INFLATION REPORT

2024-III

August 8, 2024

TÜRKİYE CUMHURİYET
MERKEZ BANKASI

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1.Overview

While the global disinflation process is ongoing, inflation has continued to converge to target rates in many countries. Recent data suggest that the alignment of supply and demand in the labor markets has improved, and inflation persistence in the services sector has started to weaken. Accordingly, central banks in some advanced economies, including the European Central Bank (ECB), have begun to cut policy rates. In the USA, May and June inflation data displayed a significant decline in the underlying trend of services inflation. The favorable inflation outlook, the Federal Reserve's (Fed) assessments after its July meeting, and the latest labor market data have strengthened expectations that the first rate cut will take place in September. In most advanced economies, faster rate cuts are being priced in. While rate cuts continued in some emerging economies, other central banks paused on cutting rates or reduced the pace of rate cuts as inflation and policy rates approached historical averages. The moderate growth outlook and the progress in the disinflation process imply that central banks may take further steps to reduce monetary tightness in the upcoming period. However, factors such as the recent rise in geopolitical risks stemming from the Middle East and policy uncertainties due to election processes have the potential to fuel stickiness in inflation. Therefore, central banks continue to communicate that they will continue their easing cycles cautiously.

In the current reporting period, the global risk appetite remained favorable for a long period but rapidly deteriorated as of mid-July due to geopolitical developments, the Fed's statements that it would act cautiously in the rate-cut process, and the rate hike by the Bank of Japan. The Bank of Japan's rate hike decision at the end of July led to a global selling wave, and risk premiums of emerging markets rose rapidly. Accordingly, Türkiye's risk premium rose recently to 290 basis points from the 260 basis points levels of June and July, while the overall increase remained limited over the reporting period. Meanwhile, the short-term exchange rate volatility of the Turkish lira fluctuated considerably, while long-term volatilities continued to increase. The CBRT's gross international reserves rose to USD 148 billion as of July 26, while the CBRT's swap funding decreased by USD 36.8 billion in the reporting period, and net reserves excluding swaps improved by USD 63.3 billion during the reporting period. The decline in yields of short-term government domestic debt securities (GDDS) continued, while medium and long-term yields remained flat.

As a result of monetary policy decisions and other steps supporting the monetary tightening process, the slowdown in credit growth has become more pronounced. Since the previous reporting period, regulations introduced to increase the share of Turkish lira deposits and other macroprudential decisions to support the transmission mechanism have strengthened the transmission of monetary tightening to demand conditions and continued to improve the funding composition of the banking system. In the current reporting period, deposit rates slightly declined due to the excess liquidity created in the market by residents' and non-residents' preference for Turkish lira assets, the significant decline in interest rates in accounts switching from FX-protected deposits to Turkish lira deposits, and the impact of banks' deposit pricing adjustments reflecting the improved inflation and exchange rate expectations. The weakening TL loan demand and the decline in deposit rates also affected TL loan rates. However, the downward pressure on TL deposit rates from this channel halted as a result of the longer-term sterilization of the excess liquidity in the market through required reserves compared to reverse repo and deposit instruments. In the current reporting period, the FX-protected deposits continued to decline, albeit at a slower pace, while the share of Turkish lira in total deposits continued to rise and exceeded the year-end target, which is 50%. As for commercial loans, the slowdown in TL commercial loan growth became more pronounced, while FX commercial loans accelerated due to supply and demand-side dynamics. However, with a regulation introduced in May, a monthly growth limit was imposed on FX loans, and it was stipulated that required reserves in Turkish lira would be blocked in case the limit was exceeded. In July, the monthly loan growth limit was revised to be even more restrictive, and FX commercial loan growth slowed down due to these regulations. Thus, the goal is to prevent the real sector from taking excessive exchange rate risk.

In the first quarter of the year, economic activity remained strong. In this quarter, GDP grew by 5.7% on an annual basis and 2.4% on a quarterly basis pointing to an acceleration in economic activity. On the expenditures side, the annual contribution of private consumption to growth declined somewhat in the first quarter, although still remaining high. Meanwhile, net exports made a positive contribution to annual growth for the first time since the third quarter of 2022. On the production side, the services sector continued to be the main driver of annual growth.

Indicators for the second quarter point to a slowdown in domestic demand, albeit remaining at inflationary levels. In this period, both the retail sales and the trade sales volume indices posted a quarterly decline, with the decline being sharper in the latter. As of May, the services production index edged down by 0.5% in the second quarter. Survey data for manufacturing industry firms indicate a quarterly decline in domestic market orders in the second quarter. Information on consumption expenditures from interviews with firms also points to a slowdown in domestic demand. On the other hand, two religious holidays and the associated bridge days due to administrative holidays in the second quarter obscured a clear picture regarding the extent of the slowdown in demand. Card spending decreased in April, but when the May-June period was included, it continued to rise on a quarterly basis, albeit at a markedly slower pace. Meanwhile, card spending, especially those considered discretionary, started to slow down (Zoom-In 2.2). Although white goods and automobile sales registered a notable quarterly decline, they remained above their historical trends. Similarly, seasonally adjusted imports of consumption goods dropped in the May-June period, yet hovered above the previous year's average. On the production side, industrial production fell on a quarterly basis as of May. When the typically highly volatile sectors are excluded and the impact of two religious holidays and the associated bridge days is taken into account, the decline in industrial production in the second quarter is assessed to be less pronounced than suggested by the overall index. On the other hand, seasonally adjusted employment continued to rise in the second quarter, diverging from other demand and production indicators. However, given the quarterly increase in the labor under-utilization rate by 1.2 points in May and its already high level, the labor market may not be as strong as implied by the main indicators. As for wage developments, real unit wages were up in the first quarter. Nevertheless, with the ongoing rebalancing in domestic demand, real unit wages are expected to contribute to the disinflation process for the rest of the year.

