarding Turkish banks, the sector's costs of access to international sources of funding increased. Despite increased costs, banks were able to rollover the syndicated loans, which constitute an indicator for banks' credibility in international markets, by a ratio above 100 percent. Besides, banks' FX-denominated liquid asset portfolios are at a level sufficient to meet the sector's short-term debts. The maturity structure of foreign debts presents a positive outlook and the course of indicators representative of banks' liquidity structure remains on a safe trajectory, implying that the banking sector remains resilient to shocks.

Chart IV.2.1: Quantiles of Banks by Total Liquidity Coverage Ratios (% , 4-Week MA)

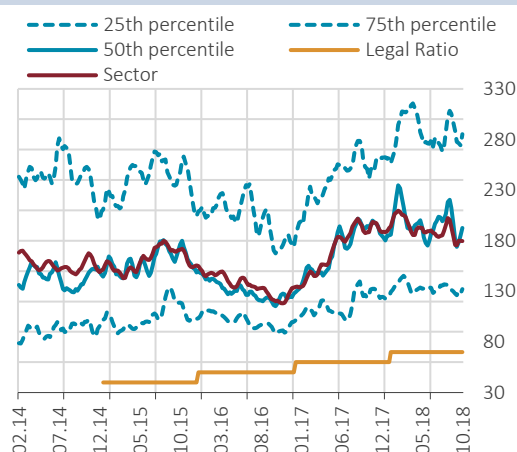


Source: CBRT

Latest Data: 12.10.18

Note: Development and investment banks are excluded. Based on non-consolidated reports. These quantiles represent the banks in the 25th, 50th and 75th percentiles, respectively, from the smallest to the largest in terms of liquidity coverage ratios.

Chart IV.2.2: Quantiles of Banks by FX Liquidity Coverage Ratios (% , 4-Week MA)



Source: CBRT

Latest Data: 12.10.18

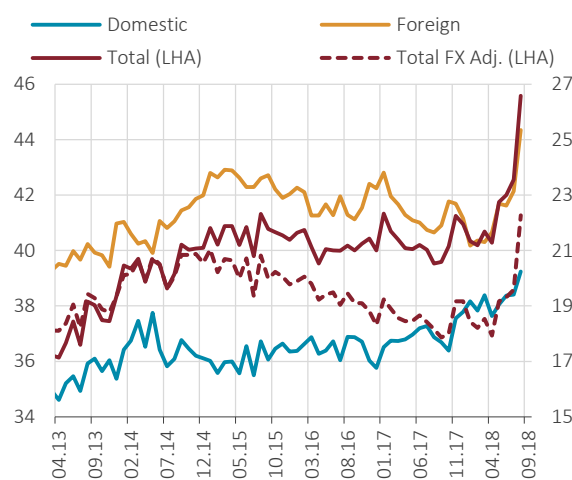
Note: Development and investment banks are excluded. Based on non-consolidated reports. These quantiles represent the banks in the 25th, 50th and 75th percentiles, respectively, from the smallest to the largest in terms of liquidity coverage ratios.

Liquidity coverage ratios (LCRs) that represent banks' short-term liquidity positions and measure the extent to which the high-quality liquid assets on banks' balance sheets are able to offset their net cash outflows over a 30-day horizon are considerably above the legal limits (Charts IV.2.1 and IV.2.2). The sector's existing LCRs calculated for both total and FX liquid assets already meet the minimum limits of 100 percent for total and 80 percent for FX assets, which have been set to take effect from January 2019. Following the recent financial developments, the CBRT took a series of measures for RR ratios and ROM FX facilities.¹ Due to exchange rate developments and capital movements in addition to these measures, the RRs maintained at the CBRT as well as FX and gold reserves maintained within the scope of the ROM posted a decline. The increase in banks' high-quality liquid assets such as foreign currency deposits and free deposit balances, on the other hand, allows both the total and FX LCRs of the banking sector to be considerably above legal limits.

¹ On 7 May 2018, the CBRT lowered the upper limit for the FX maintenance facility within the ROM from 55 percent to 45 percent, followed by a further reduction to 40 percent on 6 August 2018. Besides, TL-denominated RR ratios were reduced by 250 basis points for all maturity brackets and those for non-core FX liabilities were reduced by 400 basis points for maturities of up to one year to three years. The CBRT also provided additional flexibility for banks by allowing the use of US dollars and euro for maintenance against TL reserves and by raising the maximum average maintenance facility for FX liabilities to 8 percent from 4 percent.

The share of non-deposit funding in banks' funding composition increased. Another indicator of bank liquidity, the ratio of non-core liabilities to total funding sources, increased by approximately 4 percentage points to 44 percent compared to the previous report period (Chart IV.2.3). This increase resulted from the changes in the TL equivalent of funding obtained from abroad -constituting a significant part of non-deposit funding- due to exchange rate developments. Adjusted for the exchange rate effect, this increase seems to be around 2 points. Although the share of non-core liabilities in total foreign funding sources increased in this period, the increase recorded on the foreign side was more discernible due to the recent exchange rate developments. Following the volatility experienced in financial markets in August 2018, the decline in the level and volatility of exchange rates led by positive geopolitical developments that started to be seen from the second half of September limit the liquidity risk of the banking sector. The CBRT's decision of additional monetary tightening in September contributed to this positive outlook.

Chart IV.2.3: Ratio of Non-Deposit Funding to Foreign Funding Sources (%)



Source: CBRT

Latest Data: 09.18

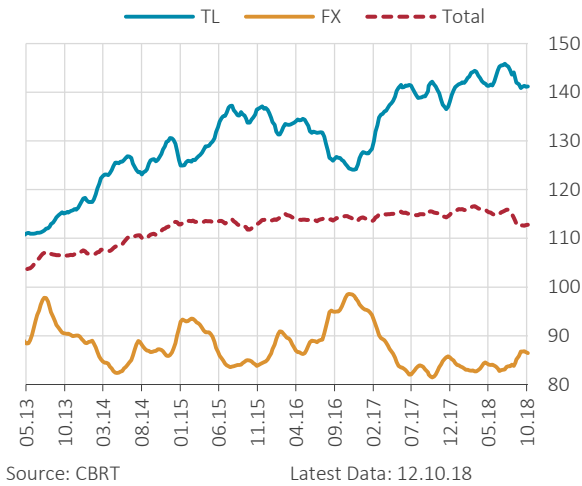
Note: Foreign funding sources include all liabilities except capital of banks. The series adjusted for the exchange rate effect are re-calculated based on exchange rate values of end-2013.

The loan-to-deposit ratio (LDR), which represents the extent to which loans that have the largest share in banks' illiquid assets are funded from deposits and which indicates the long-term liquidity status of banks, has recently posted a slight decrease. In the current Report period, the loan growth rate lagged behind the deposit growth rate and the LDR of the sector excluding development and investment banks declined to 113 percent as of September 2018 (Chart IV.2.4).² This is attributed to the loan growth rate that has recently been on a weak course and the increase in TL equivalent of banks' on-balance sheet items due to the recent exchange rate developments. Banks' credit composition has changed in favor of TL due to corporates' weaker appetite for investment and FX borrowing on the back of increased awareness of exchange rate risk management and re-arrangement of FX loan utilization at corporates in the context of the amendment to Decree No.32 on the Protection of the Value of the Turkish Lira published in May 2018. Meanwhile, depositors' inclination to have a position in favor of TL after the increase in exchange rates has increased the FX LDR slightly. The sector's share of FX loans in total loans is currently lower than the share of FX deposits in total deposits. This situation, coupled with the widening of this gap driven by the change in the inclination of depositors resulted in a further decrease in the LDR based on exchange rate developments. Although the recent developments have been driven by exchange rates, the deposit

² Development and investment banks, which can grant loans but do not have the authority to collect deposits, are not included in the LDR calculation. When development and investment banks are included, the LDR of the sector by September 2018 becomes 122 percent.

