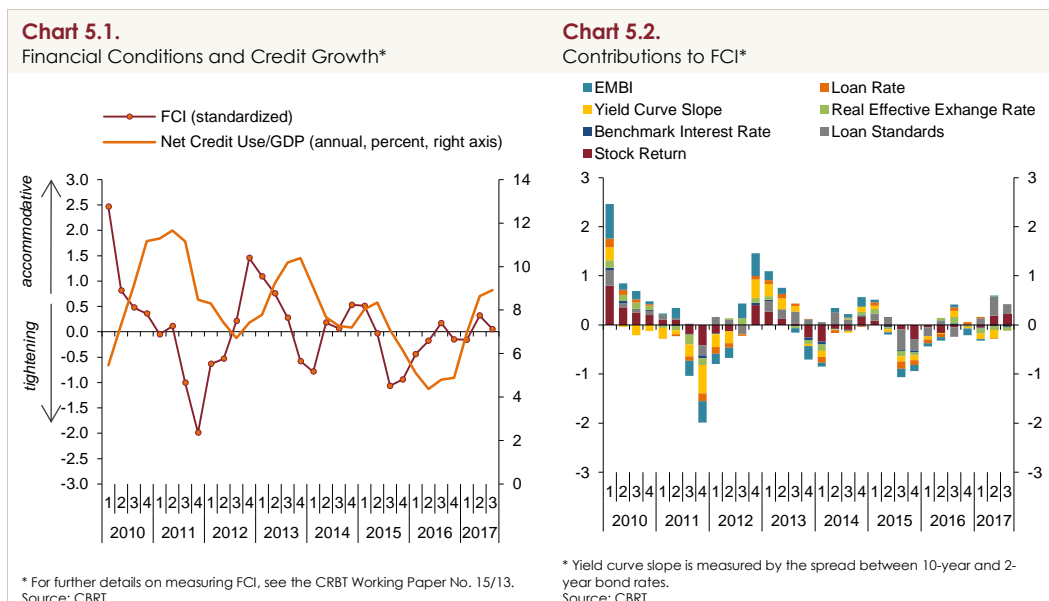# 5. Financial Conditions and Monetary Policy

The favorable global economic activity and trade volume as well as the ongoing global risk appetite led to further strong portfolio flows to emerging economies in the current reporting period. However, rising geopolitical tensions caused portfolio inflows to decelerate slightly in Turkey. Since September, portfolio inflows have mostly been invested in the bond market, while the stock market has seen volatile and weak inflows. Thus, after a robust January-August period, stock returns turned more subdued as of September.

Loan growth accelerated in the second quarter of 2017 on the back of macroprudential policies, fiscal measures, incentives and the Treasury-backed CGF loans. Loan growth has balanced around its historical averages as the CGF loans approached their limits and the pulled-forward commercial loan demand normalized in the third quarter. According to the Bank Loans Tendency Survey, the third quarter of 2017 was marked by tighter loan standards, which still remained relatively loose by historical averages. Meanwhile, since the second half of September, geopolitical developments and statements by major central banks on monetary policy normalization have sent currency markets into a spin, also triggering a small rise in long-term inflation compensation. Thanks to the CBRT's commitment to strong monetary tightening, the yield curve has a negative slope. Moreover, the CBRT adopted a more cautious tone in its monetary policy stance through the statements in September and October.
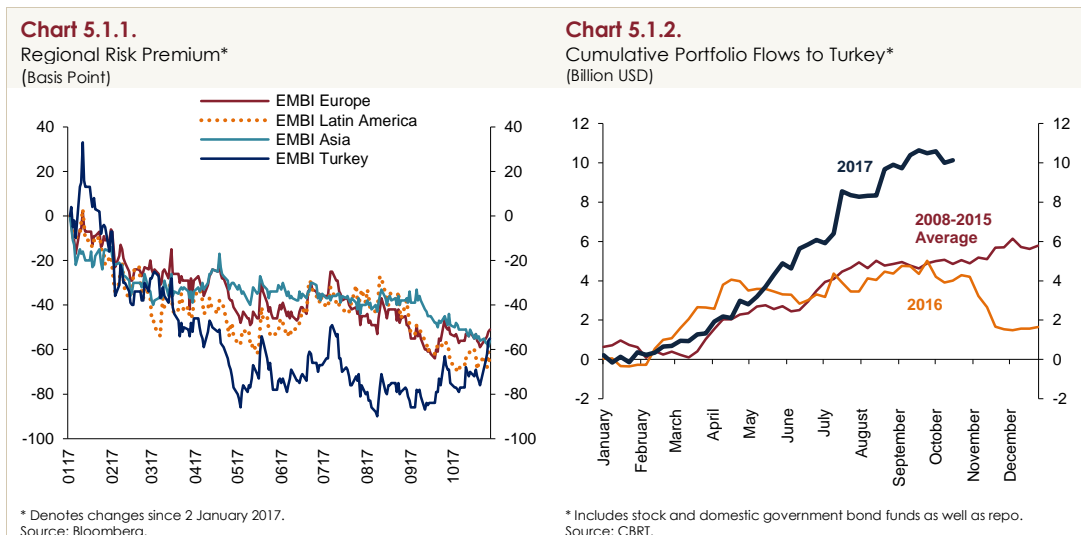
The FCI hints at less accommodative financial conditions in the third quarter of 2017 (Chart 5.1). In the third quarter, loan standards and stock returns contributed positively to the index while the contribution of EMBI slightly improved and became positive. Loan rates and the yield curve slope had a relatively more dampening effect on the index, whereas the contribution of the real exchange rate was flat, putting a downward pressure on the index (Chart 5.2).

Chart 5.1.
Financial Conditions and Credit Growth*

* For further details on measuring FCI, see the CRBT Working Paper No. 15/13.
Source: CBRT.

Chart 5.2.
Contributions to FCI*

* Yield curve slope is measured by the spread between 10-year and 2-year bond rates.
Source: CBRT.

5.1. Relative Performance of Financial Markets

Risk Perceptions and Portfolio Flow

Expectations have grown stronger that that the favorable outlook for global economic activity in the second quarter of 2017 will continue into the third quarter. In addition, the risk sentiment towards emerging economies remained buoyant amid signs of a modest monetary policy normalization across advanced economies, which provided an ongoing tailwind to the upsurge of portfolio inflows to these economies. Nevertheless, the September FOMC statement that announced the start of the Fed's balance sheet reduction in October and increased perceptions for commitment to a higher-than-expected rate hike path caused regional emerging market risk premiums to edge up. Turkey's sovereign risk premium, on the other hand, fell slightly behind those of other emerging economies as of late September, mostly due to geopolitical tensions (Chart 5.1.1). Portfolio flows to Turkey lost some momentum from the previous reporting period in cumulative terms since early 2017, albeit remaining over past years' averages (Chart 5.1.2). Turkey mostly attracted flows into bond funds in the current reporting period as in the previous reporting period.

