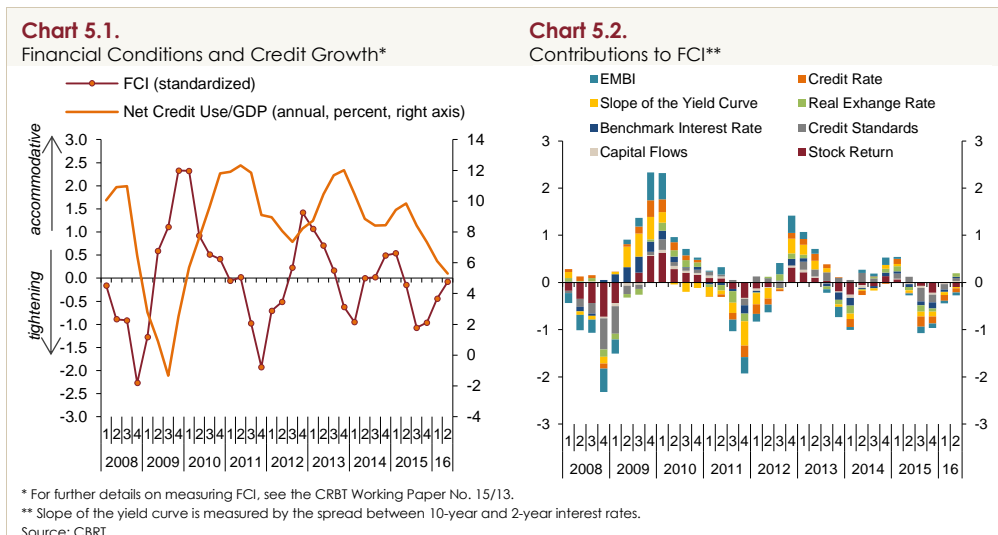


## 5. Financial Markets and Financial Intermediation

Developments in the second quarter of 2016 showed that the sluggish global growth prospects and the deflation risk in advanced economies continued. The Brexit referendum that resulted in the UK's decision to leave the EU further weakened the outlook for global growth and world trade volume. Under these conditions, advanced economies maintain their accommodative monetary policy practices. The Bank of England, the ECB and the Bank of Japan are expected to support the market through additional measures, while the Fed is anticipated to postpone a new rate hike to end-2016 or 2017.

The languishing growth outlook for emerging economies, mainly for Russia, China and Brazil, limits capital flows towards these economies. On the other hand, sustained low levels in oil prices compared to previous years, notwithstanding the rise, supports the economic outlook and financial markets in oil-importing emerging economies like Turkey compared to other emerging economies. In the second quarter of 2016, the favorable course of macroeconomic indicators in Turkey, the measures enforced by the CBRT under the road map and the simplification of the monetary policy limited the vagueness and risk sentiment regarding Turkey.

Accommodative monetary policies of advanced economies had a positive effect on the global risk appetite and financial conditions in the second quarter of 2016. Accordingly, the FCI calculated for Turkey improved further and neared a neutral level in the second quarter of 2016 (Chart 5.1). In this period, the real exchange rate, the benchmark rate, credit standards and capital flows contributed positively to the index, while stock return, credit rate, EMBI and the slope of the yield curve continued to contribute negatively to the index (Chart 5.2).



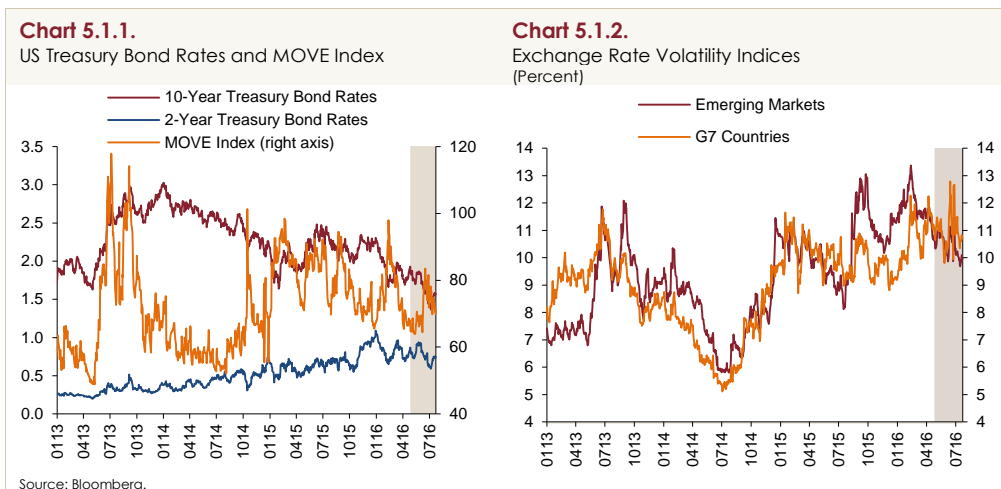
Markets witnessed fluctuations in mid-July owing to domestic commotion. Consequently, the CBRT announced additional measures on July 17 to ensure the effective functioning of markets. These measures effectively help the financial system have access to the needed liquidity. The CBRT shall take all required measures to maintain financial stability by monitoring the market depth and pricings in the

market. Thanks to the favorable course of the global risk appetite and enforced measures, the effects of domestic uncertainties are expected to prove temporary and limited.

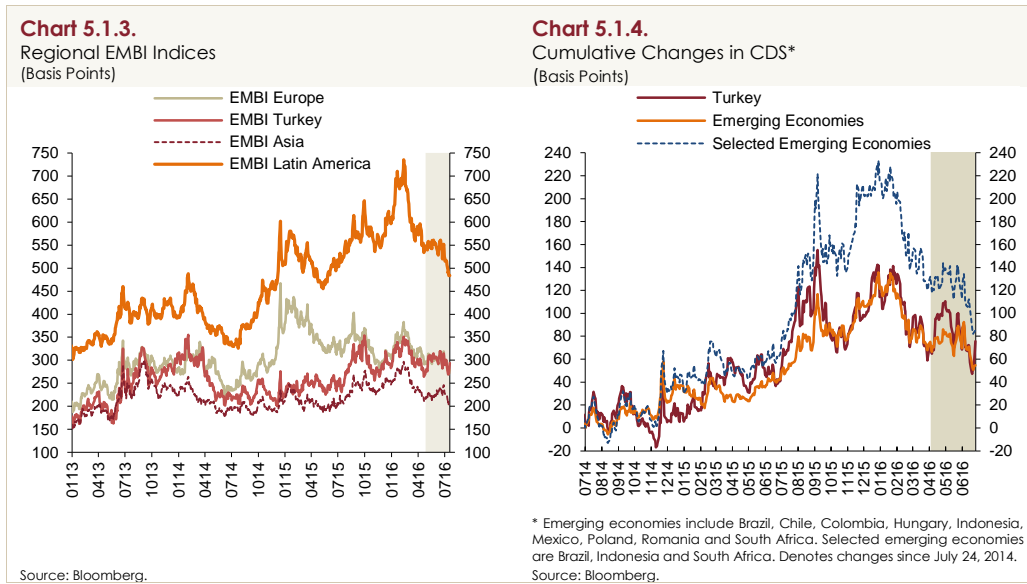
## 5.1. Financial Markets

### Global Risk Perceptions

In the second quarter of 2016, global markets were mainly affected by the monetary policy practices of major central banks and the Brexit referendum. The Fed rate hike probability jumped on strong US economic data releases in May as well as statements by Fed officials and the minutes from the FOMC meetings. Meanwhile, concurrent increase in downside risks to inflation in the Euro area fueled concerns. Thus, the global risk appetite declined slightly by mid-second quarter. The Brexit referendum on June 23 that resulted in the UK's unexpected decision to leave the EU also curbed the global risk appetite and created high volatility in global markets, which led to higher expectations that major central banks would take additional measures to combat elevated risks after the referendum. Against this background, the US bond rates, which increased in May, dropped again in June amid the expected delay in the Fed's rate, while the slope of the yield flattened (Chart 5.1.1). Moreover, the MOVE index, which captures the short-term volatility of US bond rates at different maturities, decreased slightly following the referendum. In the meantime, exchange rate volatility in emerging economies went below the previous quarter's readings (Chart 5.1.2). However, particularly due to the sharp movements in the pound sterling, the exchange rate volatility index of G7 remains high.