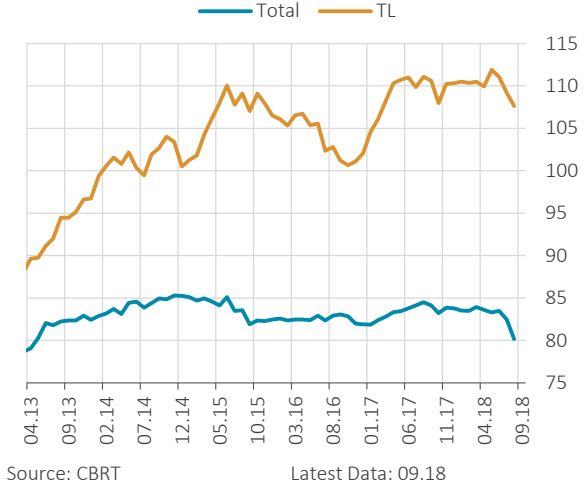
growth outpacing loan growth supports the long-term liquidity outlook of banks. As of September 2018, the TL and FX LDRs were 141 and 86 percent, respectively.

Chart IV.2.4: Loan-to-Deposit Ratio (% , 4-Week MA)



Source: CBRT
Latest Data: 12.10.18
Note: Development and investment banks are excluded.

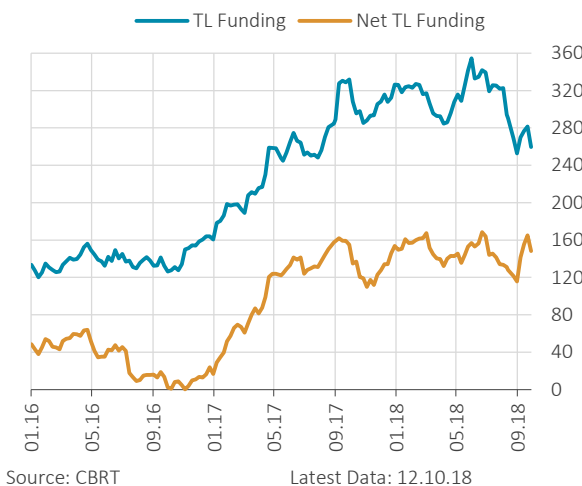
Chart IV.2.5: Loan/ (Deposit+ Other Stable Sources) Ratio (%)



Source: CBRT
Latest Data: 09.18
Note: Other stable sources include equity, long-term issues, subordinated debts and other loans with maturities longer than one year.

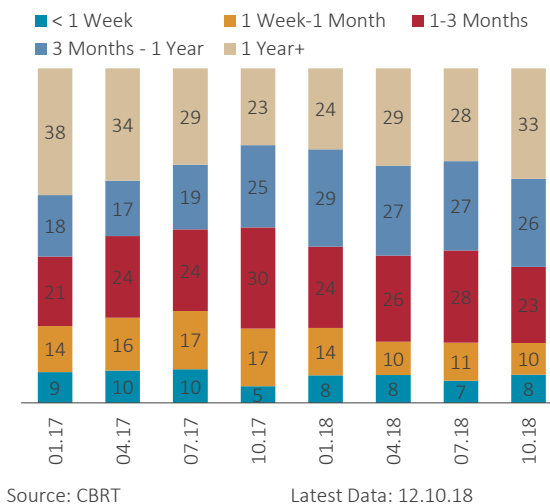
The L/(D+other stable sources) ratio has been calculated to measure the long-term liquidity position of banks more comprehensively and to limit the risks arising from the maturity difference between banks' assets and liabilities. Within the scope of the Basel III Net Stable Funding Ratio, in addition to deposits, equities, subordinated debts, long-term issues and other borrowing items with maturities longer than one year have been included in stable funding sources. This ratio decreased to 81 percent for total and 105 percent for TL as of September 2018 (Chart IV.2.5).

Chart IV.2.6: Amounts of Currency Swap Transactions with Non-Residents (TRY Billion)



Source: CBRT
Latest Data: 12.10.18

Chart IV.2.7: Maturity Brackets of TL Currency Swaps with Non-Residents (Stock, % Share)

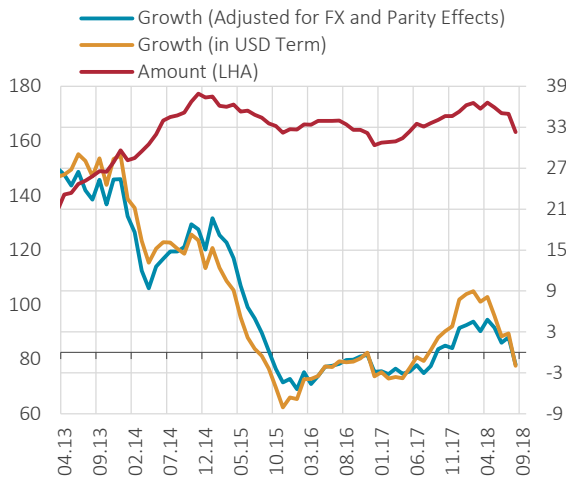


Source: CBRT
Latest Data: 12.10.18

The spread between TL and FX LDRs widened over the past year due to the change in credit composition in favor of TL and depositors' increased inclination for FX deposits. This development drove banks to conduct TL currency swap transactions against FX with non-residents. The net TL funding that the sector generated by currency swaps with non-residents was about TRY 165 billion in October 2018 (Chart IV.2.6). In this context, the data on the amount, maturity, cost and counterparty became important to be able to monitor banks' liquidity risk. Banks generally use FX deposits in currency swap transactions, which limits risks that may arise from this channel. As of March 2018, while approximately 46 percent of these

transactions was carried out at maturities shorter than three months, the average maturity extended on the back of regulations made by the BRSA and the share of currency swap transactions with shorter than three-month maturities declined to 41 percent (Chart IV.2.7).³

Chart IV.2.8: Amount and Growth Rate of Banks' External Liabilities (Annual % Change, USD Billion)

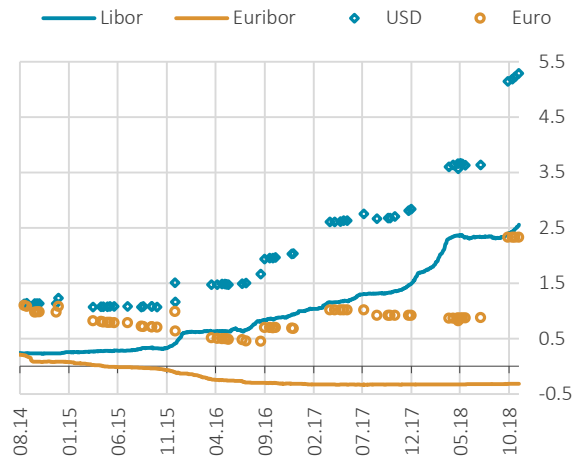


Source: CBRT, CDS

Latest Data: 09.18

Note: The growth series adjusted for FX and parity effects is recalculated based on the USD/TRY and EUR/USD parity at end-2013.