Chart 5.1.1.
Regional Risk Premium*
(Basis Point)

EMBI Europe
EMBI Latin America
EMBI Asia
EMBI Turkey

* Denotes changes since 2 January 2017.
Source: Bloomberg.

Chart 5.1.2.
Cumulative Portfolio Flows to Turkey*
(Billion USD)

2017
2008-2015 Average
2016

* Includes stock and domestic government bond funds as well as repo.
Source: CBRT.

Exchange Rates

After having benefited from the changing global risk appetite throughout 2017, emerging market currencies started to depreciate against the US dollar in September. The depreciation has been more marked for the Turkish lira due to geopolitical developments (Chart 5.1.3). The implied volatility showed no significant change for emerging market currencies compared to previous reporting period but was up for the Turkish lira (Chart 5.1.4).
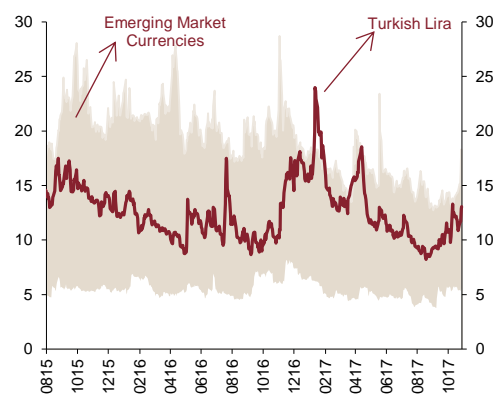
Chart 5.1.3.
Turkish Lira and Emerging Market Currencies against US Dollar* (2 January 2017=1)

* Emerging market currencies include those of Brazil, Chile, Colombia, Hungary, India, Indonesia, Malaysia, Mexico, Philippines, Poland, Romania, South Africa and Turkey.
Source: Bloomberg.

Chart 5.1.4.
Implied FX Volatility against US Dollar* (1-Month-Ahead, Percent)

* Emerging market currencies include those of Brazil, Chile, Colombia, Hungary, India, Indonesia, Malaysia, Mexico, Philippines, Poland, Romania and South Africa.
Source: Bloomberg.

Market Rates

Over the inter-reporting period, market rates were largely determined by expectations about monetary policies of advanced economies, particularly the US, the macroeconomic outlook for emerging economies and geopolitical tensions. With lowered policy rates, some emerging economies saw short-term market rates decrease. Turkey's market rates, on the other hand, inched up from the previous reporting period amid geopolitical tensions (Charts 5.1.5 and 5.1.6).
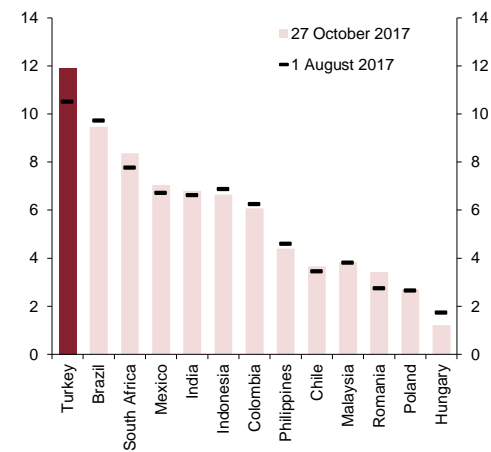
Chart 5.1.5.
6-Month Market Rates (Percentage Point)
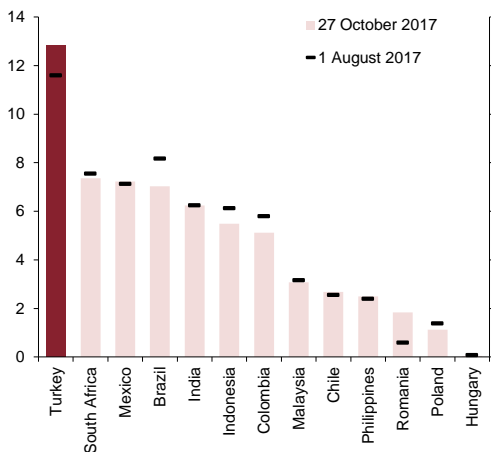
Source: Bloomberg.

Chart 5.1.6.
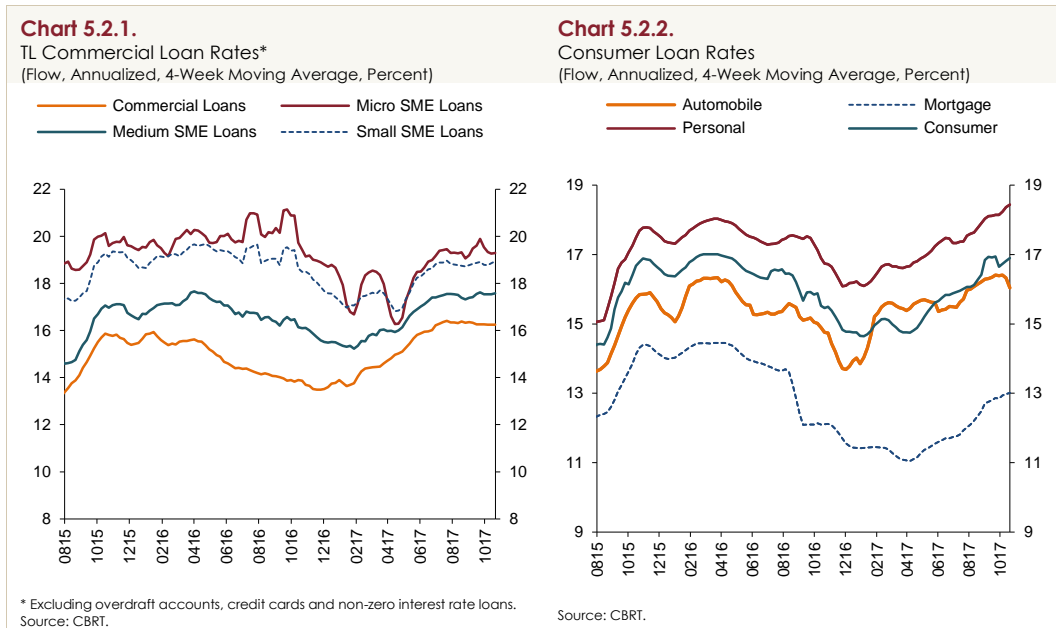5-Year Market Rates (Percentage Point)