While the current account balance continued to improve on an annual basis, the quarterly improvement came to a halt due to the widening foreign trade deficit despite the robust outlook in the services balance. In the second quarter of the year, the foreign trade deficit widened on a quarterly basis as imports increased more than exports. In this period, external demand conditions were supportive amid an improving export climate. Accordingly, seasonally and calendar-adjusted exports excluding gold increased, but this increase was curbed by the two religious holidays and the associated bridge days as well as the termination of trade with Israel in the second quarter. Gold exports, on the other hand, increased quarter-on-quarter, contributing to the quarterly rise in total exports. On the imports side, seasonally and calendar-adjusted total imports posted an increase in the second quarter. Imports of consumption goods and intermediate goods made the highest contribution to the quarterly increase. Meanwhile, increases in gold imports and seasonally and calendar-adjusted energy imports remained limited. Although the calendar effects due to the religious holidays and the associated bridge days observed in April and June resulted in a volatile course for foreign trade indicators, the downward trend in imports of gold and consumption goods in May and June was notable. In addition, the nearly flat course of the terms of trade as of May contributed to the foreign trade balance, while the rebalancing trend in foreign trade volumes over the last several quarters came to a halt in the second quarter due to the rise in imports. All core goods groups contributed to the rise in import volumes, while imports of consumption goods posted a stronger increase compared to other groups. The favorable trend in the services balance continued at a stronger pace on the back of travel revenues. On the financing side, the weight of portfolio investments increased, while the net errors and omissions recorded inflows, and reserves increased in the second quarter. Provisional trade data for July point to an improvement in the foreign trade balance driven by the decline in imports despite the flat course of exports.

Consumer inflation was 61.8% in July 2024, remaining within the forecast band given in the previous Inflation Report. Global commodity prices, which had been on an upward course in the first months of the year, started to fall as of late April and hardly changed throughout the second quarter. In this period, the nominal exchange rate maintained a mild course, while the Global Supply Chain Pressure Index remained at its historical average, indicating that there was no significant pressure from global supply conditions. Consequently, producer price pressures on consumer inflation weakened in the second quarter. Aggregate demand conditions, which strengthened in the first quarter of the year, are estimated to have weakened but remained at inflationary levels in the second quarter. Although year-end inflation expectations have declined, they still exceed the forecasts set out in the previous Inflation Report. The decrease in 12- and 24-month-ahead inflation expectations has been more significant. In the services sector, which is characterized by a strong backward-indexation behavior, the rent group with its high level of inertia again stood out. The

services sector was the main contributor to the inertia in headline inflation, and the diffusion index for the sector largely maintained its high levels. Core goods prices posted a limited increase throughout this period due to the developments in Turkish lira and domestic demand conditions. On the food inflation front, the significant increases in red meat prices in the previous reporting period have recently given way to a decline, while prices of fresh fruits and vegetables have risen more than their historical averages in June and July. In the second quarter, the impact of the expiry of the free use of 25 cubic meters of natural gas was influential on energy prices. Meanwhile, energy prices surged in July due to the increases in electricity tariffs as well as the automatic tax adjustments in fuel oil and bottled gas. The underlying inflation, which slowed down after January's uptick, followed a favorable course in June and posted a limited increase in July due to the developments in taxes and administered prices. It is projected that the slowdown in underlying inflation, which was interrupted in July, will be restored, and underlying inflation indicators will follow a milder course for the rest of the year.

Inflation is projected to be 38% by the end of 2024 and to fall to 14% by the end of 2025. Year-end inflation forecasts for 2024 and 2025 remained unchanged as the upside and downside effects offset each other. The data published for the second quarter of the year indicate that the slowdown in demand was less pronounced than projected in the previous Inflation Report. While the decline in the underlying trend of inflation was in line with the projections, the decline in inflation expectations was less than anticipated. In this context, the aforementioned factors affected inflation forecasts upwards. On the other hand, the mild course of the Turkish lira on the back of the demand for TL-denominated financial assets by residents and non-residents as well as the downward revisions in the assumptions regarding import and administered prices had a downward impact on the year-end inflation forecast. Medium-term forecasts are based on an outlook in which the tight monetary policy stance would be maintained until the inflation outlook displays a significant and sustained decline, and the coordination among economic policies would be ensured.

The disinflation process that started in June is projected to continue at a stronger pace in the upcoming period. The tightening in financial conditions owing to the notable policy rate hike in March and the additional macroprudential measures, continued in the following period with the contribution of measures to support the monetary policy transmission. Given the lagged effects of these policy measures, the slowdown in demand is anticipated to become more pronounced in the upcoming period, driven by the maintenance of the tight monetary policy stance and the tightening of financial conditions. Forecasts rely on a monetary policy that will remain tight until a significant and sustained decline in the underlying trend of monthly inflation is observed, and inflation expectations converge to the projected forecast range. With the contribution of the forward guidance emphasizing the decisive tight stance, the convergence of inflation expectations to the Inflation Report forecasts in the short term and to the inflation target in the medium term is critical for ensuring permanent price stability. The decisive monetary policy stance is expected to support the downtrend in underlying inflation amid the moderation in domestic demand, the real appreciation in the Turkish lira and the improvement in inflation expectations. All these factors are expected to reinforce disinflation in the upcoming period.

1.1 Monetary Policy Decisions

The CBRT kept the policy rate constant in the May-July period, taking into account the lagged effects of monetary tightening. The weakening in the underlying monthly inflation in April was temporarily interrupted in May. Subsequently, the underlying inflation, which declined more than anticipated in June, gave way to a limited and temporary increase in July. Recent indicators confirm that domestic demand has lost pace, although it is still at an inflationary level. The uptrend and stickiness in services inflation, inflation expectations, geopolitical risks, and food prices keep inflationary pressures alive. The CBRT closely monitors the consistency of inflation expectations and pricing behavior with the projections.