Chart IV.2.9: Cost of Syndicated Loans with a Maturity of 367 days (Transaction Based, %)



Source: PDP

Latest Data: 31.10.18

Note: Calculated for 10 large-scale banks.

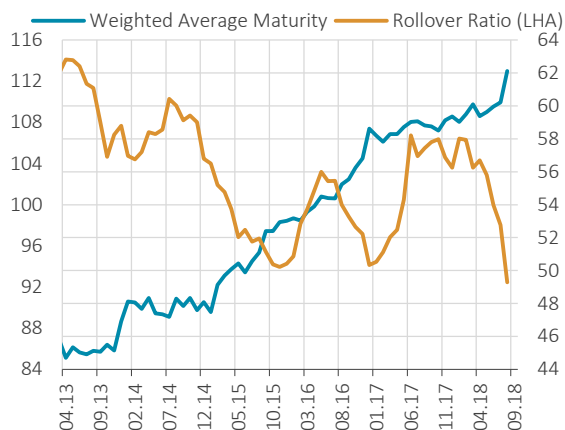
The utilization of foreign funding by the banking sector has recently decreased (Chart IV.2.8). Increased protectionist tendencies and normalization steps in advanced economy monetary policies can affect the investment appetite towards EMEs as well as global supply conditions. Additionally, due to the weak course of FX loan growth in the country driven by the slowdown in corporate sector investments, measures taken for exchange rate risk management and the awareness raised, the banking sector's demand for foreign funding has been weak. The decrease in banks' demands for foreign funding has curbed the effect of the supply-side tightening in foreign funding conditions. Banks' foreign borrowing costs in US dollars and euro have increased in the current report period. A number of developments including credit rating agencies' assessments of Turkish banks' credit rates in the aftermath of the recent financial and geopolitical developments gave way to cost pressures and spreads applied to the loans obtained increased. However, a rollover ratio of above 100 percent for syndicated loans that have already matured in the recent period signals that banks' debt rollover capacity has been strong despite increased costs of access to foreign funding (Chart IV.2.9).

As a result of the weak course of foreign funding utilization, banks' external debt rollover ratio has declined in the current report period and stood at 87 percent as of September 2018. The positive outlook in the maturity of external debts continues and the average maturity hovers around 64 months (Chart IV.2.10). The fact that banks' external debts are long-term limits their liquidity risk. As of September 2018, while the short-term external debt rollover ratio was 86 percent, the long-term external debt rollover ratio was 90 percent (Chart IV.2.11)⁴

³ On 13 August 2018, the BRSA imposed a limit on banks' currency swap transactions with non-residents, stipulating that these transactions should not exceed 50 percent of banks' regulatory capital. This ratio was revised as 25 percent on 15 August 2018. On 17 September 2018, the limit ratios were differentiated according to maturities.

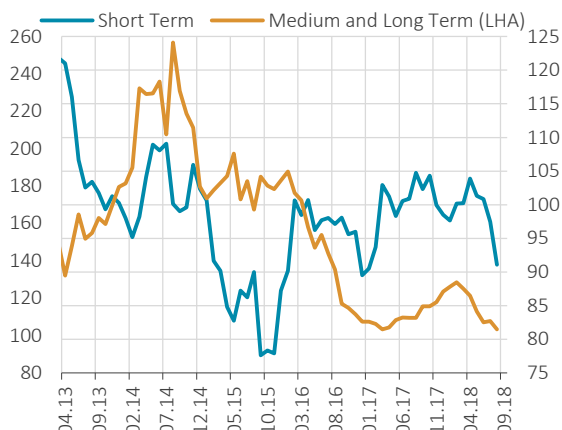
⁴ Details regarding the banking sector's external debt rollover ratio are given in Box IV.2.I.

Chart IV.2.10: External Debt Rollover Ratio and its Average Maturity (% , Month)



Source: CBRT, CDS Latest Data: 09.18
 Note: The external debt rollover ratio is calculated based on 6-month moving totals of banks' total borrowings and repayments of total external liabilities including securities issued abroad.

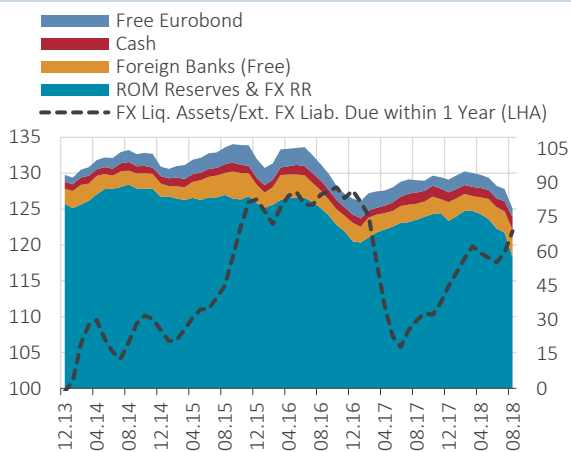
Chart IV.2.11: External Debt Rollover Ratio (% , Month)



Source: CBRT, CDS Latest Data: 09.18
 Note: External debt rollover ratios are calculated based on 3-month (for short term) and 12-month (for long-term) moving totals of banks' borrowings and repayments of total external liabilities including securities issued abroad.

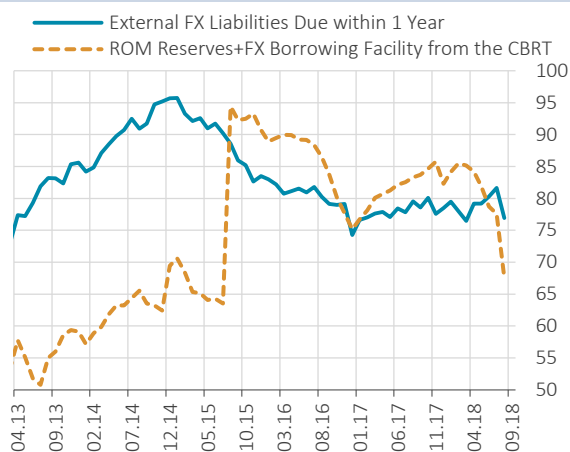
Banks' liquidity indicators remain in the safe zone and the maturity of external loans remains on the rise, all of which support the sector's resilience to possible shocks in international markets. Banks' liquid asset portfolio including FX-denominated RRs is more than enough to cover all their FX-denominated external debts due in one year (Chart IV.2.12).⁵ Moreover, FX deposit facility amounting to USD 50 billion provided to banks by the CBRT also limit their FX liquidity risk in the face of adverse shocks (Chart IV.2.13).

Chart IV.2.12: FX Liquid Assets and FX External Liabilities Due within 1 Year (USD Billion, %)



Source: CBRT, CDS Latest Data: 09.18
 Note: Selected FX Liquid Assets: Cash+Foreign Banks (free)+free Eurobonds + Required Reserves held within the ROM facility+FX-denominated RR. The dashed line represents 3-month moving average of the FX Liquid Assets / External FX Liabilities Due within 1 Year ratio.