Source: Bloomberg.
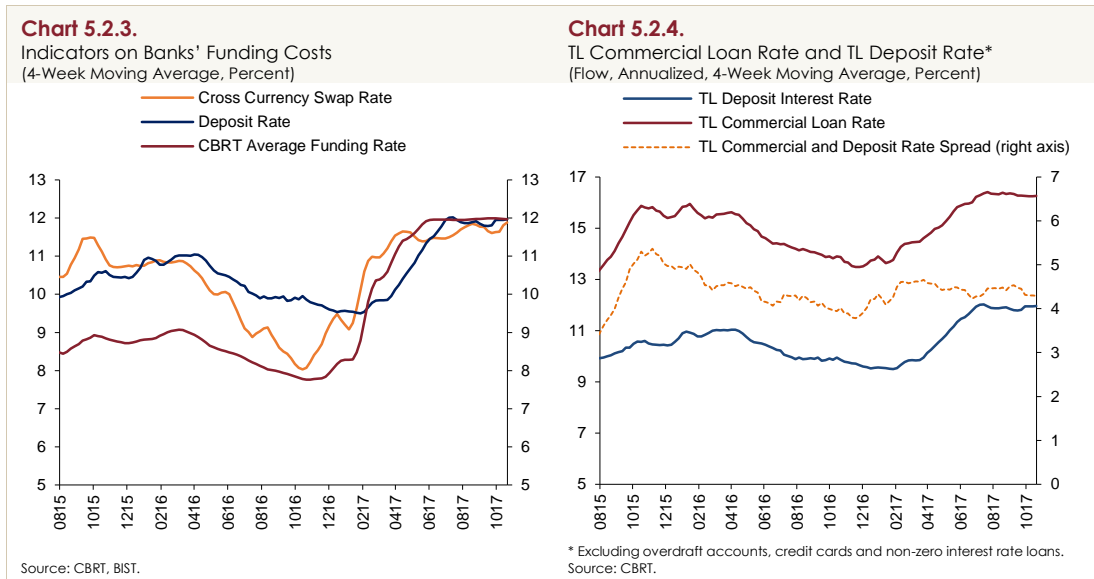
5.2. Credit Conditions

Loan Rates, Funding Costs and Interest Rate Spreads

The banks' appetite for lending remained robust amid improved economic growth in the third quarter. Having displayed a modest uptrend since early 2017, commercial loan rates were almost flat in this quarter (Chart 5.2.1). Meanwhile, consumer loan rates remained on the rise across all subcategories (Chart 5.2.2). As of 20 October 2017, average consumer and commercial loans were quoted at 16.3 and 16.9 percent, respectively.

Chart 5.2.1.
TL Commercial Loan Rates*
(Flow, Annualized, 4-Week Moving Average, Percent)

Chart 5.2.2.
Consumer Loan Rates
(Flow, Annualized, 4-Week Moving Average, Percent)

* Excluding overdraft accounts, credit cards and non-zero interest rate loans.
Source: CBRT.

Source: CBRT.

Banks' Turkish lira cost of funding excluding deposits was virtually flat in the third quarter of 2017. The interest rate on TL deposits, the primary funding source of the banking sector that mostly has a maturity shorter than three months, and currency swap rates have largely been on a par with the CBRT average funding cost since the previous reporting period (Chart 5.2.3).

The loan-deposit rate spread in the third quarter remained nearly unchanged in tandem with the stable course of commercial loan rates and TL deposit rates. The spread edged down slightly from the previous reporting period to 429 bps on 20 October 2017, yet still remains elevated by historical standards (Chart 5.2.4).

Chart 5.2.3.
Indicators on Banks' Funding Costs
(4-Week Moving Average, Percent)

- Cross Currency Swap Rate
- Deposit Rate
- CBRT Average Funding Rate

Source: CBRT, BIST.

Chart 5.2.4.
TL Commercial Loan Rate and TL Deposit Rate*
(Flow, Annualized, 4-Week Moving Average, Percent)

- TL Deposit Interest Rate
- TL Commercial Loan Rate
- TL Commercial and Deposit Rate Spread (right axis)

* Excluding overdraft accounts, credit cards and non-zero interest rate loans.
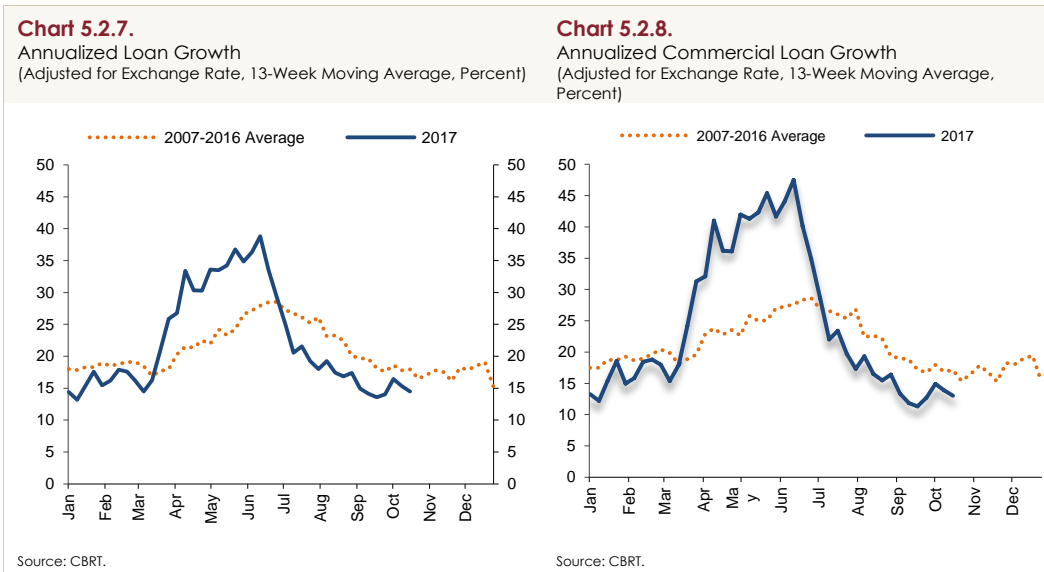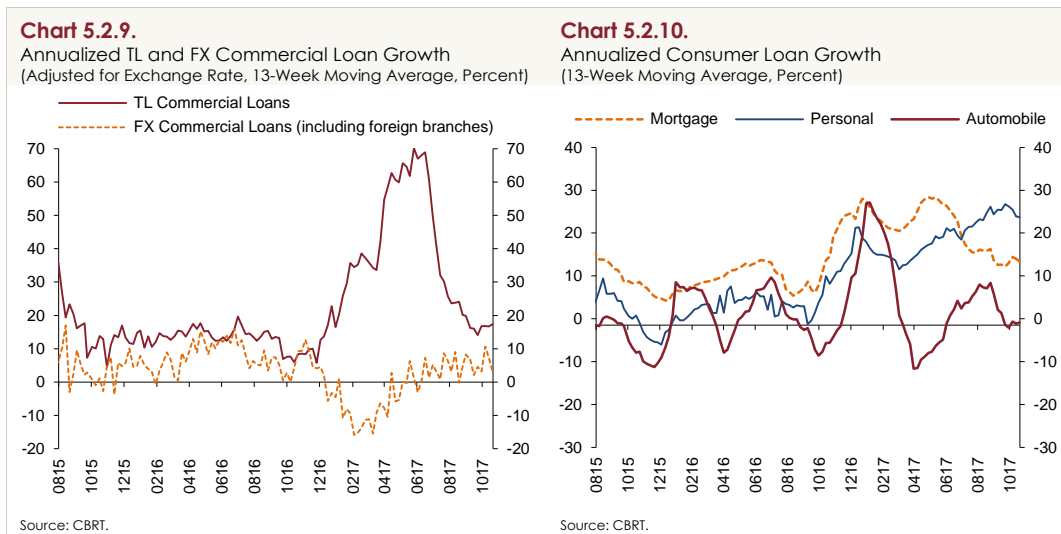Source: CBRT.