Over the period in which the policy rate has been kept constant, the CBRT has strongly communicated that it remains highly attentive to upside inflation risks. The effects of monetary tightening on credit conditions and domestic demand are closely monitored. Considering the lagged effects of the monetary tightening, the CBRT decided to keep the policy rate unchanged in the May-July period but reiterated that it remains highly attentive to inflation risks. The CBRT has stuck to its clear message that the tight monetary stance will be maintained until a significant and sustained decline in the underlying monthly inflation is observed, and inflation expectations converge to the projected forecast range. The CBRT has also reiterated that the monetary policy stance will be tightened if a significant and persistent deterioration in inflation is foreseen. The decisiveness regarding the tight monetary stance will bring down the underlying monthly

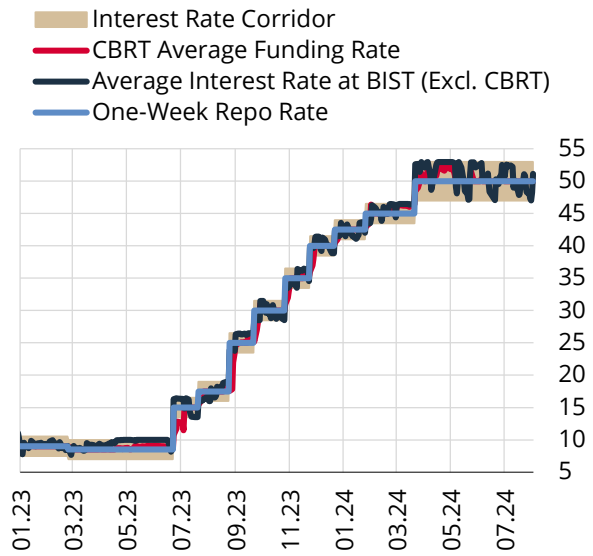
inflation through moderation in domestic demand, real appreciation in the Turkish lira, and improvement in inflation expectations. Consequently, the disinflation process will gain strength.

The CBRT continued to take macroprudential decisions to support the monetary transmission mechanism. Accordingly, with the decision announced on May 23, 2024, a monthly growth limit of 2% was introduced for foreign currency loans (excluding investment loans and those used in the earthquake zone) to ensure consistency with TL commercial loan growth limits, and it was decided that Turkish lira required reserves at the amount of loans exceeding the limit would be blocked for one year. With the amendment dated July 20, 2024, the growth limit was lowered to 1.5%, and the scope of the exemption for investment loans was expanded. Moreover, to enhance the functionality of the market mechanism, the maximum fees that can be charged by banks in case of prepayment of commercial loans were amended on June 28, 2024. The amendment aims to improve commercial loan price formation, and the newly introduced early payment fee determination method is sensitive to the level of loan interest and the remaining maturity. Thus, the transmission of expectations regarding the disinflation process to long-term commercial loan interest rates is supported. Through the regulations introduced on June 28, 2024 as part of the simplification of the macroprudential framework to increase the functionality of the market mechanism, the CBRT terminated the additional reserve requirement maintenance based on the leverage ratio.

The CBRT continued to take policy steps supporting Turkish lira deposits in order to strengthen monetary transmission. Accordingly, on May 23, 2024, reserve requirement ratios were increased from 8% to 12% for short-term Turkish lira deposits/participation funds and set at 8% for the ones in longer term. Reserve requirement ratios for FX-protected deposits were raised from 25% to 33% for those with short maturities and from 10% to 22% for those with long maturities. On the other hand, with the changes made in the remuneration and commission rates for reserve requirements, the target for transition from FX-protected deposits to Turkish lira was retained, and the total target including renewal (renewal and TL transition rates) was reduced to 75%. Moreover, legal persons' FX-protected deposits as well as legal and real persons' YUVAM accounts were excluded from calculation of the total target effective from the following calculation date. Also, the remuneration rate applied to reserve requirements for FX-protected deposits when the total target is achieved was decreased to 40% of the policy rate. In addition, the minimum interest rate applicable to FX-protected deposits accounts to be opened or renewed as of July 22, 2024 was reduced from 80% to 70% of the policy rate, and the practice of paying additional return on those accounts was abolished.