Chart IV.2.13: ROM Reserves + FX Borrowing Facility and External FX Liabilities Due within 1 Year (USD Billion)



Source: CBRT, CDS Latest Data: 09.18

Due to the low risk appetite and increased costs in global markets, the funding obtained from the FX-denominated securities issued abroad has decreased by a small margin. Nevertheless, regarding security issues, as banks preferred the long-term over the short-term, the maturity of these issues reached 70

⁵ The amount of the banking sector's external debt due in one year is USD 71.2 billion and banks' cash, free accounts at foreign banks, free Eurobonds, ROM reserves and FX RR accounts are USD 8.6, 19.1, 4.1, 13 and 35.5 billion, respectively.

months, which contains risks that may arise from possible volatilities in international markets (Chart IV.2.14). Banks' domestic bond issues, which started to increase from the first quarter of 2017, gained pace in the first quarter of 2018 and assumed a flat course by September 2018 (Chart IV.2.15). The subordinated bonds issued by some banks in this period have extended maturities of domestic funding sources to 32 months from 17 months. The transaction in the amount of USD 2 billion with 5-year maturity executed in October in the context of the Treasury Financing Program in such a period marked by a global liquidity crunch and increased funding costs is expected to contribute positively to banks' access to international capital markets.

Chart IV.2.14: FX Issues Abroad (USD Billion, Month)

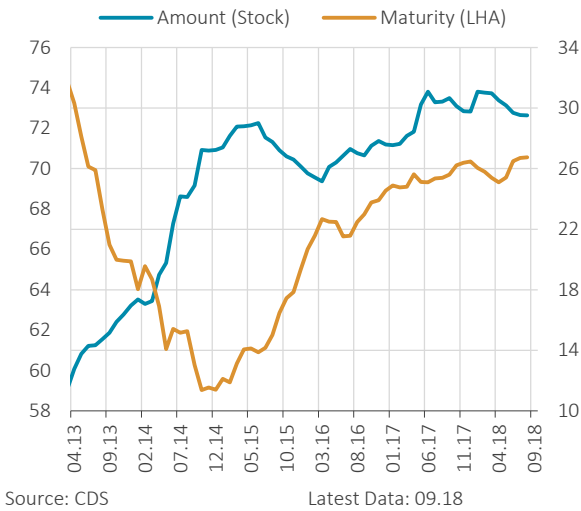
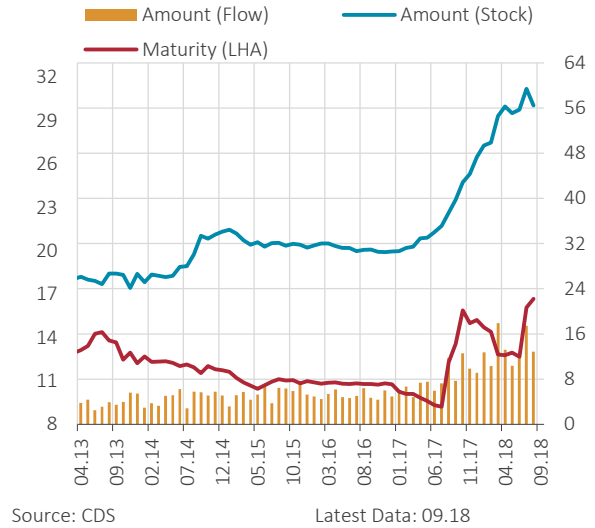


Chart IV.2.15: Domestic TL Bond Issues (Billion, Month)



Box IV.2.1

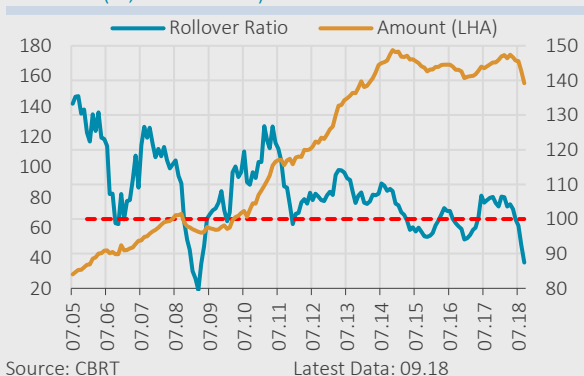
External Debt Rollover Ratio in the Banking Sector

Increased protectionist policies on a global scale and normalization processes in advanced economy monetary policies play a determining role on the risk appetite particularly towards EMEs. In addition, the recent financial and geopolitical developments in Turkey also affect conditions for accessing international markets for the banking sector. The course of the amount and conditions (maturity and cost) under which banks access external funds is important in terms of the continuity of their intermediation capacity. External debts account for approximately 55 percent of the sector's non-core liabilities and relate mostly to banks' liquidity structures and domestic credit supply conditions as well as the conditions of pricing and competition in the deposit market. In this context, this box analyzes the historical development of the Turkish banking sector's external debt rollover ratio.

Global developments are the leading determinants of banks' external debts. Banks can obtain funding from abroad by way of financial instruments such as bilateral loans, syndicated and securitization loans, repurchase agreements, subordinated loans, deposits or issues. Such types of borrowing have peculiar dynamics, yet are based on long-established commercial relationships among banks. Moreover, factors such as banks' partnership structures, credit ratings, past borrowing performances and potential cooperation opportunities may also have a role in provision of these funding sources.

The 2008 global financial crisis and the Fed's normalization signals that started in May 2013 were important stress periods. Chart IV.2.1.1 presents the development of the total amount that the banking sector obtained based on the external debt rollover ratio. During the analysis period, banks' external debt rollover ratio dropped below 100 percent only during the 2008 crisis and the period in which the Fed's monetary policy normalization steps began.¹ During the 2008 crisis, when global uncertainties historically peaked and the risk appetite weakened considerably, the banking sector's external debt rollover ratio remained above 80 percent and recorded its lowest level in March 2009.

Chart IV.2.1.1: Bank External Debt Rollover Ratio and Amount (% , USD Billion)

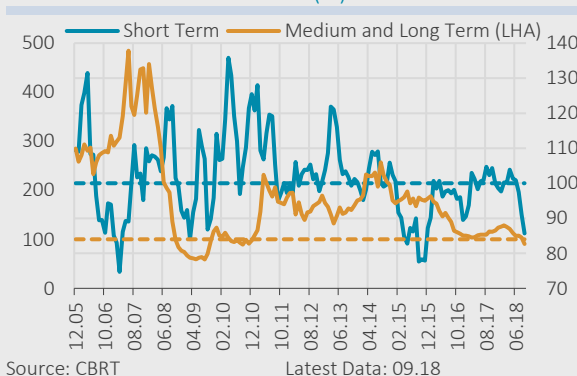


Source: CBRT

Latest Data: 09.18

Note: The external debt rollover ratio is calculated based on 6-month moving totals of banks' total borrowings and repayments of total external liabilities including securities issued abroad.

Chart IV.2.1.2: Short and Medium-Long Term Bank External Debt Rollover Ratio (%)



Source: CBRT

Latest Data: 09.18

Note: Dashed lines represent the level of 100 percent for right and left axes. External debt roll-over ratios are calculated based on 3-month and 12-month moving totals of banks' borrowings and repayments of total external liabilities including securities issued abroad for short term, medium and long term, respectively.

¹ A rollover ratio at or above 100 percent denotes banks' minimum capacity to rollover their due debts.