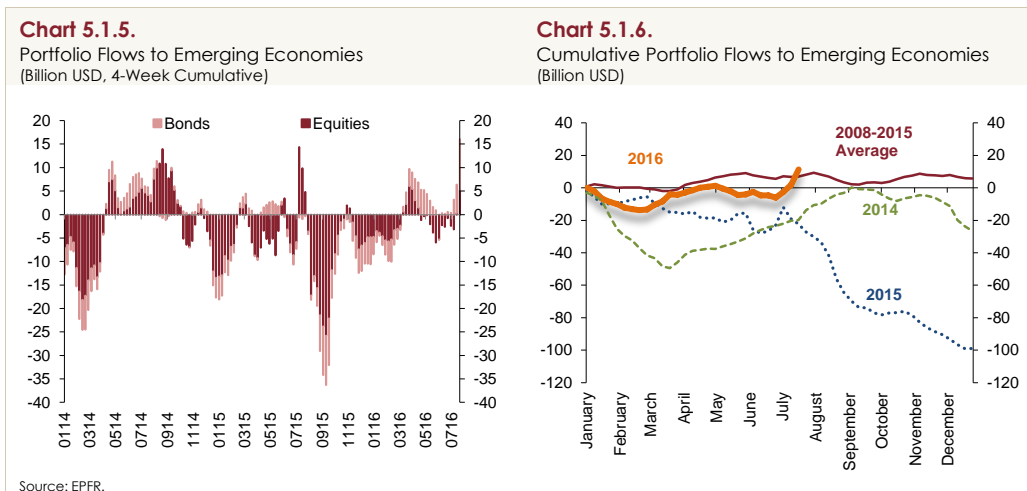


Amid these developments, EMBI and the CDS premiums increased in the second quarter, but decreased again in late June due to expectations that major central banks will adopt accommodative monetary policies (Charts 5.1.3 and 5.1.4). On country basis, risk premiums remained on the decline in the second quarter of the year particularly in commodity-producing countries due to partially recovering oil prices. Risk premium indicators for Turkey moved in tandem with peer emerging economies in this period. Upon an increase in May owing to domestic and external uncertainties, risk premium declined amid the improvement in the global risk appetite. Following the domestic commotion in mid-July, domestic risk premium indicators diverged negatively from other emerging economies.

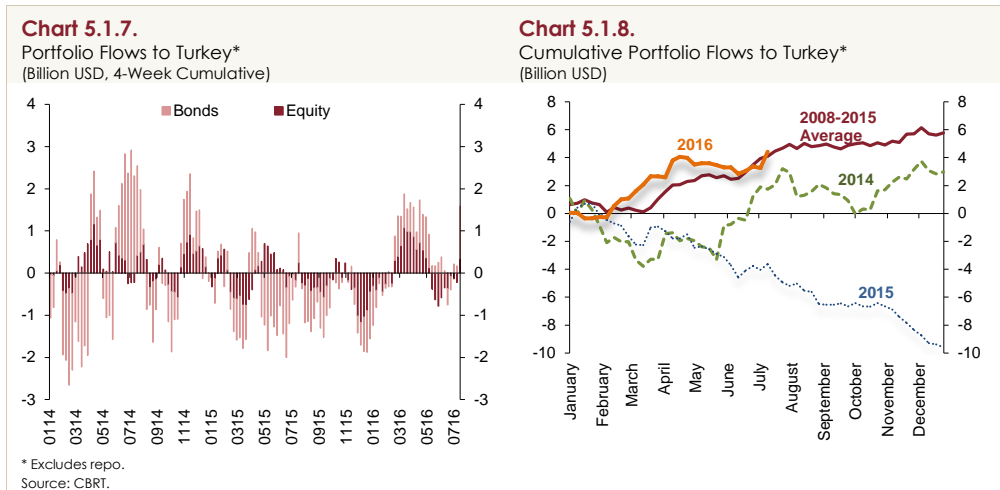


**Portfolio Flows**

Having hovered favorably amid the volatile global risk appetite in the first quarter of 2016, capital flows to emerging markets reversed particularly due to equity outflows as of May (Chart 5.1.5). The outflows in equity funds are attributed to inauspicious global growth prospects.



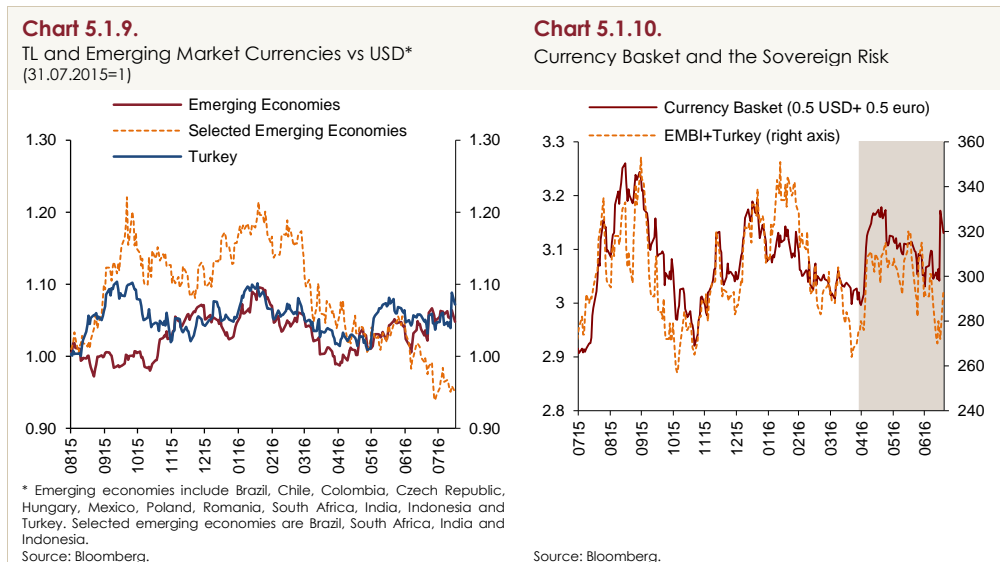
In emerging economies, inflows to equity funds decelerated, while inflows to bond funds accelerated. This is due to declining yields driven by mounting expectations that central banks in advanced economies will adopt accommodative monetary policies. Cumulative portfolio flows since the start of 2016 show that portfolio flows have hovered close to 2008-2015 averages according to the latest data (Chart 5.1.6). An analysis of all funds invested in emerging economies suggests that portfolio outflows exhibited a similar pattern across all emerging economies.



In line with other emerging economies, Turkey has recently experienced weakened portfolio movements due to equity outflows and portfolio movements hovered close to past years' averages (Charts 5.1.7 and 5.1.8).

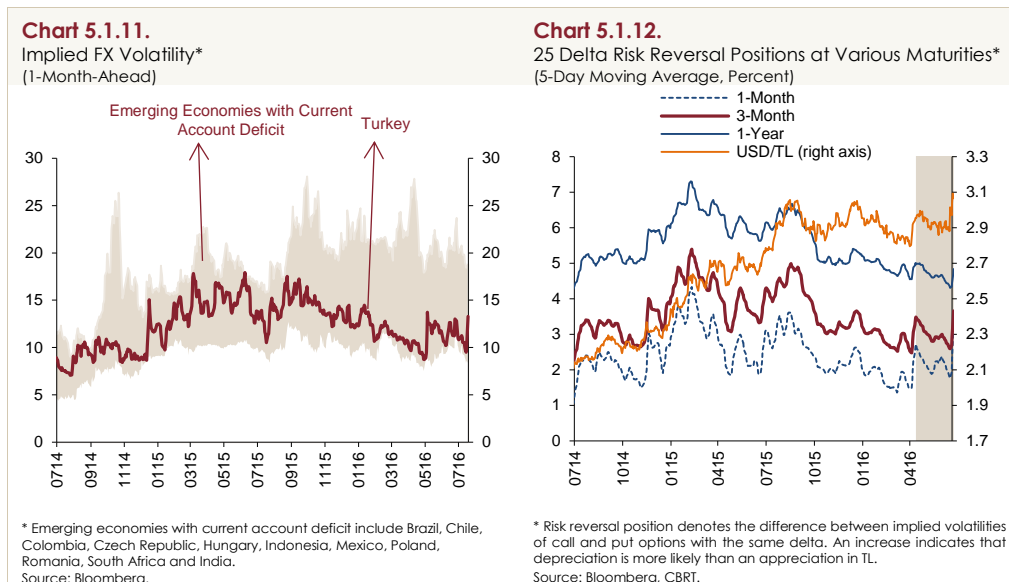
**Exchange Rates**

In the second quarter of 2016, these developments attenuated the global growth prospects mostly for advanced economies. Emerging market currencies depreciated by about 6 percent against the US dollar (Chart 5.1.9).



The Turkish lira followed a pattern similar to other emerging market currencies following the vague period at home and abroad in May. Upon the positive effect of the course of commodity prices, currencies of selected emerging economies consisting of Brazil, South Africa, India and Indonesia appreciated by around 10 percent against the US dollar in the second quarter of 2016. The Turkish lira depreciated against the currency basket by around 5 percent in May, while the EMBI+Turkey increased by around 40 basis points in the same period (Chart 5.1.10). However, the

depreciation of the Turkish lira against the currency basket receded from mid-May to mid-July and the risk premium returned to its third-quarter level in 2015. Market fluctuations stemming from the domestic chaos in mid-July led to increases in the currency basket and risk premium. Thanks to the measures adopted by the CBRT to enhance effectiveness in the liquidity market, these increases partially reversed as of July 18.