Credit Volume

Loan growth decelerated in the third quarter of 2017 and the net credit use to GDP ratio was up only slightly compared to the previous reporting period (Chart 5.2.5).

Chart 5.2.5.
Domestic Credit Stock and Net Credit Use*
(Percent)

- Credit Stock/GDP
- Net Credit Use/GDP (right axis)

* Domestic credits are comprised of total banking sector credits including participation banks, foreign branches and credit cards not adjusted for exchange rate. Net credit use is measured as the annual change in nominal credit stock adjusted for exchange rate. The third-quarter data for 2017 is forecast.
Source: CBRT.

Chart 5.2.6.
Annual Loan Growth
(Adjusted for Exchange Rate, Percent)

- Commercial
- Total
- Consumer

Source: CBRT.

Commercial loan growth slowed down in the third quarter as CGF loans reached pre-determined limits. On the other hand, the lagged effects of macroprudential measures and the brisk domestic demand fueled further moderate growth in commercial loans. As a result, the annual growth of total loans adjusted for exchange rate increased from the previous reporting period to about 19.2 percent as of 20 October 2017 (Chart 5.2.6). Yet, with the CGF loans hitting their pre-determined cap, the growth rate of total loans has stabilized and displayed a similar pattern to historical averages (Chart 5.2.7).

Chart 5.2.7.
Annualized Loan Growth
(Adjusted for Exchange Rate, 13-Week Moving Average, Percent)

Chart 5.2.8.
Annualized Commercial Loan Growth
(Adjusted for Exchange Rate, 13-Week Moving Average, Percent)

Source: CBRT.

Source: CBRT.

Having stabilized since mid-2017, the 13-week annualized growth rate of commercial loans hit 13.1 percent by 20 October 2017 (Chart 5.2.8). After hovering in the negative territory in the first half of the year, the growth rate of FX commercial loans turned positive as of mid-2017 (Chart 5.2.9).

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

Chart 5.2.10.
Annualized Consumer Loan Growth
(13-Week Moving Average, Percent)
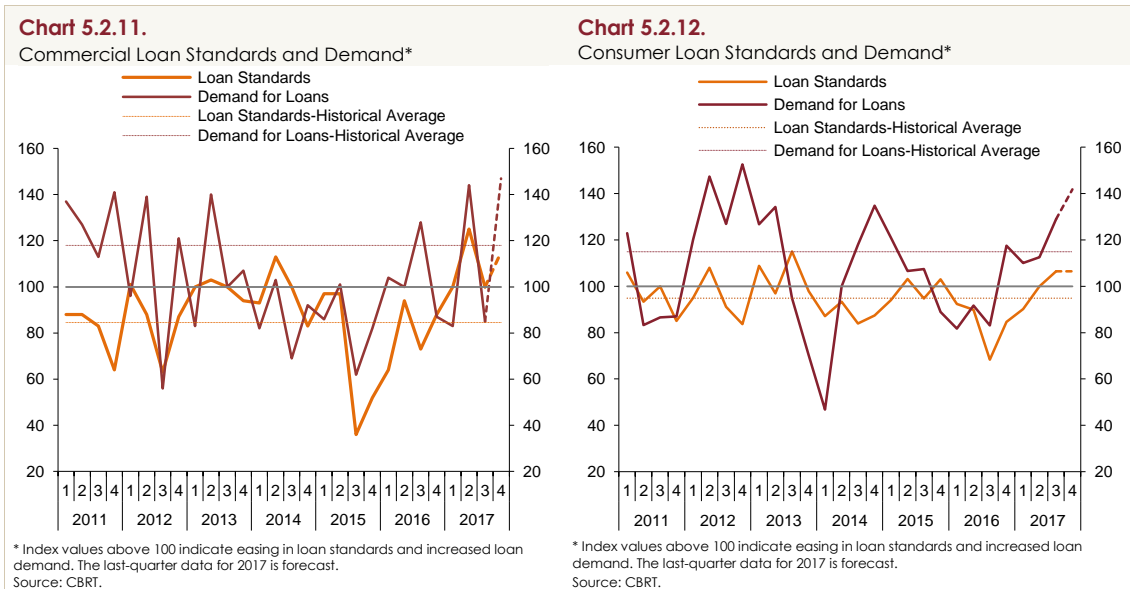

Source: CBRT.

Source: CBRT.

Across subcategories of consumer loans, personal loans remained strong in the third quarter of 2017, with their 13-week annualized growth rate hitting 23.7 percent on 20 October 2017, while the growth rate of mortgage loans declined to 13.4 percent. After the second-quarter uptick, automobile loans resumed their declining trend in the current reporting period (Chart 5.2.10).

Loan Standards

According to the results of the Bank Loans Tendency Survey, commercial loan standards remained constant, yet seemed more favorable than historical averages in the third quarter of 2017 (Chart 5.2.11). A similar pattern has been observed across all firm scales and maturities. Among factors affecting loan standards, non-bank competition and banks' liquidity positions caused standards to ease, while prospects for general economic activity led to a slight tightening.[1] According to loan standards as applied to the approval of loans or credit lines to firms, banks have cut their profit margins on commercial loans, but tightened collateral requirements, conditions on maturity and profit margins on riskier loans.

Survey respondents reported a significant decline in the demand for commercial loans in the third quarter (Chart 5.2.11), which was driven by the pulled-forward loan demand amid incentives such as SMEDO loans, the Nefes loan and the Treasury-backed CGF loans. Loan demand recorded a similar pattern across all firm scales. As for the maturity and currency denomination of loans, the demand for long-term loans registered a drop in the third quarter and the demand for FX loans sank further. While the need for debt restructuring and inventory buildup provided an impetus for loan demand, fixed investments and borrowings from other banks weighed on loan demand in the third quarter.