Following this period, the external debt rollover ratio hovered above 100 percent for a long time due to looser global liquidity conditions on the back of quantitative easing policies implemented by advanced economy central banks. Global liquidity conditions started to tighten in response to the Fed's normalization steps that were signaled for the first time in May 2013 and implemented from 2015 onwards. With the effect of the volatility seen in domestic investment appetite in this period, banks' demand for external funding showed a cyclical weakness. Due to both supply-side and demand-side factors, the external debt rollover ratio fell below 100 percent, albeit to a limited extent, during some periods after 2015.

The external debt rollover ratio of the banking sector has declined below 100 percent since August 2018. A number of developments including credit rating agencies' decisions on Turkish banks' credit ratings caused some cost pressures, followed by an increase in margins applied to the loans obtained. However, a rollover ratio of above 100 percent for syndicated loans that have already matured in this period signals that banks' debt rollover capacity has remained strong despite increased costs of access to foreign funding.² Furthermore, liquidity buffers held by banks for adverse risk scenarios are at a sufficient level and banks' liquid asset portfolio including FX-denominated RRs is more than enough to cover all their FX-denominated external debts due in one year.

During the 2008 crisis, the major financial stress period that dominated the entire globe after 2005, both the supply conditions of lender international banks and the external funding demand of domestic banks were affected adversely. Considering the historical development of the Turkish banking sector's external debt rollover ratio and the recent developments together, it is assessed that an external debt rollover ratio of above 80 percent during the 2008 crisis might also constitute a base for periods of tighter global supply or country-specific conditions.³ In other words, concerning external debts that are a significant aspect of the banking sector's integration with global economy, banks' long-established commercial relationships with foreign banks based on creditworthiness may constitute a reference for access to foreign funding for the following periods.

Chart IV.2.1.2 shows rollover ratios for short and long-term external debts. As can be read from the Chart, the long-term external debt rollover ratio hovered at high levels during the analysis period. The short-term external debt rollover ratio, on the other hand, hovered at levels close to 100 percent and showed more sensitivity to the developments witnessed during the financial stress periods. This finding confirms from another perspective the particular significance of RR practices for financial stability that were put into practice by the CBRT with an aim to extend the maturity of external debts.⁴

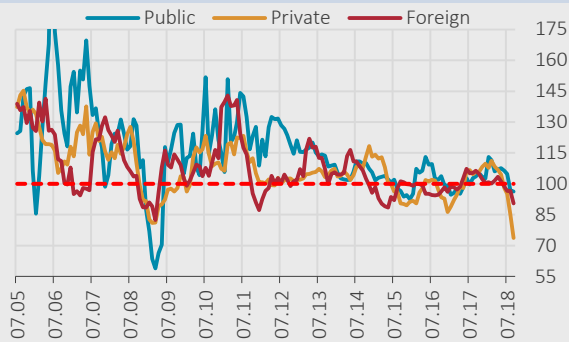
Charts IV.2.1.3 and 4 illustrate how conditions of access to external funding evolved on the basis of bank groups and scales. The bank groups did not show a significant divergence during financial stress periods, which is a testimony to the Turkish banking sector's strong capability to access external funding as a whole.

² The share of syndicated loans in total external debt was 12.3 percent as of September 2018, which is indicative of banks' capacity to access international markets.

³ It should be noted that different financial stress periods have distinctive dynamics. Although conditions may change, effects of financial stresses on an economy can be measured based on certain parameters. As a matter of fact, the extreme values recorded by Turkey-specific basic variables during the 2008 global financial crisis (October 2008 - September 2009) were: -4.0 percent posted for quarterly growth rate, 12.0 percent for inflation rate, 14.8 percent for unemployment rate and 829 posted for 5-year maturity CDS premium.

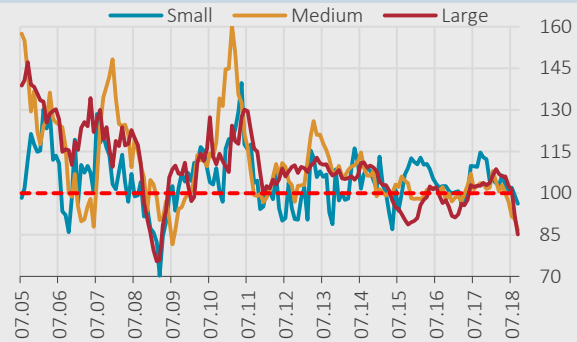
⁴ Effects of the CBRT's RR policies on banks' external debts are discussed in the blog post "The Impact of Reserve Requirement Policies on the Maturity of Banks' External Debts" published in the CBRT blog. The findings of this blog post indicate that the change in the maturity composition of external debts in favor of the long term strengthened the sector's resilience to global liquidity shocks and supported financial stability by facilitating corporate sector's access to loans at longer maturities.

Chart IV.2.1.3: External Debt Rollover Ratio by Bank Groups (%)



Source: CBRT Latest Data: 09.18
 Note: Banks are classified according to their partnership structures in September 2018. Values above 175 for public banks are excluded from the chart. The external debt rollover ratio is calculated based on 6-month moving totals of banks' borrowings and repayments of total external liabilities including securities issued abroad.

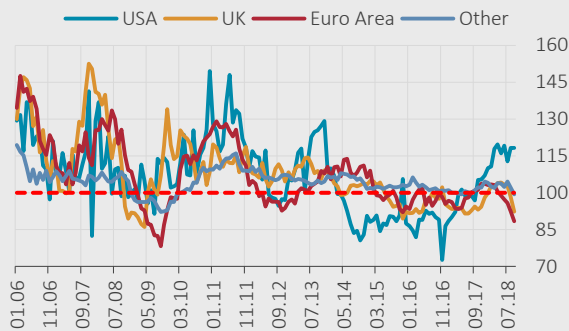
Chart IV.2.1.4: External Debt Rollover Ratio by Bank Size (%)



Source: CBRT Latest Data: 09.18
 Note: The largest 7 banks that constitute 70 percent of the banking sector's total assets aggregate are classified as "Large", the other 15 banks that constitute 25 percent as "Medium" and the remaining 28 banks as "Small". The external debt rollover ratio is calculated based on 6-month moving totals of banks' borrowings and repayments of total external liabilities including securities issued abroad.

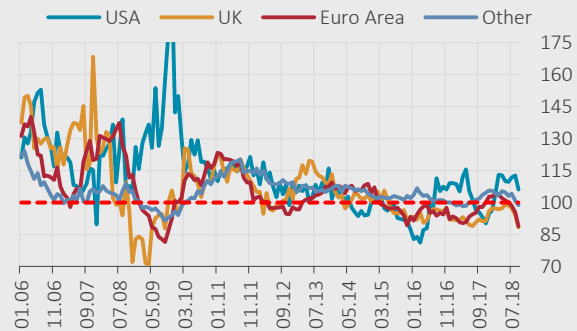
Recent developments underline the importance of regional diversity in the sources of external funding. Charts IV.2.1.5 and 6 show the development of rollover ratios of debts obtained from different regions. The rollover ratio of debts obtained from traditional financial centers such as the US, the UK and the euro area follow a similar path as those obtained from other countries. This confirms that borrower country-specific factors and global liquidity conditions constitute the main determinant of loan flows regardless of the region.⁵

Chart IV.2.1.5: Bank External Debt Rollover Ratio by Regions (Based on Location, %)



Source: CBRT Latest Data: 09.18
 Note: Calculation excludes security issues abroad. The external debt rollover ratio is calculated based on 12-month moving totals of banks' borrowings and repayments of total external liabilities including securities issued abroad.