In the second quarter of 2016, the implied exchange rate volatility of emerging market currencies exhibited some convergence. The implied volatility of the Turkish lira displayed a temporary and limited rise in early May, while it saw lower levels than the currencies of other emerging economies posting a current account deficit in the rest of the quarter (Chart 5.1.11). Following the developments in mid-July, the Turkish lira grew a little volatile. Consequently, risk reversal positions also surged, albeit temporarily in May, and declined back upon the immediate elimination of domestic uncertainties (Chart 5.1.12). Developments in the reversal positions in the remainder of the second quarter indicate recovering expectations for appreciation in the Turkish lira. The recent domestic uncertainties pushed risk reversal positions slightly upwards.

### Monetary Policy

The CBRT maintained its policy stance, which is tight against the inflation outlook, stabilizing for the FX liquidity and supportive of the financial stability in the second quarter of 2016. The effective use of the policy tools announced in the road map of August 2015 has strengthened the resilience of the economy against global shocks. In particular, the introduction of these new instruments alleviated the volatility particularly in exchange rates and credits in the second quarter. As these developments reduced the need for a wide interest rate corridor, the CBRT decided to take measured steps towards simplification by lowering the marginal funding rate by 50 basis points at each MPC meeting in April, May and June.

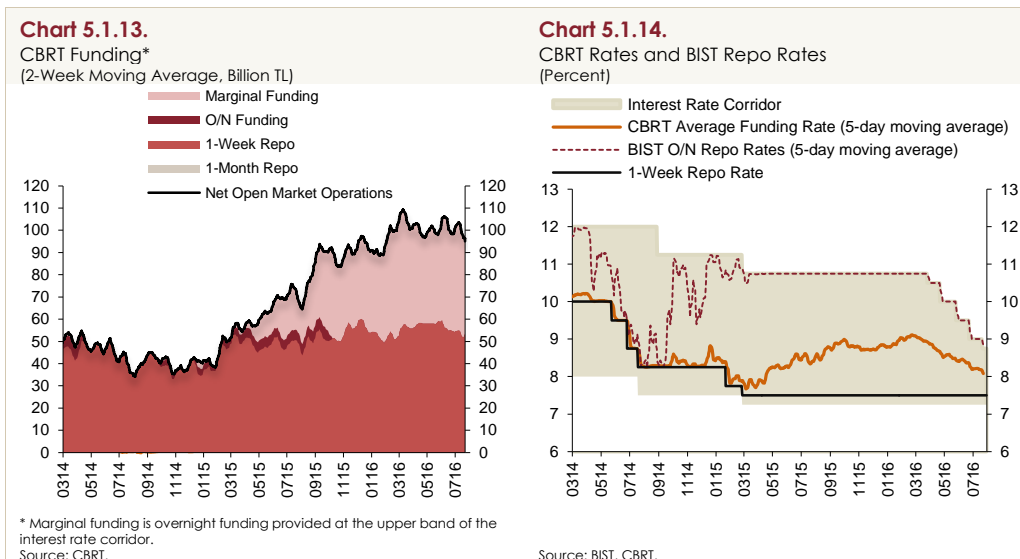
The CBRT took steps to enhance the predictability and effectiveness of the liquidity policy in the second quarter of 2016. In this respect, the daily auction amount of one-week repo funding provided

by the quantity auction method was set to ensure the balanced daily distribution of weekly funding stock starting from June 3. Moreover, the CBRT decided to continue with outright purchase auctions until the year-end to support the effective implementation of the Turkish lira liquidity management. Accordingly, the portfolio size of open market operations, which is already 9 billion TL in nominal terms, is expected to reach 14 billion TL by the year-end.

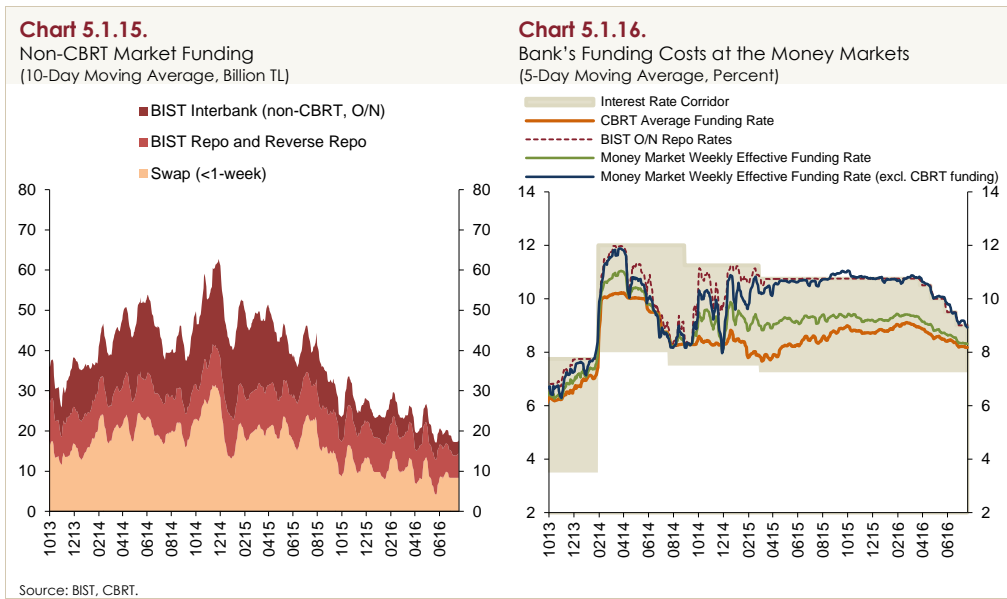
The domestic commotion in mid-July led to fluctuations in the markets. Hence, the CBRT announced additional measures on July 17 to ensure the effective functioning of the markets. As stated in the press release, in the upcoming period, the CBRT will provide banks with needed liquidity without limits and the commission rate for the intraday liquidity facility will be zero. Furthermore, banks will be allowed to place a foreign exchange deposit as collateral without limits for the required Turkish lira liquidity. Also, banks' current foreign exchange deposit limits of around 50 billion USD may be increased and utilization conditions may be improved, if deemed necessary. All markets at the CBRT will be open until the final settlement of transactions. Lastly, the market depth and pricings will be closely monitored and all measures will be taken to ensure financial stability, when necessary.

The above-stated liquidity measures restricted the elevated volatility in markets. To enhance the predictability and effectiveness of the monetary policy, the CBRT decided to take one more measured step towards simplification. Accordingly, the marginal funding rate was reduced by 25 basis points to 8.75 percent, while one-week repo auction and overnight borrowing rates were kept unchanged at 7.5 and 7.25 percent, respectively, in July.

One-week repo auctions continued to be the main tool for CBRT funding in the second quarter of 2016, while the share of the marginal funding remained high (Chart 5.1.13). The weighted average funding rate, which hit 9.1 percent in February 2016, dropped to approximately 8.2 percent in July. Interbank overnight repo rates recorded a decline in tandem with the cut in the upper band of the interest rate corridor (Chart 5.1.14). In the upcoming period, the monetary policy stance will remain dependent on the inflation outlook. Taking into account inflation expectations, the pricing behavior and other factors affecting inflation, the tight monetary policy stance will be maintained.

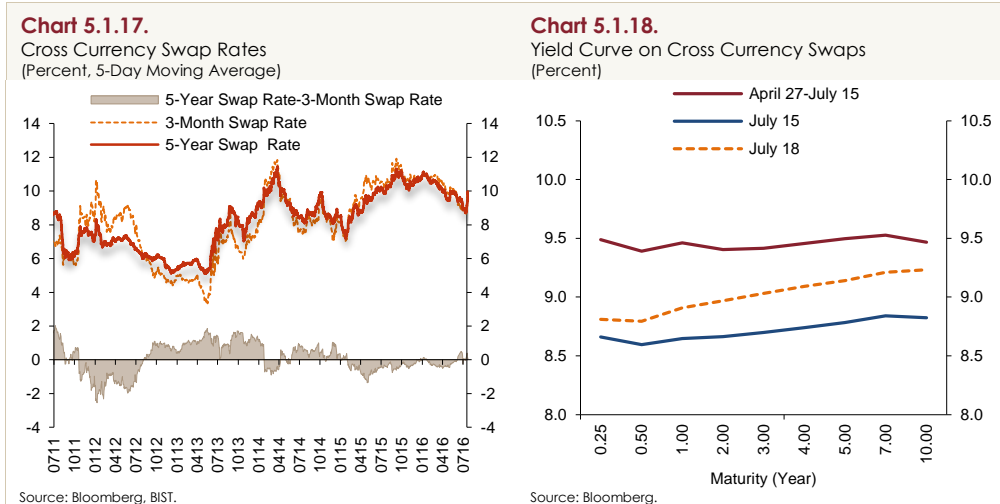


In addition to funds provided by the CBRT, short-term funds acquired by various markets also play a significant role in meeting the Turkish lira liquidity requirement of the banking system. In the money market, non-CBRT market funding with up to one-week maturity is mostly obtained via swap markets. This is followed by funds transacted under the BIST Interbank Repo and Reverse Repo Market and those which are exchanged by intermediaries under the BIST Repo and Reverse Repo Market. Following the release of the road map, arrangements regarding the use of FX deposits against collateral were amended, reducing the need for an exchange rate swap. In the meantime, non-CBRT market funding followed a flat course in the second quarter of 2016 (Chart 5.1.15).