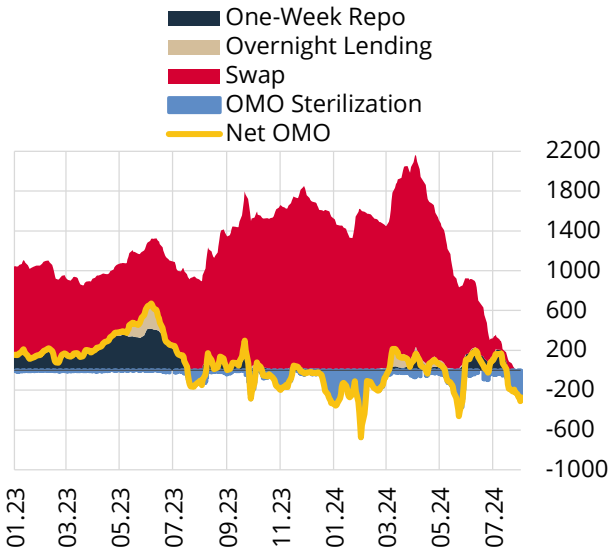
The significant decline in the outstanding amount of the CBRT's swap transactions contributed to the sterilization of excess liquidity in the market. In the current reporting period, overnight rates moved within the CBRT's interest rate corridor depending on the liquidity conditions in the market (Chart 1.1.1). The funding need of the system registered a notable decline led by the CBRT's FX transactions. Excess liquidity in the system was sterilized through deposit buying auctions of the CBRT in the period between May 8 and May 24. At its meeting in May, the MPC decided that the excess liquidity stemming from the surging domestic and foreign demand for Turkish lira financial assets would be sterilized through additional measures. In this framework, reserve requirement ratios for Turkish lira deposits and FX-protected deposits were raised, thereby sterilizing approximately TRY 550 billion liquidity from the system. After this reserve requirement step, the net OMO funding shifted to positive territory again and remained there until July 11 on the back of the continued downtrend in the CBRT's outstanding swap amount throughout the majority of the following period. Due to government expenditures, the net OMO funding moved back to negative territory on July 12, and the CBRT started to sterilize excess liquidity through deposit buying auctions. The amount of swap transactions, which was TRY 1.1 trillion as of May 8, 2024, reached TRY -6 billion as of August 2, 2024, with the effect of FX swap auctions against the Turkish lira. Meanwhile, the net OMO funding increased from TRY -163.7 billion on May 8, 2024 to TRY -89.0 billion on August 2, 2024 (Chart 1.1.2). The CBRT has been sterilizing the excess liquidity in the system through additional deposit buying auctions as well as through FX and gold swap auctions against the Turkish lira, whenever required. Liquidity conditions will continue to be closely monitored and assessed with respect to prospective developments. Sterilization will be implemented effectively by also enriching the toolset whenever needed (Box 1.1).

Chart 1.1.1: CBRT Interest Rates and Short-term Interest Rates (%)



Source: BIST, CBRT.

Chart 1.1.2: CBRT OMO and Swap Transactions
(One-Week Moving Average, TRY Billion)



Source: CBRT.

Box 1.1

Developments in Turkish Lira Liquidity and Sterilization Tools

Liquidity, in the context of central banking, corresponds to the monetary aggregate created by the central bank's balance sheets, which is used in the financial system's fund transfers. From the perspective of the balance sheet, liquidity is the indicator of a central bank's net position within the financial system.

Therefore, the positive level of net position of the financial system in their transactions with the central bank defines the "excess liquidity", and the system is in "liquidity shortage" otherwise. Central banks manage liquidity to ensure that the banking system, financial markets, and payment systems operate efficiently by taking into account public sector's revenue and expenditures. The aim of central bank's liquidity operations is to transmit the monetary policy via setting the level of short-term interest rates, and hence the longer-term interest rates through the transmission mechanism. In this setting, the liquidity policy in response to the level of liquidity, whether the system is in liquidity shortage or in excess liquidity, and the policy framework is shaped by the cost, maturity and the tools of monetary policy operations.

In this context, the CBRT effectively uses its liquidity management tools to promote the efficiency of the transmission mechanism and to materialize overnight money market rates around the policy rates, all within the context of achieving its primary objective of price stability. Hence, liquidity conditions are assessed with respect to prospective developments and closely monitored. Any sterilization is implemented effectively by reviewing the toolset in light of the liquidity developments. To that end, this Box discusses the effectiveness of the sterilization tools and the recently extended toolset.

Factors Affecting Turkish Lira Liquidity

The funding need of the banking system (FNS) is affected by:

i) The developments in monetary base, banks' Turkish lira required reserves held in the CBRT, in free and blocked deposit accounts, and banknotes in circulation,

ii) TL operations by the CBRT,

iii) TL transactions of the Republic of Türkiye Ministry of Treasury and Finance (Treasury).

The funding need of the system (FNS) dropped from TRY 1,012 billion (liquidity shortage), at the beginning of the year, to TRY -220 billion (excess liquidity), as of July 31, with the developments in aforementioned factors. Since the beginning of the year, the changes in the monetary base resulted in TRY 865 billion liquidity leakage from the system, the adjustments in RRs corresponded to 683 billion TL, and there was an increased volume of 182 billion TL banknotes in circulation within the total sum. On the other hand, increased demand for TL denominated assets by the residents and non-residents, especially after the second quarter, helped to improve the CBRT's net FX position and the CBRT's operations resulted in the injection of TL liquidity into the system, and thus excess liquidity (Table 1).

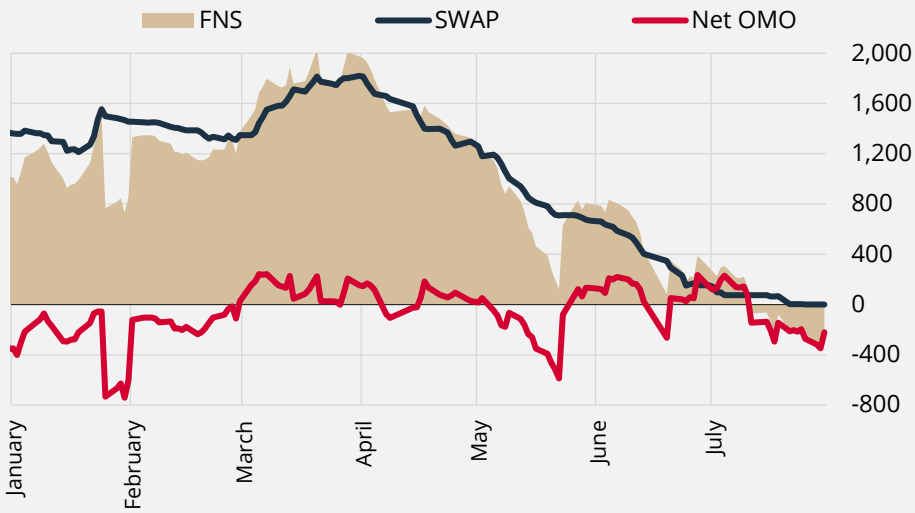
The total sterilization via OMO was TRY 349 billion on January 2, and TRY 220 billion, on July 31. While the CBRT operations sterilized the temporary excess liquidity at the beginning of the year when FNS was positive. Currently the operations are aiming at sterilizing the permanent excess liquidity as FNS has been at negative levels since July 12 (Chart 1).