Chart IV.2.1.6: Bank External Debt Rollover Ratio by Regions (Based on Headquarter, %)



Source: CBRT Latest Data: 09.18
 Note: Calculation excludes security issues abroad. Values above 175 for the US are excluded from the chart. The external debt rollover ratio is calculated based on 12-month moving totals of banks' borrowings and repayments of total external liabilities including securities issued abroad.

In conclusion, banks' external borrowings show cyclical volatilities due to domestic and international developments. The sector's external debt rollover ratio hovered above 80 percent even during the 2008 global crisis. In addition to economic and financial developments, the borrowing product as well as the history and volume of relationships among financial

⁵ The Special Topic "Global Liquidity and Regional Distribution of Cross-Border Bank Loans" of the Financial Stability Report of May 2017 and the CBRT Blog post "More Countries, Less Risk: The Changing Regional Distribution of Cross-Border Bank Loans" analyze the impacts of increasing diversification in the countries/banks that provide funds to the Turkish banking sector on the sensitivity of cross-border bank loans to the global liquidity conditions. According to the findings of the study, increasing diversification lowers the sensitivity of cross-border bank loans to global liquidity conditions; therefore contains the risks related to the concentration of lender countries and limits the spillovers of potential financial shocks that may occur in systemically important sources.

corporations are also among the determinants of external borrowing. In this context, although different financial stress periods have distinctive dynamics, the historical course of external debt rollover ratio can act as a reference in assessing the current situation.

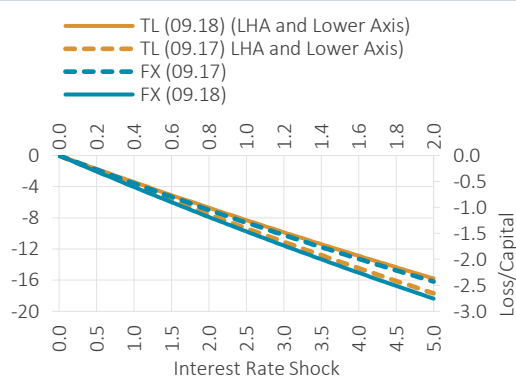
IV.3 Interest Rate and Exchange Rate Risk

Compared to the previous report period, the banking sector's FX-denominated on and off-balance sheet interest rate sensitive open position declined by 20 percent to TRY 117 billion driven by the increase in receivables from reverse repo, whereas the sector's TL-denominated on and off-balance sheet interest rate sensitive excess position rose by 7 percent to TRY 559 billion driven by rediscounts on interest and income accruals. The sector's TL-denominated on and off-balance sheet interest rate sensitive positions were exposed to a positive interest rate shock of up to 5 percent while FX-denominated on and off-balance sheet interest rate sensitive positions were exposed up to 2 percent, and the ratio of the probable loss to equity securities was calculated by using the economic value approach. Accordingly, a 5 percent positive interest rate shock exposure on TL-denominated on and off-balance sheet interest rate sensitive positions led to a probable loss of approximately 16 percent of capital, whereas a 2 percent positive interest rate shock exposure on FX-denominated on and off-balance sheet interest rate-sensitive positions led to a probable loss of approximately 3 percent of capital. Compared to the same period of last year, the positive interest rate shock-led probable loss to equity securities ratio in the TL position posted an evident decline, while that in the FX position posted a notable increase (Chart IV.3.1).

Compared to repricing periods in which the rates of interest yields or similar returns of interest rate risk sensitive assets would be re-determined, the average maturity of TL-denominated interest rate risk sensitive assets declined moderately to 19 months due to the decline in the share of loans with more than one-year maturity. Meanwhile, the average maturity of interest rate sensitive TL liabilities increased compared to the previous report period to 5 months in response to the decline in the share of short-term deposits. The average maturity of interest rate sensitive FX liabilities was 22 months due to the decline in the share of short-term loans and that of FX assets increased to 13 months due to the decline in the share of short-term deposits.

Fixed interest rate securities at fair value through other comprehensive income may have a positive or negative impact on capital through the channel of revaluation based on changes in interest rates. The mentioned impact was calculated by imposing a likely interest rate hike of up to 5 percent to TL-denominated securities and up 2 percent to FX-denominated securities. The probable loss/capital ratio was estimated to be up to 2 percent for both FX and TL securities. This ratio for FX securities remained unchanged compared to the previous report, whereas it posted a decline for TL securities due to the relatively shrinking share of long-term securities (Chart IV.3.2).

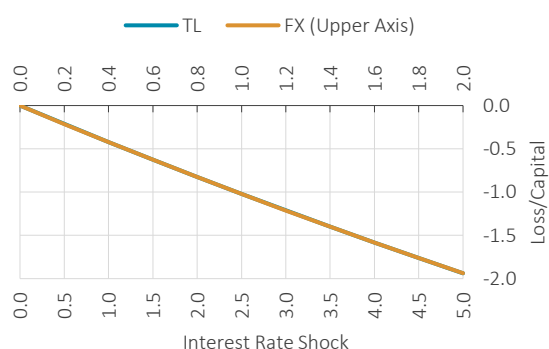
Chart IV.3.1: Interest Rate Risk Via Repricing Channel Measured with Economic Value Approach (%)



Source: CBRT, Authors' estimations Latest Data: 09.18

Note: In the economic value approach, the change in the current value of interest rate-sensitive assets and liabilities is taken into account in the face of a change in interest rates.

Chart IV.3.2: Interest Rate Risk of Fixed Interest Rate Securities at Fair Value through other Comprehensive Income (%)



Source: CBRT, Bloomberg, Authors' estimations Latest Data: 09.18

Note: Since January 2018, when the TFRS 9 standards were put into effect, the Securities Available for Sale (Net) item on bank balance sheets was renamed "Securities at fair value through other comprehensive income".

The banking sector's FX short position receded to USD 31 billion on the back of the increase in free deposit accounts at correspondent banks and the decrease in FX liabilities compared to the previous report period. The off-balance sheet FX long position decreased by 37 percent to USD 32 billion, driven by the derivatives position. The sector has been using its off-balance sheet FX transactions to manage the exchange rate risk that may stem from on-balance sheet limited short positions. And it has continued to act prudently vis-a-vis these transactions in the recent period. Accordingly, the sector's FX net general position/capital ratio was recorded at around 1 percent, significantly lower than the two-way legal limit of 20 percent (Chart IV.3.3).

An analysis of the breakdown of off-balance sheet FX transactions actively used by the sector in FX risk management reveals a predominant use of currency swaps. In the meantime, the share of FX transactions in this composition decreased (Chart IV.3.4).