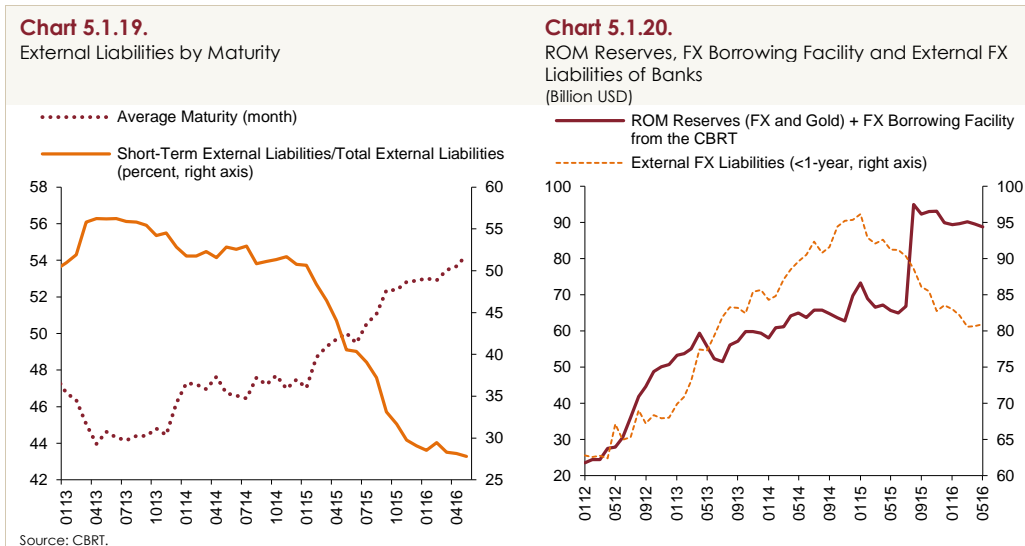


The effective funding rate, which is calculated by the weights of the CBRT and non-CBRT funds in total funds neared the average funding rate in the second quarter of 2016 and stood at 8.31 percent on July 19 (Chart 5.1.16). This is mainly owed to the fall in short-term market rates amid the reductions in the upper band of the interest rate corridor and the fact that banks reduced borrowing from non-CBRT funding in the money market.

The spread between 5-year market rates and the BIST overnight repo rates continued to hover at near-zero values in the second quarter of 2016 (Chart 5.1.17). Mounting prospects for an extended period of low policy rates across advanced economies in the second quarter as well as the benign course of the domestic macroeconomic indicators and the marginal funding rate cut led to a downward shift in the yield curve obtained from the cross currency swap rates in the inter-reporting period (Chart 5.1.18). In line with the downtrend in the CBRT's funding rate, short-term rates registered a faster decline. Meanwhile, following domestic developments in mid-July, the yield curve shifted upwards again, mostly in longer maturities.



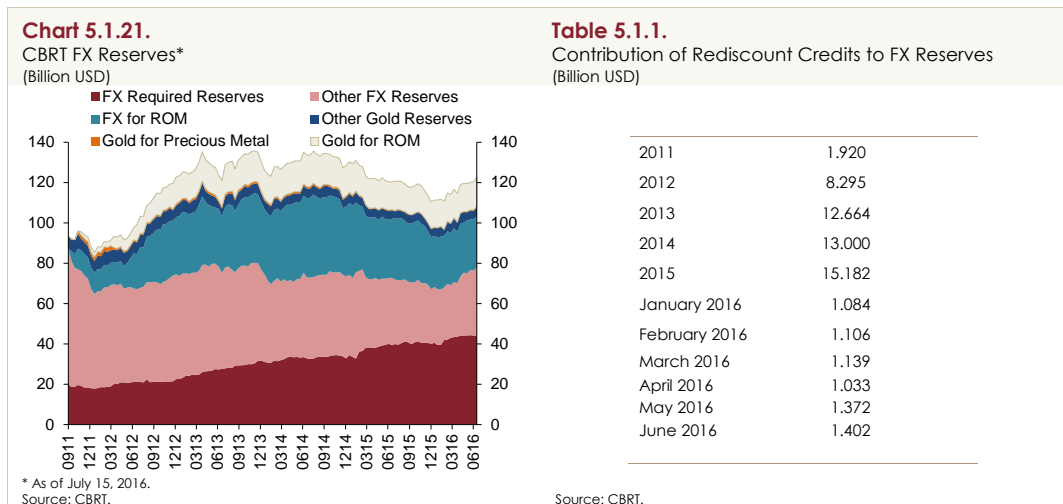
Thanks to the measures taken by the CBRT since early 2015 to support financial stability, maturities of non-core FX liabilities continued to extend in the second quarter of 2016 (Chart 5.1.19). The extended maturity of banks' external borrowings helped to alleviate the external debt rollover risk and also strengthened the resilience of banks against global shocks. The CBRT took measures to enhance the flexibility of the foreign exchange liquidity management as of the second half of 2015. Accordingly, deposit limits allocated to banks and the sum of gold and foreign exchange assets held at the CBRT under the ROM reached a level that could easily meet all the external debts of banks in the next year. This level has been maintained as of the second quarter of 2016 (Chart 5.1.20).



The CBRT's gross FX reserves recorded an increase as of July 2016 compared to the previous reporting period (Chart 5.1.21). In this period, the CBRT's direct foreign exchange sales to energy-importing state institutions remained limited and daily foreign exchange auctions halted, which led other FX reserves to witness a notable fall. The limited decline in the amount maintained by banks under the ROM was offset by the increase in the banks' reserves maintained against FX reserve requirements. The CBRT announced on June 16 that the maximum maturity of bills to be accepted for rediscount was raised from 240 days to 360 days for financing of exports to new markets to be

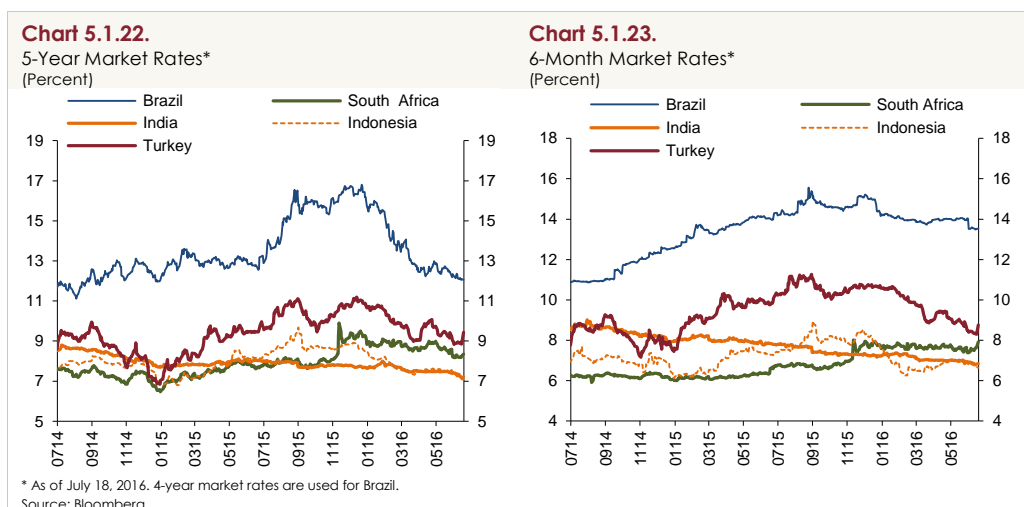


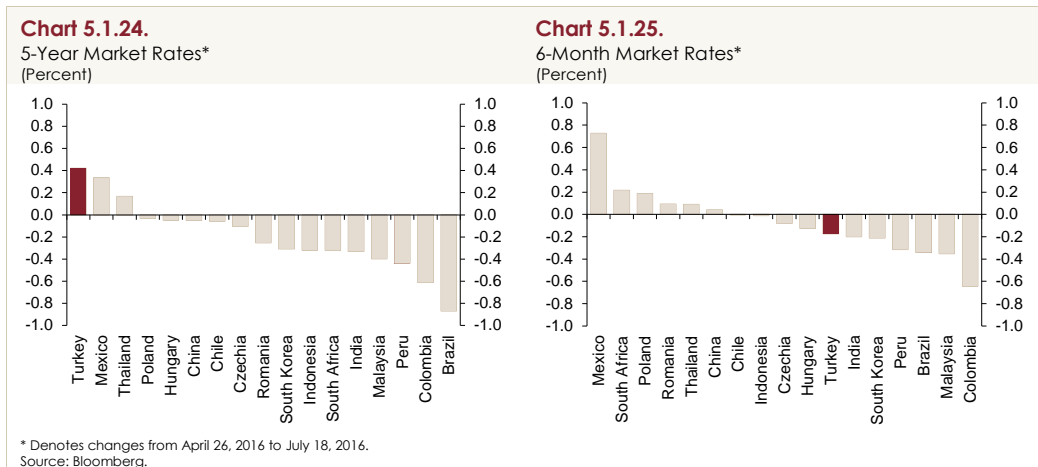
determined by the Directive on Rediscount Credits for Exports and Foreign Exchange Generating Services and exports of high-tech industrial products as well as the financing of tourism and other foreign exchange generating services. The CBRT sold 6.4 billion USD through FX selling auctions and direct FX sales to energy-importing SEEs in the first quarter of 2016. The FX amount obtained by rediscount credits equaled 7.1 billion USD in this period (Table 5.1.1).