Table 1: Funding Need of the System (TRY Billion)

	2.01.24	31.07.24	Diff.
Funding Need of System	**1.012**	**-220**	**-1.232**
Net OMO	-349	-220	129
OMO Funding	5	5	0
Sterilization	-354	-225	129
Swap Transactions	1,361	0	-1.361
Monetary Base	**1.565**	**2.430**	**865**
Banknotes in Circulation	438	620	182
Free Deposits	939	1,093	154
Blocked Accounts	188	717	529
CBRT Operations			**-2.201**
Treasury Operations*			**104**

Source: CBRT.
* Redemptions to CBRT are excluded.

Chart 1: Funding Need of the System and CBRT Funding (2024, TRY Billion)



Source: CBRT.

Liquidity Level and Its Distribution

TL swap transactions against foreign currency and gold, (TL funding at the spot leg) was reduced from TRY 1,361 billion at the beginning of the year, as the CBRT targeted to avoid the excess TL liquidity considering the injections via FX reserve accumulation operations. Therefore, the CBRT terminated TL funding via swap operations on July 25 2024, which was introduced at the last quarter of 2018. The level of total outstanding FX swaps expired on July 31, 2024.[1]

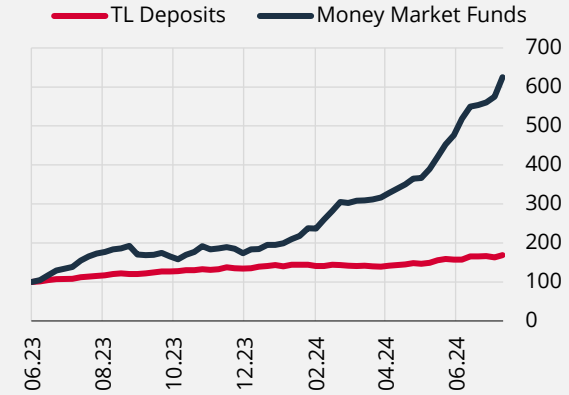
In addition, TL deposit buying auctions were announced to manage the excess liquidity in December 21, 2023. In order to sterilize the excess liquidity, CBRT has used deposit auctions whenever necessary and continued to actively manage the system's liquidity after July 12 as FNS dropped to negative levels.

[1] With the introduction of sell-side gold and FX swap transactions in the upcoming period, the outstanding level of swap transactions is expected to be at negative levels.

The distribution of liquidity within the financial system gained more importance especially after FNS became negative, which indicates a state of permanent excess liquidity, for the effective transmission of monetary policy. Recently, a decoupling in the growth rate of TL deposits in the banks and money market funds is being monitored as the concentration of liquidity accumulation in the funds became significant. The total size of the money market funds increased approximately five-fold (Chart 2), and therefore, the share of reverse repo operations by brokerage houses increased in the BIST Repo-Reverse Repo Market (Chart 3).

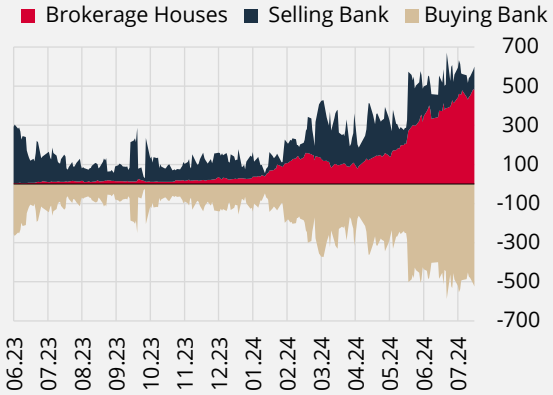
While excess liquidity in the system gradually increases and the CBRT becomes a net borrower, recent developments in liquidity distribution are noteworthy. As highlighted in the Monetary Policy Text for 2024, the general framework of the liquidity management is determined by taking into account the level of the liquidity and its distribution within the system. The CBRT continues to use all liquidity management instruments effectively to ensure efficiency of the monetary transmission mechanism and introduces additional instruments considering recent developments.

Chart 2: TL Deposits and Money Market Funds (June 2023=100)



Source: CBRT, TEFAS.

Chart 3: BIST Repo-Reverse Repo Market Brokerage Houses' and Banks' Distribution (TRY Billion)



Source: BIST, CBRT.

Sterilization Toolset

The sterilization toolset, which is actively used by the CBRT, is given in Table 2. In this framework, the CBRT conducts overnight transactions with the banks and non-bank financial institutions in the BIST Repo-Reverse Repo Market and Committed Transactions Market (CTM), limited by its total OMO portfolio, at the borrowing rate via the quotation method. In addition, the CBRT can sterilize liquidity without any limit from banks by deposit buying in the Interbank Money Market via the overnight quotations and at the borrowing rate. This channel allows the CBRT to sterilize the liquidity within the intraday window of 09.30-14.00 at BIST and CTM and within the intraday window of 10.00-16.00 in the Interbank Market. While the total sterilization volume via quotation varies depending on the liquidity conditions, it was at a daily average of TRY 40 billion, during July 2024 (Chart 4).