Banks expect commercial loan standards to ease over the fourth quarter regardless of firm scale or maturity (Chart 5.2.11). On the other hand, the demand for commercial loans is expected to grow at a pace faster than historical averages.
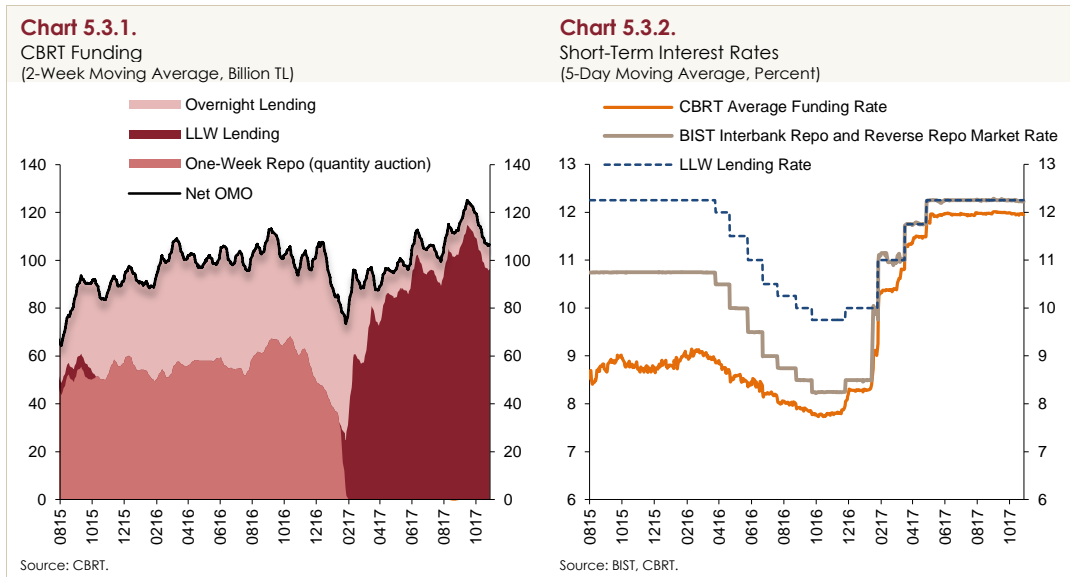
Chart 5.2.11.
Commercial Loan Standards and Demand*

* Index values above 100 indicate easing in loan standards and increased loan demand. The last-quarter data for 2017 is forecast.
Source: CBRT.

Chart 5.2.12.
Consumer Loan Standards and Demand*

* Index values above 100 indicate easing in loan standards and increased loan demand. The last-quarter data for 2017 is forecast.
Source: CBRT.

[1] Box 5.1 analyzes the impact of these factors on the monetary policy.

Responses related to consumer loans indicate that loan standards eased in the third quarter driven by personal loans (Chart 5.2.12). The demand for both mortgage and personal loans was up in this period. Housing market prospects and consumer confidence as well as taxes and provisions boosted the demand for mortgage loans. On the personal loans front, the demand was mainly spurred by spending on durable goods, purchases of securities and borrowings from other banks. Standards for consumer loans are expected to ease slightly in the fourth quarter of 2017, while the demand for consumer loans is likely to grow at a rate faster than historical averages (Chart 5.2.12).
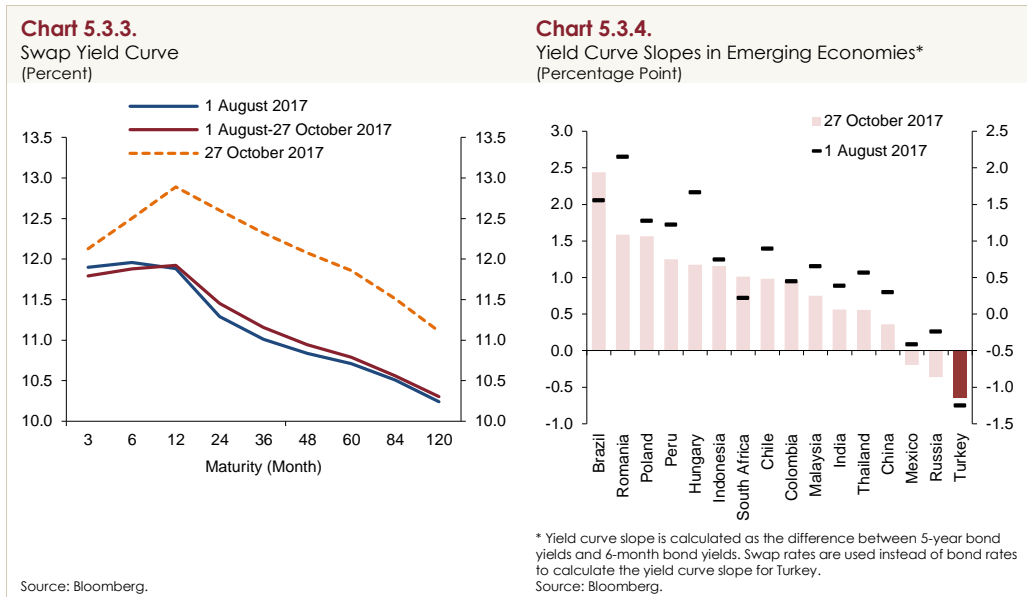
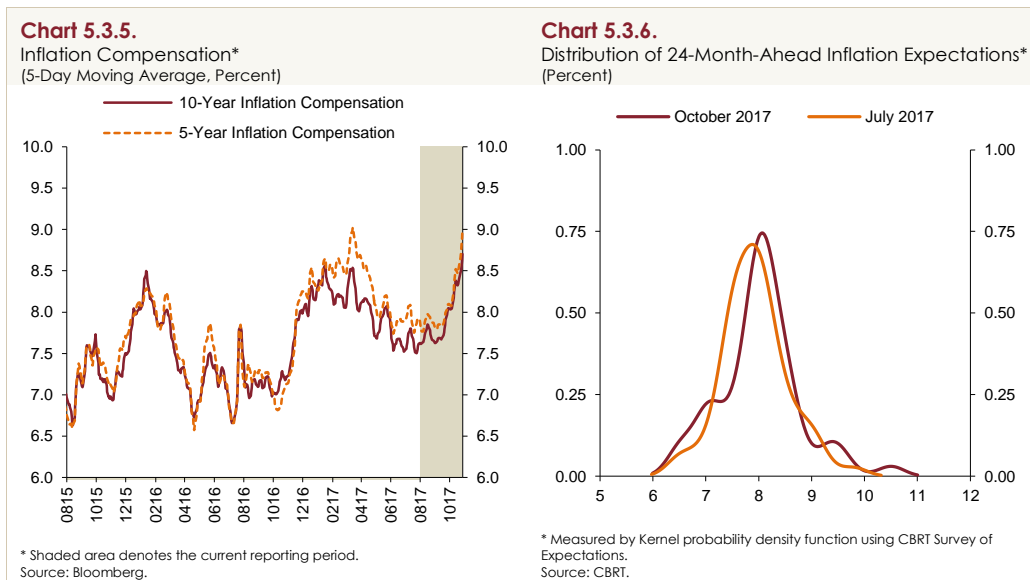## 5.3. Monetary Policy

Market Developments

Over the current reporting period, the funding provided by the overnight lending rate was kept constant, and the LLW remained the primary source of funding similar to the previous reporting period (Chart 5.3.1). After the hikes in January, March and April, the CBRT has left the LLW lending rate unchanged since May. Due to the tight monetary policy, the CBRT average funding rate increased towards the LLW lending rate. The average rate for non-CBRT funding at the BIST Interbank Repo and Reverse Repo Market has also hovered close to the LLW lending rate since January (Chart 5.3.2).