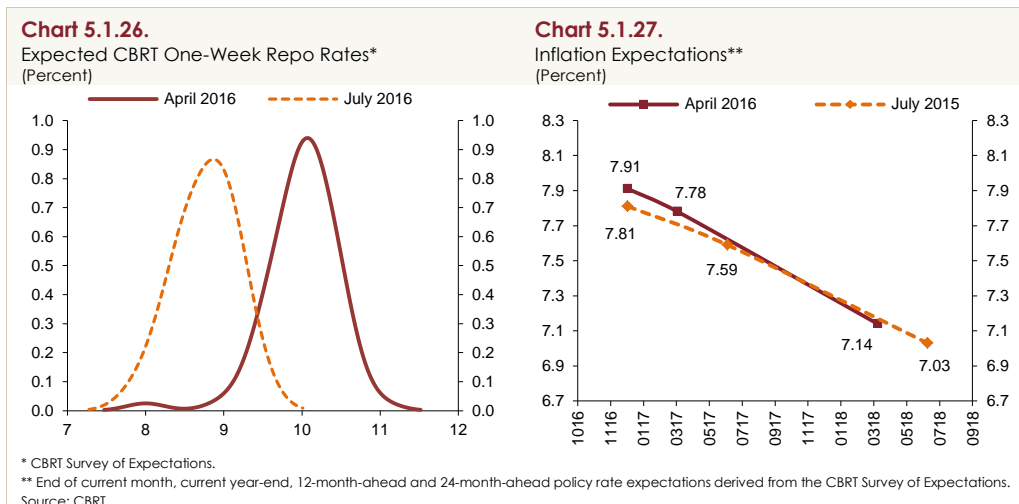
### Market Rates

In the second quarter of 2016, market rates in emerging economies remained on a flat or downward track due to global financial conditions (Charts 5.1.22 and 5.1.23). Market rates were particularly down in Brazil, South Africa and Turkey, and fell modestly in Indonesia and India, remaining almost horizontal. Market rates in Turkey registered considerably low figures due to falling risk premium, favorable exchange rate developments and promising inflation prospects in the second quarter particularly in the short term. However, developments in mid-July drove market rates in Turkey upwards again. Accordingly, as of July 18, 5-year market rates registered higher increases in Turkey than peer emerging economies compared to the previous Report (Chart 5.1.24). Meanwhile, Turkey saw falling rates in 6-month maturity (Chart 5.1.25).





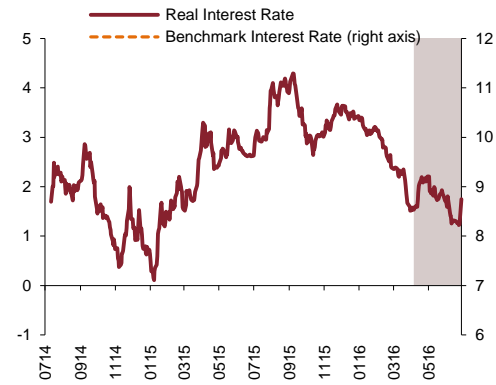
Given the recently waning global volatility and favorable inflation prospects, the CBRT took steps towards monetary simplification by lowering the marginal funding rate gradually. Accordingly, the expected overnight rate distribution at the BIST Repo and Reverse Repo Market implied relatively lower volatility compared to the previous reporting period, whereas the mid-point of the distribution shifted leftward by about 120 basis points to around 8.8 percent (Chart 5.1.26). Inflation expectations, which are influential in long-term market rates, fell moderately by about 10 basis points for the current year-end compared to April. This fall manifested itself in 12-month-ahead expectations by about 20 basis points, and to a limited extent in 24-month-ahead expectations (Chart 5.1.27).



Upon trending downwards in early 2016, the benchmark interest rate increased amid domestic uncertainties in early May, yet declined modestly owing to the fast rebound in global risk appetite, the favorable inflation outlook and the decline in risk premium (Chart 5.1.28). Despite a rebound in mid-July, the benchmark rate has decreased by about 30 basis points in the inter-reporting period by July 18. Meanwhile, the fall in 24-month-ahead inflation expectations pushed 2-year real interest rates slightly upwards in that period. A comparison of 2-year real interest rates across emerging economies shows that Turkey ranks in the middle (Chart 5.1.29).

**Chart 5.1.28.**

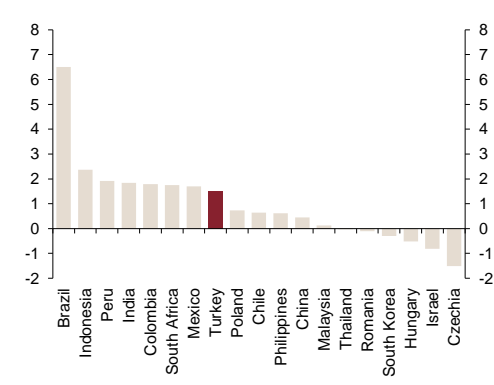
2-Year Real Interest Rate and the Benchmark Interest Rate in Turkey\* (Percent)



\* Calculated as the difference between 2-year market rates and the 24-month-ahead inflation expectations derived from the CBRT Survey of Expectations.  
Source: Bloomberg, BIST, CBRT.

**Chart 5.1.29.**

2-Year Real Interest Rates\* (Percent)



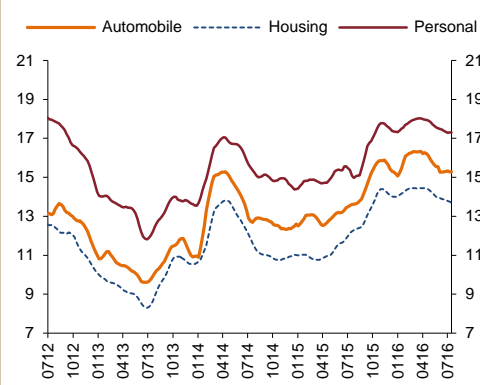
\* Calculated as the difference between 2-year Treasury bond yields of countries and the 24-month-ahead inflation expectations derived from the Consensus Forecasts. As of July 18, 2016.  
Source: Bloomberg, Consensus Forecasts, CBRT.

**Credit Rates and Banking Sector Funding Costs**

Upon a modest quarter-on-quarter rise in the first quarter of 2016, rates on credits extended to the non-financial sector recorded a decline in the second quarter of the year (Chart 5.1.30). Rates on commercial credits, which have a shorter maturity than consumer credits also posted a decline (Chart 5.1.31). A reduction in the CBRT's marginal funding rate is considered to be one of the reasons underlying the slowdown in credit rates. Results of the Loan Tendency Survey for the March-June period indicate that credit standards loosened slightly.