Chart IV.3.3: Banking Sector's FX Open Position (USD Billion, %)

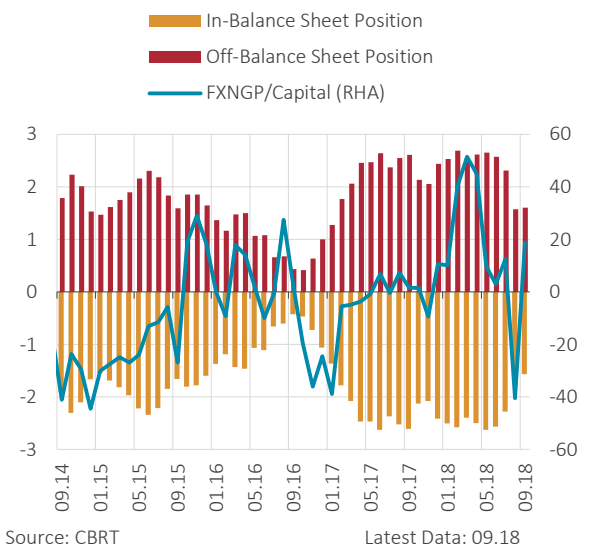
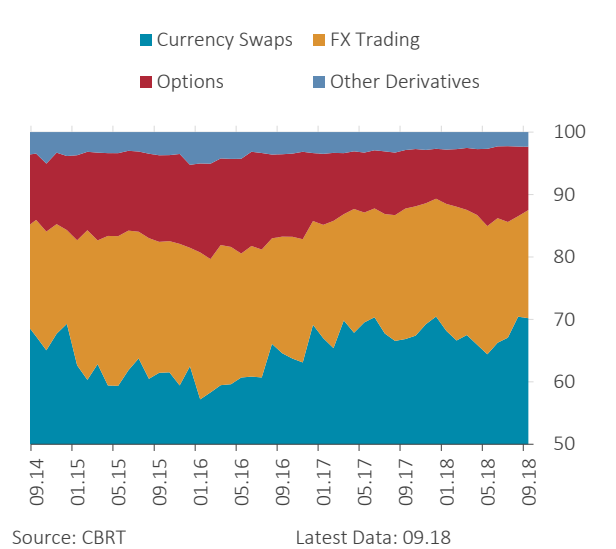


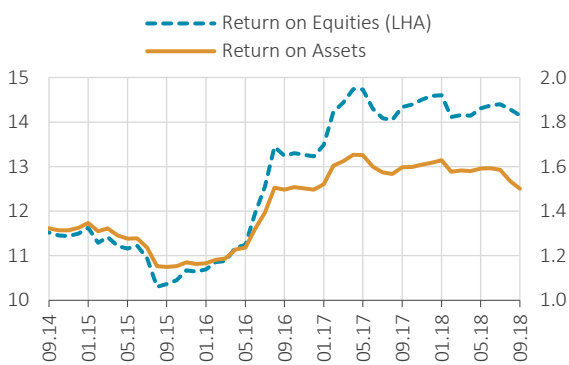
Chart IV.3.4: Shares of Gross Positions of Off-Balance Sheet FX Transactions (%)



IV.4 Profitability and Capital Adequacy

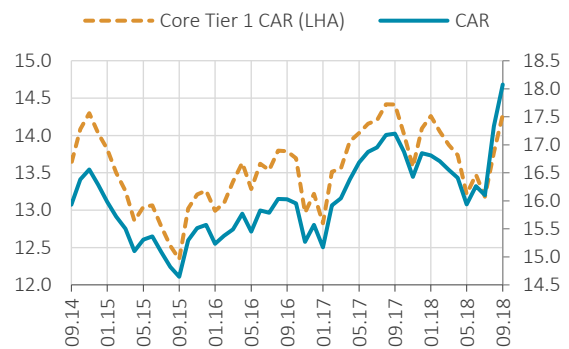
Profitability indicators of the banking sector, which had been increasing since the final quarter of 2015, have recently been flat yet remained strong in this report period (Chart IV.4.1). Increased losses from FX transactions and the rise in interest expenses on deposits curbed the profitability, which had an impact on the flat course observed in capital and asset profitability ratios. The recent significant increase in the CAR was attributable to the BRSA's regulation in the context of CAR calculation, which brought about stabilizing the exchange rate for FX assets in computation of risk-weighted assets and disregarding valuation differences in the fixed interest rate securities at fair value through other comprehensive income portfolio when calculating the equity amount (Chart IV.4.2). In the meantime, the recent exchange rate and interest rate developments have supported the CAR.

Chart IV.4.1: Return on Assets and Return on Equities (%)



Source: CBRT Latest Data: 09.18
 Note: Profitability ratios are calculated by dividing the annual cumulative profit by one year's average denominator.

Chart IV.4.2: CAR and Core Tier 1 CAR (%)

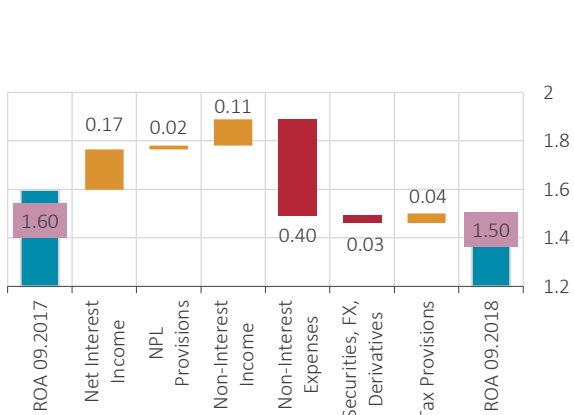


Source: CBRT Latest Data: 09.18

IV.4.1 Profitability

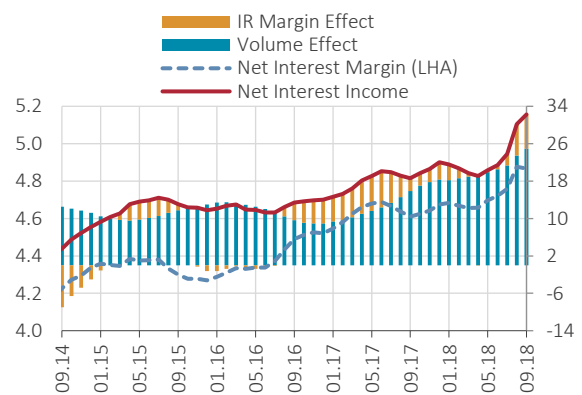
The factors that affected the change in the return on assets over the past year reveal that net interest income and non-interest income have had a positive effect, while the general provisions-driven increase in non-interest expenses has had a negative effect on profitability (Chart IV.4.3).

Chart IV.4.3: Annual Effect of Income Statement Items on ROA (%)



Source: CBRT Latest Data: 09.18
 Note: Red columns denote downward impact whereas yellow columns denote upward impact.

Chart IV.4.4: Contribution to Changes in the Net Interest Income(12-Month Cumulative, %, TRY Billion)



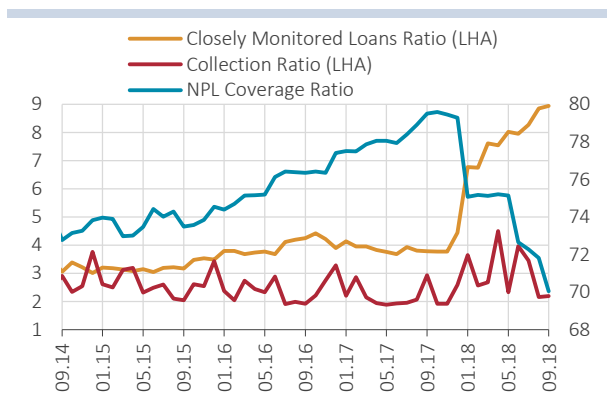
Source: CBRT Latest Data: 09.18

The increase in net interest income contributed approximately 17 basis points to the sector's return on assets over the 12-month period. This effect was driven by higher interest rates charged on loans compared to those on deposits. Since the previous report period, the contribution of the volume effect to the net interest income has decreased gradually as opposed to the interest rate margin effect. The escalation in the net interest income that has particularly been apparent in recent months is attributable to the increase in the net interest rate margin (Chart IV.4.4).