Chart 5.3.1.
CBRT Funding
(2-Week Moving Average, Billion TL)

- Overnight Lending
- LLW Lending
- One-Week Repo (quantity auction)
- Net OMO

Source: CBRT.

Chart 5.3.2.
Short-Term Interest Rates
(5-Day Moving Average, Percent)

- CBRT Average Funding Rate
- BIST Interbank Repo and Reverse Repo Market Rate
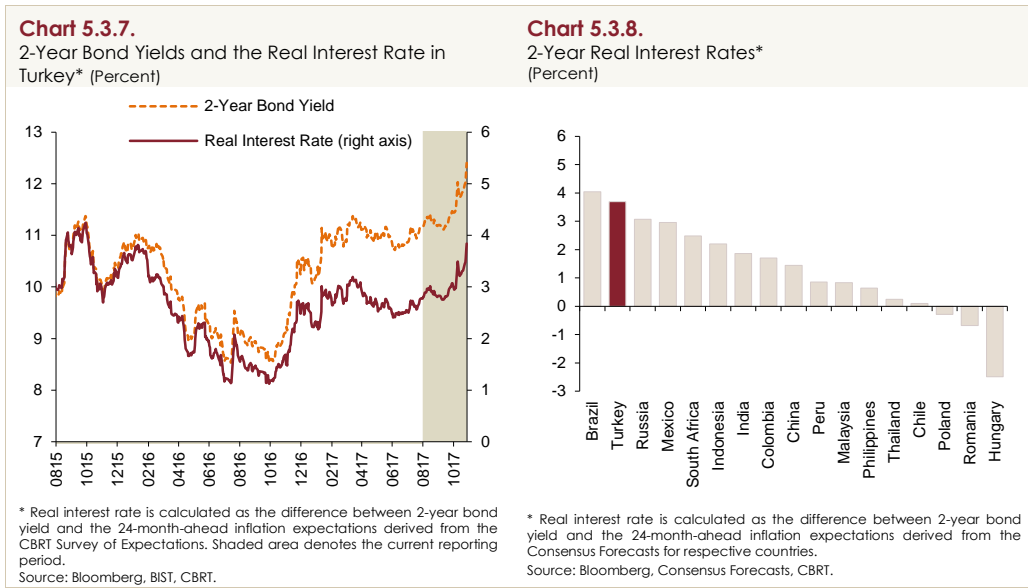- LLW Lending Rate

Source: BIST, CBRT.

Amid mounting geopolitical risks, currency swap rates saw small increases from the previous reporting period (Chart 5.3.3). Accordingly, short-term currency swap rates continued to hover above long-term rates. In the current reporting period, Turkey's yield curve slope continued to be the most negative among emerging economies (Chart 5.3.4).

Chart 5.3.3.
Swap Yield Curve
(Percent)

— 1 August 2017
— 1 August-27 October 2017
- - 27 October 2017

Maturity (Month)

Source: Bloomberg.

Chart 5.3.4.
Yield Curve Slopes in Emerging Economies*
(Percentage Point)

☐ 27 October 2017
▬ 1 August 2017

Brazil, Romania, Poland, Peru, Hungary, Indonesia, South Africa, Chile, Colombia, Malaysia, India, Thailand, China, Mexico, Russia, Turkey

* Yield curve slope is calculated as the difference between 5-year bond yields and 6-month bond yields. Swap rates are used instead of bond rates to calculate the yield curve slope for Turkey.
Source: Bloomberg.

Despite the CBRT's tight monetary policy stance, the long-term inflation compensation has picked up since mid-September amid geopolitical tensions, volatile exchange rates and higher headline inflation (Chart 5.3.5). The distribution of 24-month-ahead inflation expectations obtained from the CBRT Survey of Expectations points to a smaller increase in October compared to July (Chart 5.3.6).

Chart 5.3.5.
Inflation Compensation*
(5-Day Moving Average, Percent)

— 10-Year Inflation Compensation
- - 5-Year Inflation Compensation

* Shaded area denotes the current reporting period.
Source: Bloomberg.

Chart 5.3.6.
Distribution of 24-Month-Ahead Inflation Expectations*
(Percent)

— October 2017   — July 2017

* Measured by Kernel probability density function using CBRT Survey of Expectations.
Source: CBRT.

Two-year bond yields have recently climbed as well (Chart 5.3.7). In fact, this rise was much higher than the slight increase in inflation expectations, causing the 2-year real interest rates to go up. Turkey still scores high among emerging economies in the ranking of 2-year real interest rates (Chart 5.3.8).

Chart 5.3.7.
2-Year Bond Yields and the Real Interest Rate in Turkey* (Percent)

- - - - 2-Year Bond Yield
——— Real Interest Rate (right axis)

* Real interest rate is calculated as the difference between 2-year bond yield and the 24-month-ahead inflation expectations derived from the CBRT Survey of Expectations. Shaded area denotes the current reporting period.
Source: Bloomberg, BIST, CBRT.

Chart 5.3.8.
2-Year Real Interest Rates* (Percent)

* Real interest rate is calculated as the difference between 2-year bond yield and the 24-month-ahead inflation expectations derived from the Consensus Forecasts for respective countries.
Source: Bloomberg, Consensus Forecasts, CBRT.

Monetary Policy Reaction

The buoyant outlook for both the global risk appetite and external demand as well as the economic upturn driven by domestic measures and incentives led to a stronger economic activity recently. In this context, the normalization of the fiscal policy and the re-balancing of loan growth will likely curb the upward inflationary pressures of economic developments in the upcoming period. However, the current elevated levels of inflation and inflation expectations as well as the developments in core inflation indicators continue to pose risks to pricing behavior. All these developments necessitate maintaining a tight monetary policy stance. Thus, having pursued a gradual tightening between January and April, the CBRT maintained a tight monetary policy stance also in the proceeding period. In addition, the CBRT adopted an increasingly more cautious tone on monetary policy through the statements communicated in September and October.