**Chart 5.1.30.**

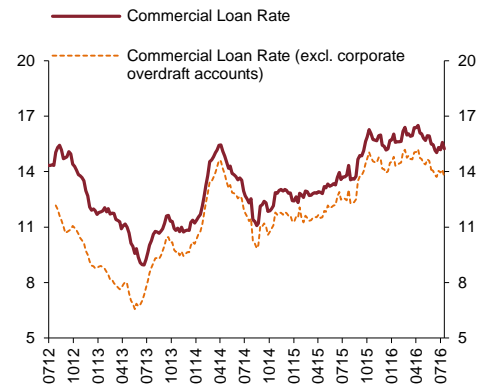
Consumer Credit Rates (Flow, Annualized, 4-Week Moving Average, Percent)



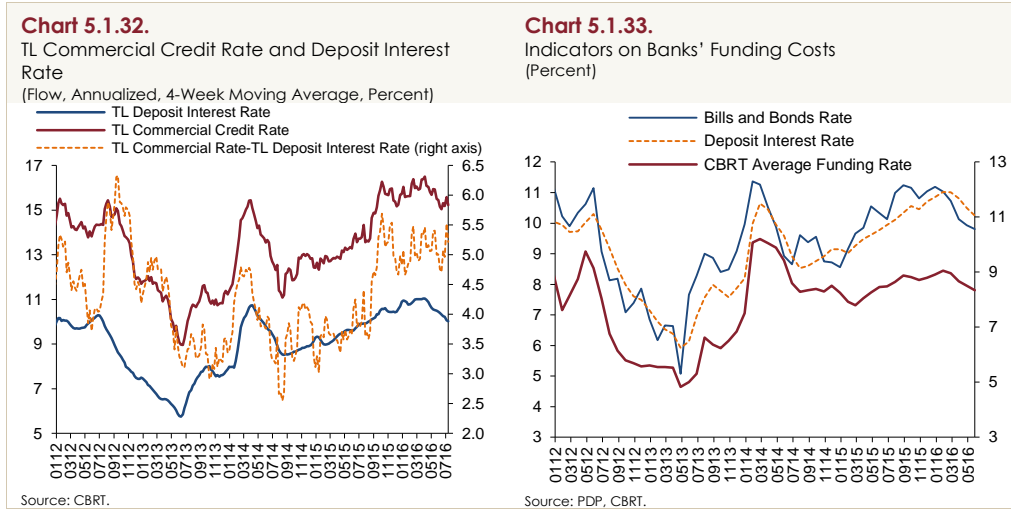
Source: CBRT.

**Chart 5.1.31.**

TL Commercial Credit Rates (Flow, Annualized, 4-Week Moving Average, Percent)

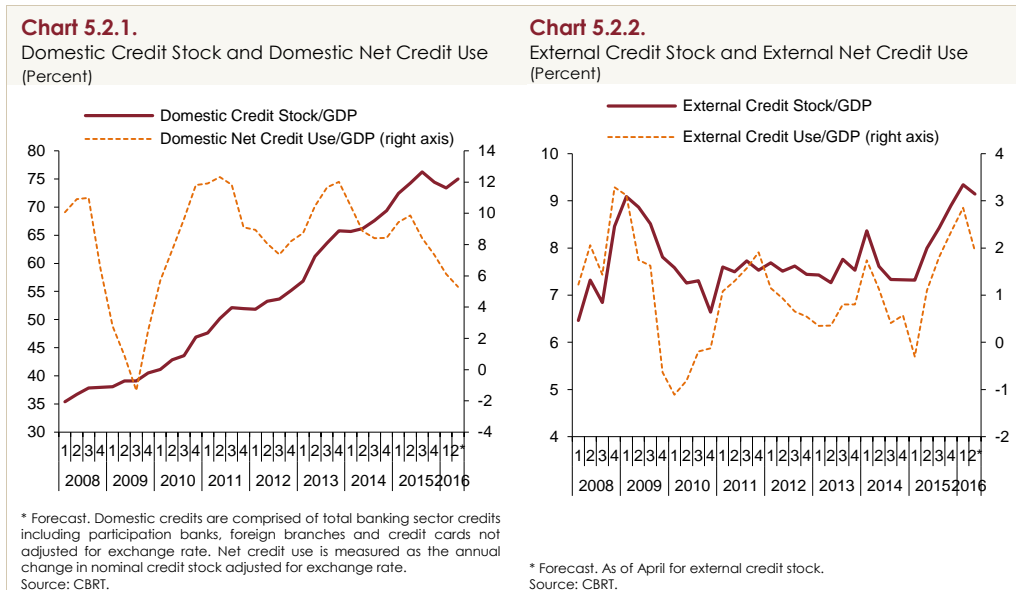


Rates on deposits with maturities shorter than three months, which are the primary financing resources of the banking sector, posted a quarter-on-quarter decline by 100 basis points in the second quarter of 2016. As commercial credit rates dropped more than deposit rates, the spread between commercial credit rates and deposit rates contracted by around 15 basis points to 522 basis points in the second quarter, (Chart 5.1.32). In tandem with the favorable course of both global and domestic financial conditions, banks' rates on bills and bonds receded further in the second quarter (Chart 5.1.33).

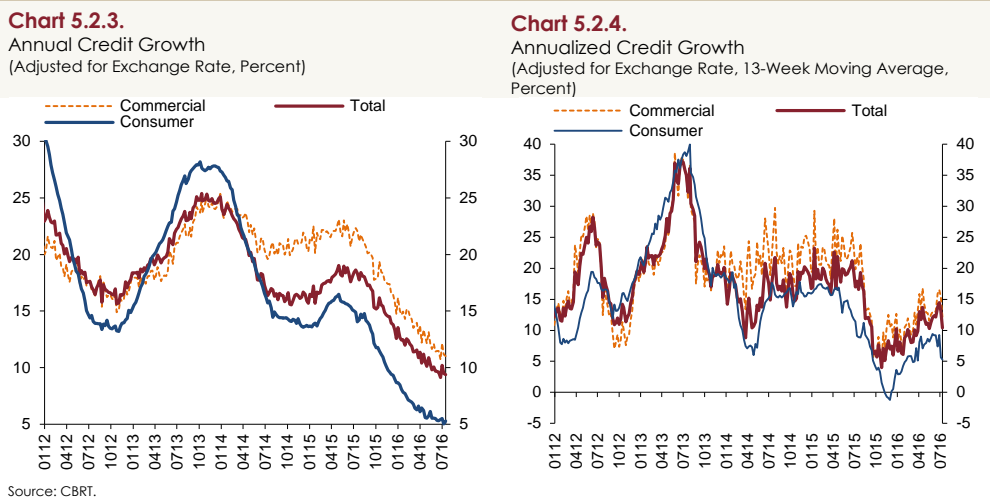


## 5.2. Credit Volume and Monetary Indicators

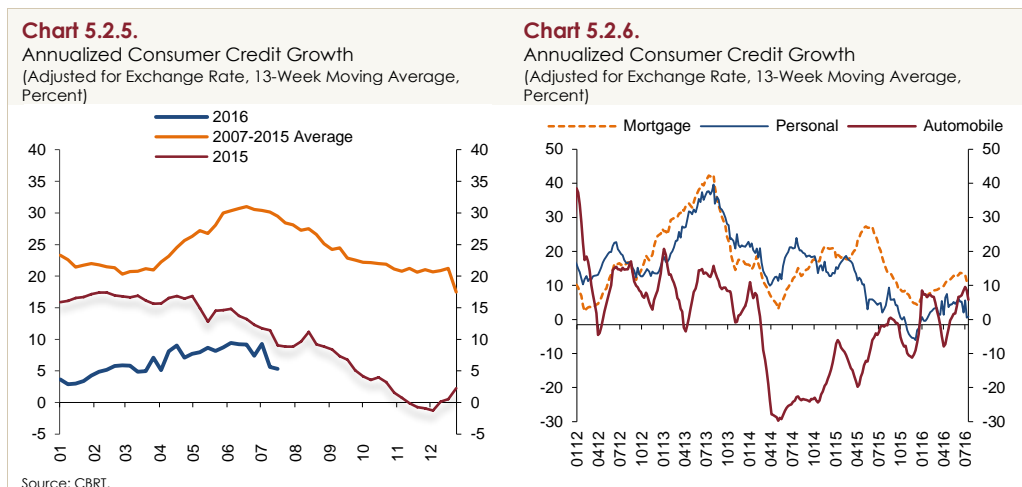
The ratio of net credit use to the GDP, which is critical to financial stability and an indicator of the relationship of credit growth with economic activity and aggregate demand, remained on a downward track and stood at 5.3 percent in the second quarter of 2016 (Chart 5.2.1). The course of firms' use of net external credits hints at easy access to external borrowing (Chart 5.2.2).



The deceleration in the annual growth rate of credits extended to the non-financial sector, which started in the last quarter of 2015, continued in the first half of 2016. A breakdown of total credits shows that commercial credits continued to grow faster than consumer credits due to the measures adopted by the BRSA and recently weakening consumer confidence.



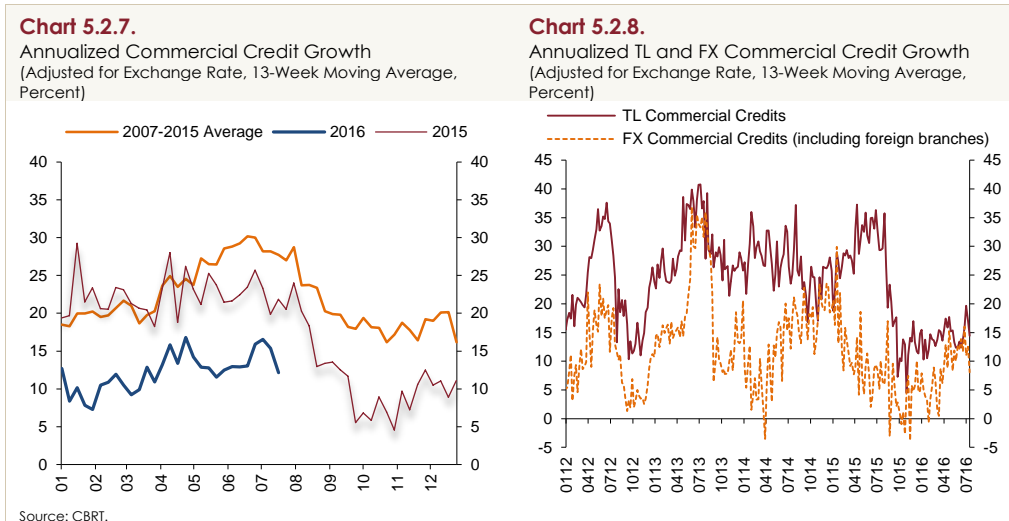
In the second quarter of 2016, credits extended to the non-financial sector were up 9.5 percent year-on-year in exchange rate adjusted terms (Chart 5.2.3). 13-week moving averages, which reflect the second-quarter developments, reveal that total credits grew by 10.4 percent annually (Chart 5.2.4). The recent course of the annualized growth rate of credits extended to the non-financial sector, which is in tandem with seasonal factors, suggests that the annual growth rate may settle on a flat path over the forthcoming period.