Table 2. Current Sterilization Toolset

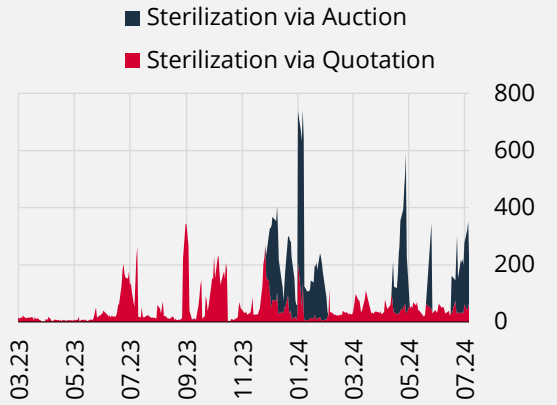
Market/Tool	Int. Rate (%)	Maturity	Hours	Method	CBRT Limit
BIST Reverse Repo	CBRT Borrowing	Overnight (O/N)	09.30-14.00	Quotation	OMO Portfolio*
CTM Reverse Repo	CBRT Borrowing	Overnight (O/N)	09.30-14.00	Quotation	OMO Portfolio*
Interbank Money Market Transactions	CBRT Borrowing	Overnight (O/N)	10.00-16.00	Quotation	Unlimited
Deposit Buying Auction	Auction Rate	Up to 91 days	11.00-11.30	Traditional Auction**	Auction Limit-Unlimited

* In nominal terms, the OMO portfolio consists of TRY 168 billion of government securities and TRY 9 billion of lease certificates.
** In traditional auctions, the interest rate is determined by the CBRT taking into account the bids of auction participants.

Additionally, the CBRT holds TL deposit buying auctions at varying maturities between 11.00-11.30 to sterilize the excess liquidity. After May 15, the CBRT started to initiate auctions for the different

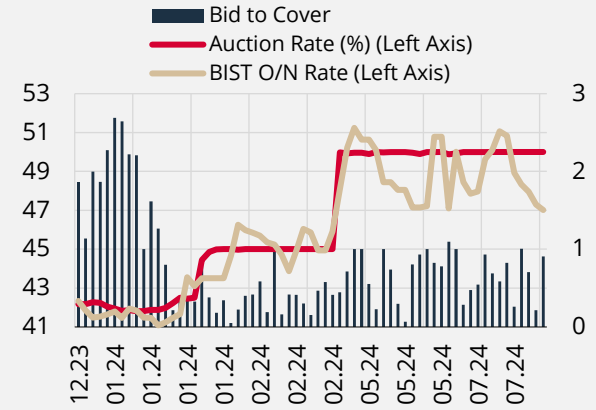
maturities and amounts at the same time, which improved the efficiency of sterilization operations (Chart 5). Considering the level of excess liquidity in the financial system, the demand for shorter maturity auctions is generally higher, and the demand is expected to increase for longer maturity auctions as excess liquidity accumulates.

Chart 4: CBRT Sterilization (TRY Billion)



Source: CBRT.

Chart 5: TL Deposit Buying Auctions (%, Ratio)



Source: CBRT.

Additional Sterilization Toolset

The recent developments in liquidity conditions, which indicate that excess liquidity looms and the distribution of liquidity shifts, have necessitated a review of the efficiency of the sterilization toolset. As a result, the sterilization framework has been extended by enriching the toolset.

The sterilization tools mentioned in the previous section have some shortcomings. Although the CBRT has an extensive framework to sterilize liquidity via quotation, the CBRT's total sterilization is limited by its OMO portfolio at the BIST and CTM, and the CBRT can conduct transactions only with the banks in the Interbank Market.

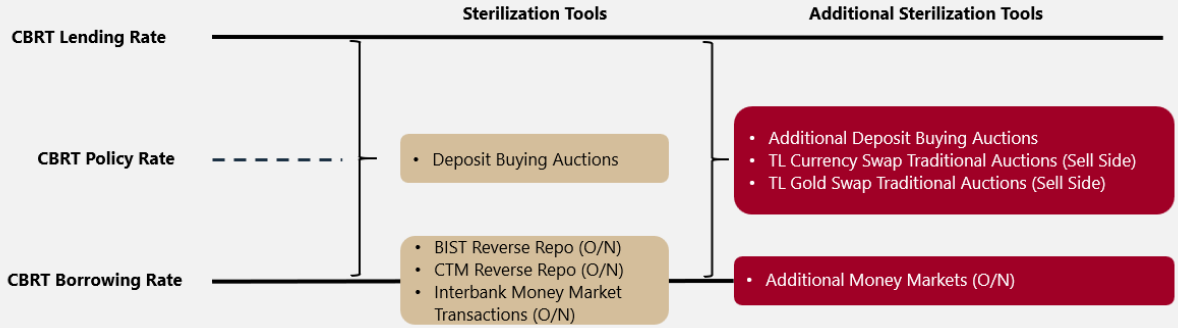
These limitations urged the CBRT to introduce sell-side gold and foreign currency swaps auctions against TL (TL withdrawal at the spot leg) in order to extend its operational maturity span and to enrich its toolset. These swap auctions will be announced at 11.00, and the auctions will be held between 15.00-15.30 for the gold swaps, and 15.00-15.15 for the foreign currency swaps. The interest rates will be determined by the participants' bids via the traditional auction method. Considering the extended framework of sterilization, the total amount of sell-side swap auctions is planned to be kept at a limited level initially and will gradually increase depending on the liquidity conditions. Moreover, the CBRT decided to open additional TL deposit buying auctions on a schedule that has yet to be announced, when deemed necessary. This framework will allow the CBRT to actively sterilize excess liquidity via deposit buying auctions with varying maturities.