The CBRT will continue to use all available instruments in the pursuit of price stability and maintain a decisively tight monetary policy stance until the inflation outlook displays a significant improvement consistent with the targets. Current data suggest that the monetary policy stance should continue to be tight until there is a convincing fall in inflation. The CBRT formulates its monetary policy by taking the medium-term inflation outlook into account, thus focusing on the developments in underlying inflation rather than possible fluctuations in inflation driven by base effects. Inflation expectations, pricing behavior and other factors affecting inflation will be closely monitored, and further monetary tightening will be delivered if needed. Aside from the tight monetary policy stance, the CBRT continues to fight against structural factors weighing on disinflation. To this end, the CBRT aims to raise public awareness and strengthen cooperation with other authorities to produce target-oriented solutions.

Box 5.1	The Role of the Credit Channel in Monetary Policy Transmission: A Survey-Based Analysis of Turkey

Traditionally, monetary policy affects aggregate demand and economic activity through household demand for housing and consumption as well firms' demand for investment. This is referred to as the interest rate channel of monetary policy. However, it has been commonly accepted, especially after the global financial crisis, that credit plays a significant role in the transmission of monetary policy and in economic activity. The credit channel may change the way monetary policy influences the real economy according to the credit conditions. Therefore, the real interest rate, by itself, may fail to represent the stance of the monetary policy. Yet, as macroeconomic variables have roughly the same reaction to monetary policy changes in both the traditional interest rate channel and the credit channel, it is difficult to separate these two effects.[2]

Studies on credit channel focus more on the external finance premium that borrowers incur due to the asymmetry of information between firms and lenders. As lenders are unable to perfectly audit a borrower's financial position and activity at no cost, they may ask the borrower to pay a premium for the loan. This external finance premium serves as a financial accelerator in the transmission of monetary policy, thus enhancing the effectiveness of the monetary policy. This channel is known as the broad credit channel or the borrower balance sheet channel.

In addition to the broad credit channel, there is also the bank lending channel. In this channel, any change in monetary policy may affect the loan supply of a bank by altering the quantity and cost of borrowing from the central bank.

Against this background, this box analyzes the importance of the credit channel for the transmission of monetary policy in Turkey.[3] Due to the abovementioned constraints on separating the credit channel from the traditional interest rate channel, this box uses data from Bank Loans Tendency Survey. In this survey, banks are asked their opinions about loan standards, loan terms and conditions as well as loan demand, the results of which are then aggregated quantitatively. Banks are asked how credit conditions evolved in the preceding quarter (tightened/eased) and what factors were effective on driving such a change. Respondent banks answer how each of the factors listed in Table 1 contribute to the change in credit conditions (considerable/somewhat/not effective). The responses are aggregated using the net percentage change calculated by subtracting the percent of relevant factors contributing to some easing or considerable easing from the percent of those contributing to some tightening or considerable tightening. Factors affecting loan standards from the survey are classified as in Table 1 and two individual variables are constructed to serve as the indicator for each of these two channels. An increase in these variables means tightening of credit conditions.

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[2] CBRT (2017) analyzes the macroeconomic effects of the changes in credit supply for Turkey.
[3] This box is a brief summary of the findings by Bulut et al. (2017).

The BLC variable calculated for the bank lending channel shows how a bank's own financial position determines credit conditions. For example, changes in capital or liquidity position might prompt the bank to adjust its credit conditions accordingly. Likewise, developments in credit market or deposit market competition may also affect loan standards. On the other hand, the BBSC variable calculated for the borrower balance sheet channel shows how the banks' credit risk sentiment about the general economic activity and industry or firm-specific outlook affects their credit conditions.

Table 1. Constructing Credit Channel Variables	
Credit Channel Variable	**Survey Questions**
Bank Lending Channel (BLC) Variable	**A – Cost of Funds and Balance Sheet Constraints** Costs Related to Bank's Capital Position Bank's Ability to Access Money or Bond Market Financing Bank's Liquidity Position **B – Pressure from Competition** Competition From Other Banks Competition From Non-Banks Competition From Market Financing
Borrower Balance Sheet Channel (BBSC) Variable	**C – Perception of Risk** Expectations Regarding General Economic Activity Industry or Firm-Specific Outlook Risk on Collateral Demanded

In this analysis, the credit channel is decomposed as the borrower balance sheet channel (broad credit channel) and the bank lending channel using the methodology in Ciccarelli et al. (2015). Accordingly, the question explored in this study is whether the credit channel of monetary policy transmission works mostly through the borrowers' balance sheets or banks' balance sheets. To identify the role of both channels in the transmission of monetary policy, an unrestricted VAR model is estimated using the following variables: national income (Y), prices (P), exchange rates (RER), loan demand (D), the borrower balance sheet channel (BBSC), the bank lending channel (BLC) and the policy rate (R).

$$Z_t = BZ_{t-1} + \varepsilon_t, \qquad Z' = [\log Y \ \log P \ \log RER \ D \ BBSC \ BLC \ R].$$

The sample covers the period from 2004Q3 to 2016Q4. GDP captures the national income variable, while P is represented by the seasonally adjusted CPI in logarithms. RER is the CBRT's real effective exchange rate index, while BIST Interbank Repo and Reverse Repo Market rate is used to denote R. D is an index compiled from questions regarding commercial loans in Bank Loans Tendency Survey. In the Cholesky decomposition to identify the shocks in the model, the variables are placed in the order that they appear in the equation above.

Chart 1 shows the impulse responses of the above VAR model estimated by Bayesian methods to a 25-bps increase in the policy rate. Accordingly, a rate hike leads to a fall in commercial loan demand, and regarding the loan supply, it has no significant effect through the bank lending channel but has a stronger and statistically significant effect through the borrower balance sheet channel. According to the results, following the policy rate hike, banks tend to tighten their credit conditions due to potential impacts of a slowdown in business activity, and hence in firms' cash flows on the credit risk. However, banks do not tighten credit conditions due to potential impact of the rate hike on their funding costs and balance sheet constraints or competition pressures.