Having hovered below past years' averages in the second half of 2015, the annualized growth rate of consumer credits started to recover in the first quarter of 2016 (Chart 5.2.5). Thus, the consumer credit growth ended the second quarter at 5.3 percent in annualized terms. The annualized growth rate of mortgage credits with a 5-year average maturity and higher interest rate sensitivity proved greater than other sub-items, yet remained below past years' averages and stood at 10.2 percent. According to the results of the Loan Tendency Survey, the demand for mortgage credits edged up in the second quarter while credit standards saw a little tightening. Weakening since mid-2015, personal credits remained subdued, ending the quarter at 0.8 percent. Upon a fast recovery in the second quarter of 2016, the annualized growth rate of automobile credits stood at 5.8 percent at the end of the quarter (Chart 5.2.6). Data from the Loan Tendency Survey suggest that credit standards tightened

to some extent in automobile and personal credits in the second quarter. Meanwhile, the demand for both automobile and personal credits contracted. Sub-items of consumer credits exhibited a divergence with regard to non-performing loans ratio. The ratio of non-performing loans in mortgages remained flat in this quarter, while that in automobile loans declined modestly. The ratio of non-performing personal loans, on the other hand, inched up to 5.9 percent.

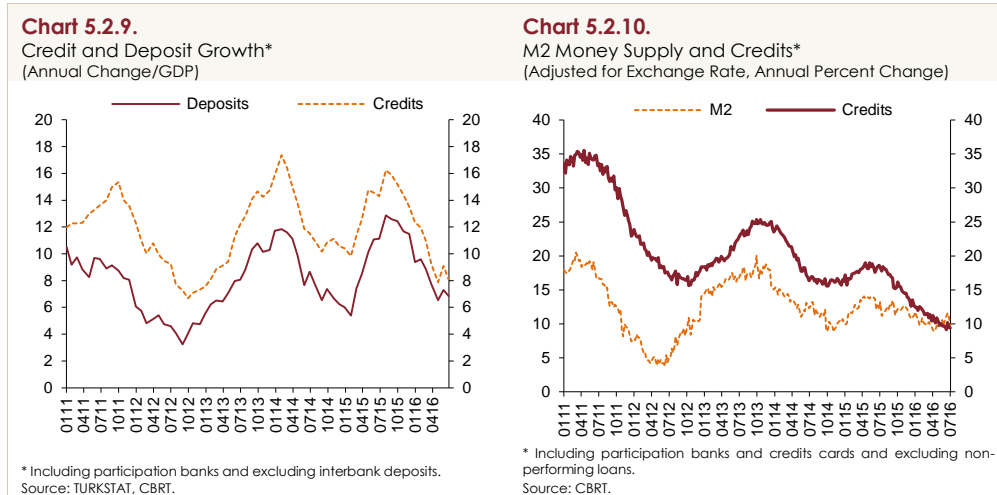
In the second quarter of 2016, the annualized growth rate of commercial credits remained below the averages of past years and hit 12.1 percent (Chart 5.2.7). Among subcategories of commercial credits, FX-denominated credits recorded an annualized growth rate of 8 percent. Used primarily for operating capital, TL-denominated credits were more robust, ending the quarter at 14.4 percent. According to the Loan Tendency Survey, the tightening of standards on commercial credits alleviated in the second quarter of 2016. Standards on TL commercial credits saw an easing, whereas those on FX commercial credits were tighter in this quarter. Meanwhile, standards on credits for SMEs loosened somewhat, while that for large-sized firms squeezed a little. Credit standards tightened for both short and long-term credits, albeit considerably more for the former.



Factors affecting commercial credit standards show that expectations for overall economic activity were the main determinant of the tightening in credit standards in the second quarter of 2016. In this period, banks reduced profit margins for average credits, and eased standards in special conditions in credit contracts. According to the Loan Tendency Survey, credit standards are expected to tighten in the third quarter of 2016. Expectations have shown no divergence in size, yet standards on long-term credits and FX-denominated credits are expected to be much tighter. On the demand front, firms' credit demand is expected to pick up substantially in the third quarter of 2016. This likely upturn may not differ in firm size, but on the maturity side, longer-term credits are expected to see a larger growth in demand. On a currency basis, expectations suggest an increased demand for TL-denominated credits in contrast to a decreased demand for FX-denominated credits.

Annual growth rates of both consumer and commercial credits remained on a downward track in the second quarter of 2016. Moreover, commercial credits continued to grow at a faster pace than consumer credits in this period. Macroprudential policies enforced in recent years not only brought the credit growth rate to sustainable levels, but also directed the credit composition towards production

rather than consumption. Accordingly, the faster growth of commercial credits contributed to the re-balancing process and also financial stability.



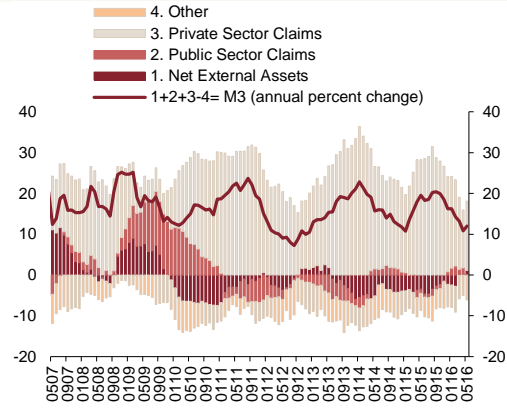
In the first quarter of 2016, growth rate of deposits slowed down at a similar pace to that of credits on a quarterly basis (Chart 5.2.9). Thus, the credit-to-deposits ratio remained on a horizontal track. The relationship between M2 and credits suggests that the annual rates of growth in credits and M2 have declined since the last quarter of 2015 (Chart 5.2.10).

### Monetary Indicators

Having trended downwards in the first quarter of 2016, the annual growth of M3, the broad measure of money supply, halted in the second quarter. Annual growth of M3 amounted to 11 percent by June. In terms of the balance sheet decomposition of M3, this trend was determined primarily by Private Sector Claims, which mostly include credits extended by banks to non-financial private individuals and institutions. On the other hand, in the second quarter, Net External Assets started to contribute positively to the M3 growth, albeit modestly. After positive contributions in early 2016, Public Sector Claims contributed negatively by about 0.1 points to the growth of money supply in May. Lastly, the item Other continued with a steady course in line with bank profitability, and continued to be a non-deposit funding source for the banking sector (Chart 5.2.11).

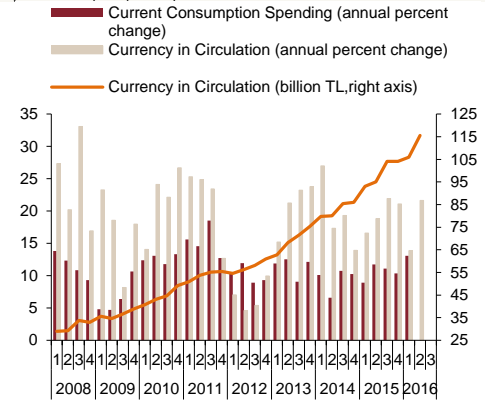
Following a halt in the first quarter of 2016 in seasonally adjusted terms, the currency in circulation trended upwards in the second quarter, implying a remarkable increase on a quarterly basis. The annual growth in current consumption spending, which is among the determinants of the currency in circulation, recorded a quarterly uptick in the first quarter of the year. The uptrend in the currency in circulation also in the second quarter possibly implies a further increase in the current consumption spending (Chart 5.2.12).

**Chart 5.2.11.**  
Balance Sheet Decomposition of M3  
(Contributions to Annual M3 Growth)



Source: CBRT.