The closely-monitored loan ratios increased on the back of banks' utilization of internal credit rating models within the scope of TFRS 9 from early 2018 (Chart IV.4.5). The general provisions that increased with the implementation of the TFRS 9 led to a negative effect on profitability from the non-interest expenses side. Collection ratio remained strong and NPL coverage ratios have dropped since May 2018 due to the increase in NPLs.

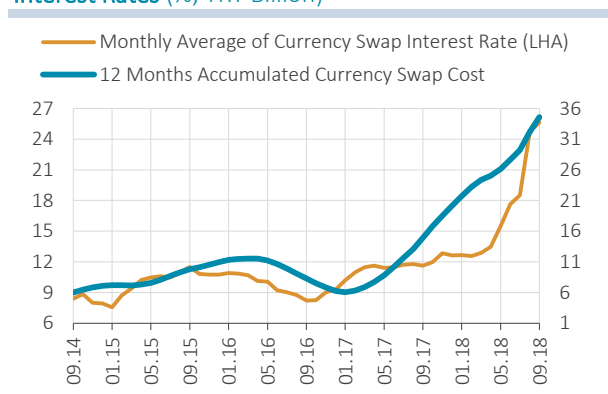
The other non-interest income/expenses item, in which banks record their position in securities trading, derivatives and foreign exchange transactions, has had a negative impact on profitability since the last report period. The underlying reason was the losses incurred on foreign banknotes and foreign exchange trading and on valuation. Meanwhile, despite a significant increase in currency swap transaction costs, the sector drove profits on the back of exchange rate developments, particularly from derivative financial instruments with trading purposes (Chart IV.4.6).

Chart IV.4.5: Additional NPL Indicators (%)



Source: CBRT Latest Data: 09.18

Chart IV.4.6: Currency Swap Transaction Costs and Interest Rates (% , TRY Billion)



Source: CBRT, Bloomberg, Authors' estimations Latest Data: 09.18

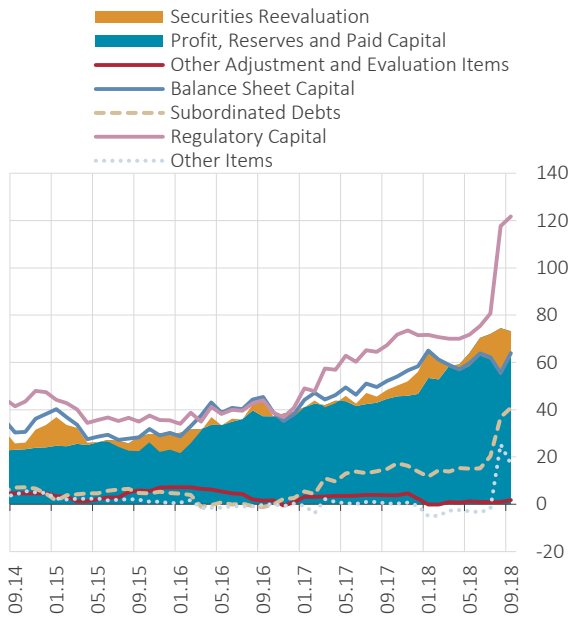
Note: In calculating the currency swap interest rate, the monthly simple average of 3-Month USD-TRY currency swap interest rates were used as a reference rate and the cost was estimated by using the monthly average net TRY-FX currency swap positions of banks and the monthly average USD rate.

The profitability ratio increased by about 11 basis points due to the moderate rise in the non-interest income, dividend income and banking services income.

IV.4.2 Capital Adequacy

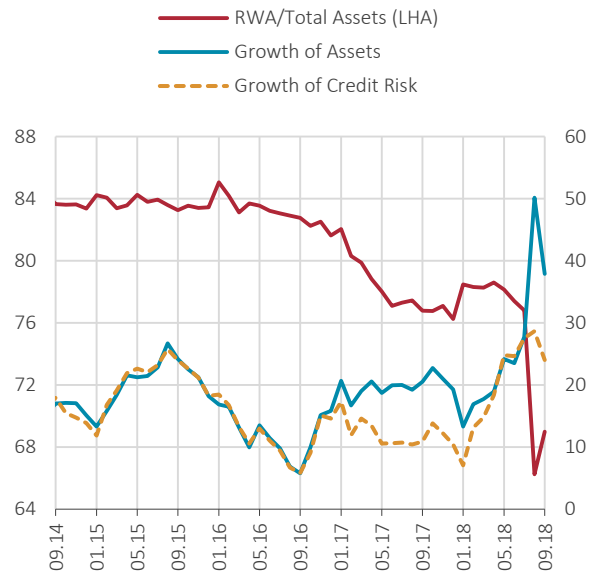
Over the past year, the legal capital has been positively affected by the flat course of the profitability and the increase in the subordinated debts. It is noteworthy that acquisition of the subordinated debts within the sector has accelerated since the second quarter of 2018. Meanwhile, exchange rate developments and negative valuation differences related to securities at fair value through other comprehensive income contained the impact on balance sheets equities (Chart IV.4.7).

Chart IV.4.7: Changes in Items Affecting Equity (12-Month Cumulative, TRY Billion)



Source: CBRT Latest Data: 09.18

Chart IV.4.8: Risks and Assets Developments (%)

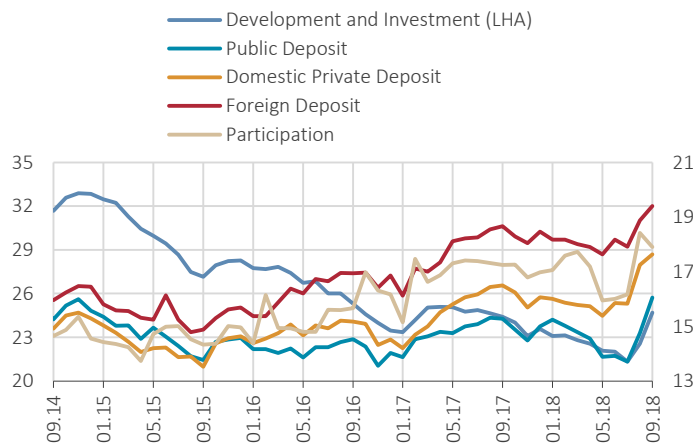


Source: CBRT Latest Data: 09.18

Although there has been no significant change in the composition of risk-weighted assets, the credit risk growth was determinant in the asset growth in the second quarter of 2018. On the other hand, the asset growth increased with the contribution of loans and accrued interest and income on the back of exchange rate and interest rate developments in the third quarter of 2018. As a result, the ratio of risk-weighted assets to total assets declined (Chart IV.4.8).

The sector's capital adequacy ratios remained strong owing to the profitability growth, acquisition of borrowing instruments that are included in capital calculations and the BRSA-introduced regulatory change related to exchange rates and interest rate effects in August 2018 (Chart IV.4.9). In the meantime, it should be noted that the recent exchange rate and interest rate developments have supported the CAR.

Chart IV.4.9: CARs by Types of Banks (%)



Source: CBRT Latest Data: 09.18