Chart 1. Impulse Responses to a Monetary Policy Shock

GDP **(a)**

Prices **(b)**

BLC **(c)**

BBSC **(d)**

Loan Demand **(e)**
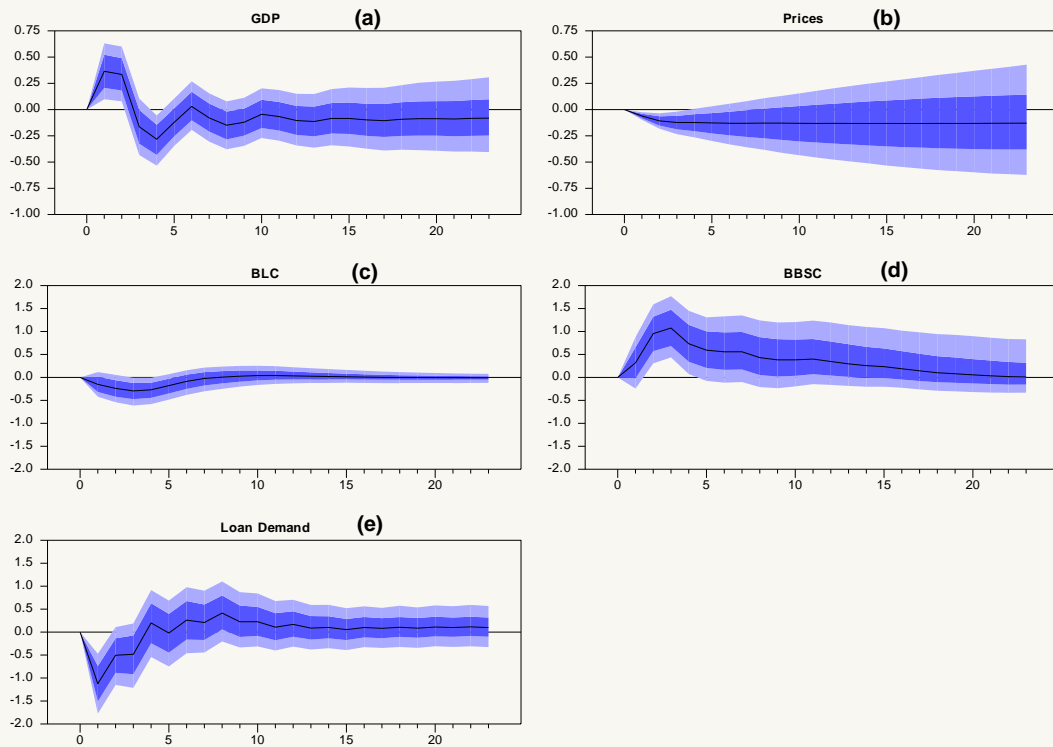
Notes: Charts show the impulse responses of variables to a 25-bps increase in the policy rate. The black lines denote the median response, the dark blue shaded area denotes the 68 percent Bayesian credible interval and the light blue shaded area denotes the 95 percent Bayesian credible interval. The confidence intervals are computed as described in Ciccarelli et al. (2015).

The results in Chart 1 demonstrate that monetary tightening affects loan supply especially through general economic activity or the balance sheets of borrowers, but has no significant effect through the financial positions of banks. Chart 2 shows how influential the two credit channels are on GDP and consumer prices. The blue lines in Chart 2 represent the impulse response when the relevant credit channel in Chart 1 is present, and the black lines denote the impulse response if the relevant credit channel were not present.[4] For instance, in Chart 2-e, when the borrower balance sheet channel has no effect, monetary policy has a far less pronounced impact on the GDP. Chart 2-c, on the other hand, shows that the impact of monetary policy on GDP would barely change if the bank lending channel were shut down. The response of consumer prices to a monetary policy change is indifferent to whether these credit channels are present or not.

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[4] After introducing counter-factual shocks to credit conditions and the loan demand that would render the relevant credit channel ineffective, the median response is calculated from the model with the relevant credit channel (loan demand, bank lending channel, borrower balance sheet channel). For more information on the methodology, see Ciccarelli et al. (2015) and Bulut et al. (2017).

Chart 2. The Effect of Credit Channel on the Transmission of Monetary Policy
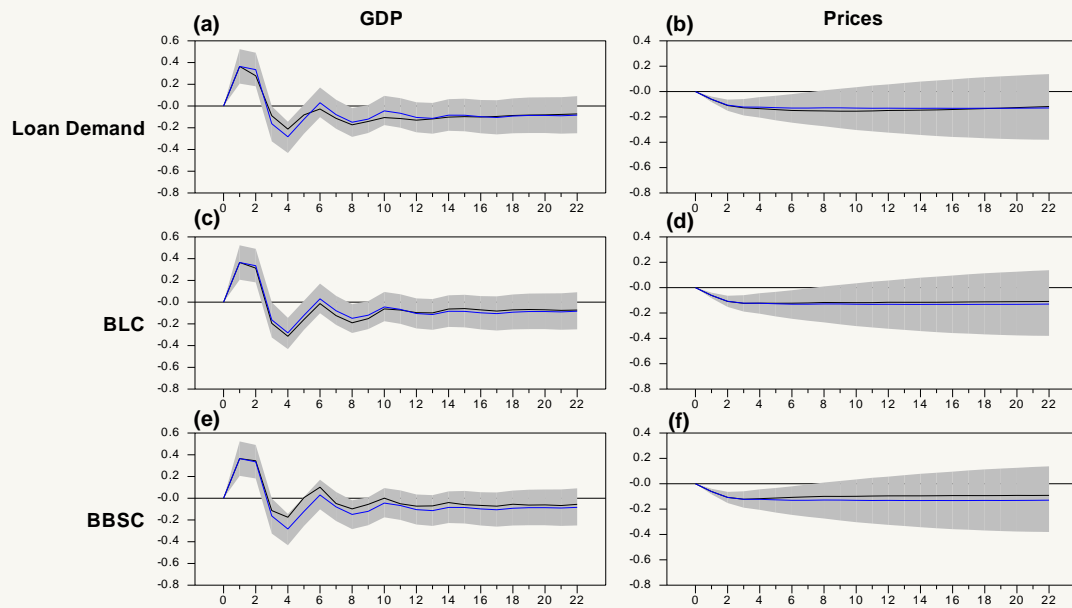
Notes: Shaded area denotes the 68 percent Bayesian credible interval of the impulse response of GDP and prices to a 25-bps increase in the policy rate. The blue line represents the median response in Chart 1 and the black line represents the median response when counter-factual shocks are introduced to credit conditions and loan demand that would render the relevant credit channel ineffective.

In conclusion, our findings show that the transmission of monetary policy to the real economy through the credit channel in Turkey is mostly determined by the broad credit channel, i.e. the borrower balance sheet channel, rather than the bank lending channel. Therefore, how the credit channel works in Turkey is largely affected by banks' opinions on the uncertainty about the general economic outlook and on the borrowers' loan quality (collateral constraints etc.) rather than supply-side constraints stemming from banks' balance sheets or funding conditions.

References

Bulut, M., S.T. Tiryaki and M. Topaloğlu, 2017, The Role of the Credit Channel in Monetary Policy Transmission: A Survey-Based Analysis of Turkey, work in progress.

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Ciccarelli, M., A. Maddaloni and J.L. Peydró, 2015, Trusting the Bankers: A New Look at the Credit Channel of Monetary Policy, Review of Economic Dynamics, 18(4): 979-1002.