**Chart 5.2.12.**  
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.

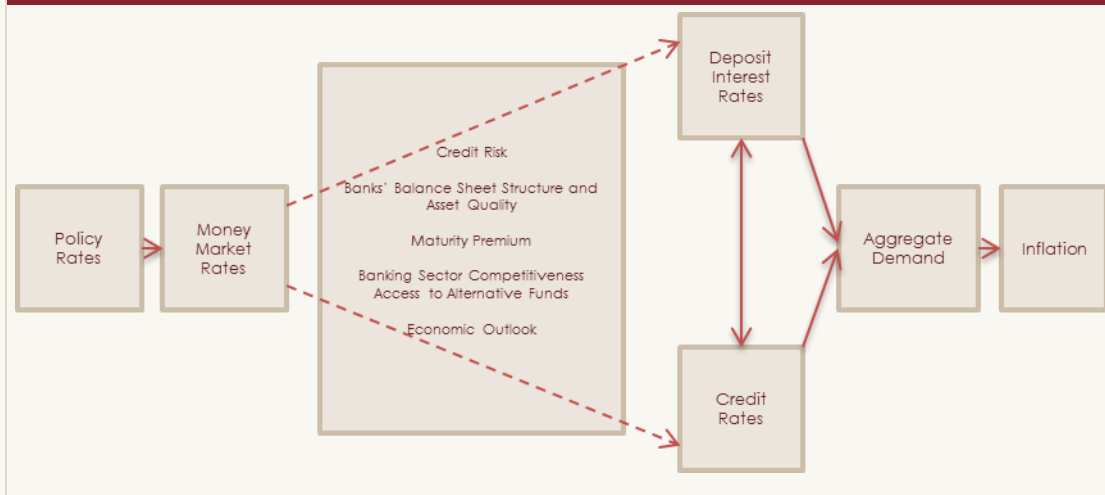


Box  
5.1

## Recent Developments in Monetary Policy, Credit Rates and Deposit Interest Rates

Monetary policy can influence the real economy through various channels. One particular route is the traditional interest rate channel, i.e. the mechanism through which short-term interest rates set by the central bank affect interest rates determined by the banks. As policy rates may have an effect on banks' short-term funding costs, they can also influence credit and deposit interest rates, thereby affecting aggregate demand. Figure 1 displays the functioning of the traditional interest rate channel. This box discusses how effective is the traditional interest rate channel on which economic agents, under what conditions and during which periods of time on a general and Turkey-specific basis.

Figure 1. Traditional Interest Rate Channel



The literature on the traditional interest rate channel shows that policy rates have a strong impact on credit or deposit interest rates in normal times.<sup>1</sup> However, in periods of heightened stress such as the global crisis, short-term market rates and bank rates may react differently to policy rates compared to normal times.<sup>2</sup> In fact, it can be inferred from recent literature that the relationship between policy rate and credit-deposit interest rates has changed since the global crisis.

Policy rate changes are mostly reflected on credit and deposit interest rates in the short term and the transmission is more apparent during periods of tightening. On the other hand, the pass-through from policy rates to credit rates is rather limited during expansions. This is mainly attributed to the varying degree of credit risk across firms and over time as well as fluctuations in the economic outlook and changes in the banks' balance sheet structure and asset quality.

<sup>1</sup> Major previous studies are Bernanke and Blinder (1988), Cottarelli and Kourelis (1994), De Bondt (2002), ECB (2009) and Banerjee et al. (2013). Besides credit rates, policy rates can also influence credit volume. This transmission mechanism is called the credit channel (Bernanke and Gertler, 1995; Kashyap and Stein, 2000).

<sup>2</sup> For further details, see Iles et al. (2015), Gambacorta et al. (2014), Karagiannis et al. (2010) and Darracq et al. (2014).

Credit risk, which measures the strength and the constraints in firms' balance sheets, is a major factor limiting the complete pass-through of policy rates to credit rates. As there is asymmetric information between banks and firms in credit demand, firms end up paying external financing premium in proportion to the fragility of their balance sheets and the strength of their income cycles (Kaplan and Zingales, 1997; Bernanke and Gertler, 1999; Whited and Wu, 2006). Monetary policy can affect firms' balance sheets and the income cycle by affecting asset prices and by controlling the aggregate demand through other transmission channels. However, this mechanism is rather indirect and its effectiveness may be hindered in the absence of economic growth. Studies implemented in the CBRT indicate that commercial credit rates are strongly dependent on firms' balance sheets. Large firms with low leverage and high growth potential may borrow at lower interest rates. Meanwhile, the BIST overnight borrowing rate, portfolio flows and real GDP growth, which signifies aggregate demand, stand out as macroeconomic variables affecting commercial credit rates. Lastly, bank-specific factors are also influential in commercial credit rates. In this regard, large banks with high efficiency (banks with high net interest income to shareholders' equity) are able to extend credits at lower rates. Hence, several factors besides policy rates are in effect regarding credit rates.

Maturity premium on credits and alternative funding resources other than central bank liquidity also inhibit the complete pass-through from policy rates to credit and deposit interest rates. As credit rates have longer maturity than policy rates, the maturity premium is also taken into account by banks when extending credits to firms or consumers. Moreover, as the CBRT funding constitutes less than 5 percent of the total banking sector assets, resources provided by domestic or external financial institutions and equity issues are also important sources of short-term funding for banks besides central bank liquidity. In this regard, global liquidity conditions bear an indirect effect on credit rates by affecting banks' external funding costs.

Another factor to restrict pass-through is the fact that the effect of the policy rate on credit and deposit interest rates varies across banks. In particular, banks with relatively low liquidity or capital adequacy may have difficulty accessing alternative funding resources, which makes them more sensitive to changes in monetary policy. Lastly, banks' long-term relationships with their creditors or depositors and the structure of the industry (e.g. competitiveness, legislation, etc.) are other factors affecting the complete pass-through of policy rates to bank rates. In particular, amid the financial deepening following the domestic financial crisis in 2001, the credit-to-deposit ratio rose and surpassed 115 percent as of the end of the second quarter of 2016. This leads to an intense competition in the deposit market with a resulting downward rigidity in deposit interest rates on the one hand, and also a further expansion in the credit volume on the other.

Studies analyzing the pass-through from policy rates to bank rates in Turkey show that policy rates have an effect on credit rates, which varies by loan type and over time. Aydın (2007) states that consumer credit and commercial credit rates react differently to policy rate. Özdemir (2009) asserts that changes in policy rates are fully passed through to credit and deposit interest rates in the long term, while in the short term, credit rates adjust more to policy rates than deposit interest rates. Also, interest rates exhibit more rigidity in downward changes compared to upward changes.

Meanwhile, by conducting a survey-based study to explain the effects of the monetary policy on the banks' lending behavior, Alper et al. (2011) claim that credit rates are determined significantly yet not solely by policy rates. Accordingly, credit maturity and risk premium are other significant factors, which are taken into consideration in setting credit rates. In this respect, macroeconomic conditions are less influential in determining credit risk premium. However, in addition to these direct effects, economic shocks also affect credit supply and conditions via firms' financial positions.

By analyzing the new monetary policy mix episode, Binici et al. (2016) indicate that credit and deposit rate pricings by banks are mostly based on the effective interest rate rather than the official policy rate. In this respect, credit rate pricing is mainly determined by overnight market rates, which serve as a reference to non-CBRT funding. In addition, credit and deposit interest rates are adjusted swiftly by banks to policy rate hikes, whereas only deposit interest rates are adjusted to policy rate reductions in order to take advantage of a temporary rise in net interest margin. Hence, the imperfect pricing in the Turkish banking system prevents the traditional interest rate channel to be completely and symmetrically effective. Lastly, banks, which have a relatively high ratio of short-term funding to total assets, are more sensitive to the CBRT's liquidity policy with respect to their consumer credit rates.

Studies confirm the presence of the lending channel in addition to the interest rate channel, implying that monetary policy in Turkey is also transmitted through loanable funds, which affect credit volume (Şengönül and Thorbecke, 2005; Aydın and Igan, 2010). On the other hand, Alper et al. (2012) reject the presence of a traditional lending channel in Turkey as banks' reserves held at the CBRT are not necessarily adjusted to monetary policy decisions under the inflation targeting framework. However, the study also shows that credit supply is affected not only by banks' individual liquidity position but also by the overall liquidity in the banking system. Hence, monetary policy decisions that affect banks' liquidity would also affect the credit supply.

Credit and deposit interest rates have recently been less responsive to policy rates. In particular, credit rates have been less sensitive to the latest policy rate cuts compared to the September 2012-May 2013 period. Meanwhile, deposit interest rates have reacted less to the CBRT's rate reductions in both periods compared to credit rates.

In sum, credit and deposit interest rates are more sensitive to policy rates during times of tightening. Moreover, firms' credit risk, the economic outlook, banks' balance sheet structure and asset quality, maturity premium on credits, alternative funding resources and competition in the banking sector can restrict the effectiveness of the traditional interest rate channel. Meanwhile, the CBRT's recent rate cuts proved less effective on credit and deposit interest rates. The simplification of the monetary policy is envisioned to improve the effectiveness of the traditional interest rate channel.

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