Table 3. Additional Sterilization Toolset

Market/Tool	Int. Rate (%)	Maturity	Hours	Method	CBRT Limit
Additional Deposit Buying Auctions	Auction Rate	Up to 91 days	To be announced*	Traditional Auction	Auction Limit-Unlimited
TL Currency Swap Traditional Auctions (Sell Side)	Auction Rate	Weekly**	15.00-15.15	Traditional Auction	Auction Limit-Limited
TL Gold Swap Traditional Auctions (Sell Side)	Auction Rate	Weekly**	15.00-15.30	Traditional Auction	Auction Limit-Limited
Additional Money Markets	CBRT Borrowing	Overnight	09.30-15.30	Quotation	Unlimited

* In July 2024, the TL Markets Implementation Instructions was amended to allow additional auctions to be held at different times of the day.
** Auctions may be organized with shorter or longer maturities depending on liquidity developments.

Scheme 1: Sterilization Tools Used



Also, the CBRT is preparing to operate in additional money markets. This is expected to extend its sterilization framework by accessing banks and non-bank financial institutions' excess liquidity via quotation. The CBRT can only sterilize the excess liquidity from non-bank financial institutions in the BIST Repo-Reverse Repo Market and CTM, where the total sterilization is limited by the OMO portfolio. Therefore, the inclusion of operational ability in additional money markets will allow the CBRT to sterilize unlimited excess liquidity via quotation, both from banks and non-banks. Since the additional markets operate between 09.30-15.30, this is expected to extend the sterilization window and promote the efficiency of sterilization operations.

Liquidity bills, which were employed by the CBRT in the past, constitute an alternative to the abovementioned sterilization toolset. Within the scope of Article 52 of the CBRT Law, the CBRT can issue liquidity bills with a maturity of up to 91 days and used this facility in 2007 with various maturities for sterilization purposes. On the other hand, as stated above, the CBRT can effectively conduct sterilization operations through TL deposit buying auctions up to 91 days and with the same value date or future value date, at various times during the day when needed. Since TL deposit buying auctions are money market instruments, they have higher operational flexibility and the demand for those auctions in terms of investment motive is limited compared to the liquidity bills, which increase the effectiveness of the sterilization. Accordingly, although liquidity bills are included in our sterilization toolkit, they are not preferred under current conditions.

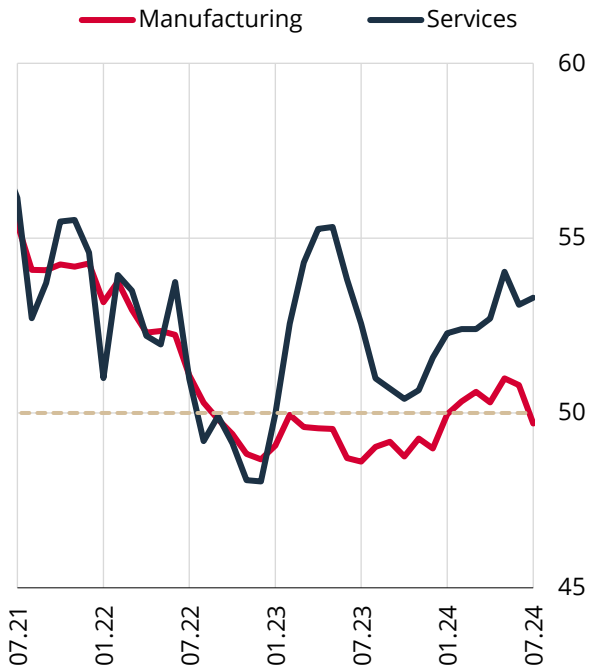
Consequently, the extended sterilization toolset is considered to be more efficient and comprehensive in terms of operating hours, counterparties, and operational limits. Liquidity conditions will continue to be assessed with respect to prospective developments and closely monitored. Also, sterilization will be implemented effectively by further enriching the toolset whenever needed.

2. Economic Outlook

2.1 Global Economy

The limited improvement in leading indicators for global growth continued into the second quarter, with the services sector remaining the main driver of economic growth. Global PMI data for the manufacturing industry fell below the threshold value and remained weak across advanced economies as well. The services PMI recorded a limited improvement over the previous reporting period (Chart 2.1.1). The growth forecasts for Türkiye's trading partners were revised upwards for the euro area, while the growth outlook for Middle East and Africa countries deteriorated significantly (Table 2.1.1). Against this background, the global growth index weighted by the export shares of Türkiye's trading partners is estimated to increase by 2.0% in 2024, reflecting a downward revision of 0.1 points compared to the previous reporting period. The US economy has a stronger growth outlook than other major economies. Meanwhile, despite a slight upward revision in China's growth forecast for 2024 on the back of the relatively strong performance in the first quarter, retail sales declined in the second quarter due to slower growth and weaker consumer confidence, which was noteworthy.

Chart 2.1.1: Global PMI Indices (Level)



Source: S&P Global.

Table 2.1.1: Growth Forecasts for Türkiye's Main Trading Partners* (%)

	2023	Forecast for 2024		Forecast for 2025	
		IR 2024-II	IR 2024-III	IR 2024-II	IR 2024-III
Euro Area	0.5	0.5	0.7	1.4	1.4
Germany	-0.2	0.1	0.2	1.1	1.1
USA	2.5	2.3	2.3	1.7	1.7
UK	0.1	0.3	0.8	1.2	1.1
Italy	0.9	0.7	0.9	1.0	1.0
Iraq	-0.6	2.3	1.1	0.7	2.1
Spain	2.5	1.7	2.3	1.8	1.9
France	0.9	0.7	0.9	1.3	1.2
Netherlands	0.1	0.7	0.4	1.4	1.4
Israel	2.0	1.5	1.5	3.8	3.9
Russia	3.6	2.3	3.2	1.4	1.7
UAE	2.9	4.2	3.4	2.1	2.1
Romania	2.1	2.9	2.8	3.5	3.5
Belgium	1.5	1.1	1.2	1.4	1.5
Poland	0.2	2.9	2.9	3.7	3.8
Egypt	3.8	3.8	3.4	4.8	4.2
Bulgaria	1.8	2.2	2.2	3.0	2.9
China	5.2	4.7	4.9	4.4	4.4

Source: Consensus Economics, S&P Global.
* IR stands for Inflation Report. Countries are ranked according to the size of their share in Türkiye's exports in 2021.

The global growth outlook and composition, geopolitical risks, financial conditions and supply-side factors continue to play a determining role in commodity prices. Having recorded consecutive increases in spring, non-energy commodity prices showed widespread declines compared to the previous reporting period. Meanwhile, the volatility in oil prices was noteworthy. The persisting political tensions in Russia-Ukraine and the Middle East as well as the decisions of OPEC+ member countries to cut output cause upward supply-side pressures to persist. Natural gas prices also show fluctuations. Due to the euro area growth outlook, mild weather conditions and the increase in the imports of liquefied natural gas, natural gas stock levels remained high and have a downward effect on prices that are indicative for Europe. However, natural gas prices rose by 13.2% over the previous reporting period. Meanwhile, despite recording a significant decline compared to the previous reporting period, the global growth outlook, and particularly industrial commodity prices that have historically moved in tandem with the growth of the Chinese economy, continued to increase on an annual basis. Agricultural commodity prices also fell noticeably compared to the previous reporting period (Table 2.1.2).

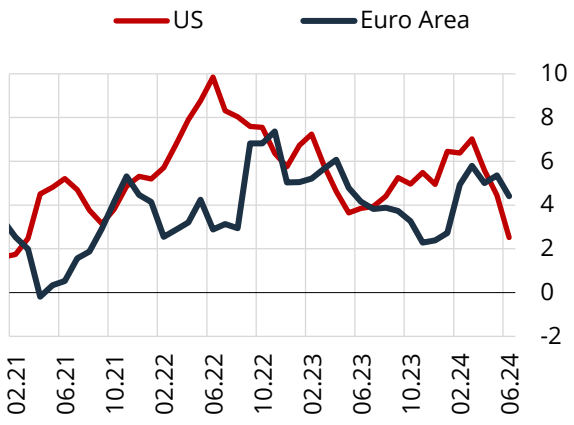
Table 2.1.2: Commodity Prices (%)

	April 2024	May 2024	June 2024	July 2024	Annual	Compared to the Previous Reporting Period*
Headline Commodity Index	3.9	-2.2	-1.0	-1.4	0.2	-4.8
Energy	3.7	-5.6	0.4	0.4	1.7	-3.0
Agricultural Commodities	2.5	2.2	-3.2	-7.0	-15.2	-12.3
Industrial Metals	9.0	5.9	-4.3	-3.8	7.2	-8.9
Precious Metals	8.0	1.4	-1.0	3.4	22.8	4.8
Non-Energy	4.2	2.5	-2.8	-3.7	-1.9	-7.1
Brent Oil	5.1	-8.8	0.7	3.3	6.6	-2.1
Natural Gas (USA)	2.5	35.2	16.2	-21.2	-16.0	-11.5
Natural Gas (Europe)	7.9	10.3	7.8	-5.6	10.6	13.2
Coal	-0.7	10.1	-6.8	1.1	0.1	-3.3
Aluminum	11.5	3.3	-2.8	-5.8	8.8	-10.8
Copper	9.4	9.7	-5.8	-3.0	13.8	-9.4
Iron	-3.8	9.7	-8.9	1.2	-3.0	-9.0
Wheat	4.1	16.6	-9.1	-9.0	-19.4	-14.9
Soy Beans	-1.3	4.6	-3.7	-4.6	-25.9	-13.8
Rice	2.4	3.9	-3.4	-11.3	-7.1	-18.4
Corn	1.1	4.7	-3.3	-9.4	-27.4	-13.6
Cotton	-12.1	-6.3	-7.6	-4.4	-18.4	-13.5
Sugar	-5.2	-8.9	2.0	1.0	-19.4	-3.3

Source: Bloomberg.
* Denotes the percentage change between July 31 and May 9, 2024.

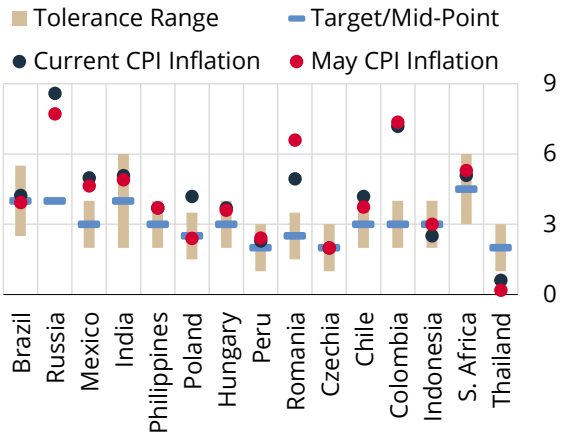
Recently, while global core inflation has remained on the decline, the stickiness of services inflation has started to break down. Although geopolitical developments and fluctuations in commodity prices continue to pose a risk to the global disinflation process, supply conditions that are still normalizing and tight monetary policies remain supportive of the disinflation process. It is noteworthy that the supply and demand balance in labor markets has started to recover, and price increases in the services sector have lost pace. Although the annual rate of increase in the underlying trend of US services inflation remained above headline inflation, it fell noticeably in May and June. Services inflation in the euro area also slowed down, albeit to a limited extent (Chart 2.1.2). Meanwhile, inflation rates in emerging economies have continued to converge towards the targets (Chart 2.1.3).

Chart 2.1.2: Services Inflation in Advanced Economies (Annualized 3-Month Moving Average, Seasonally Adjusted, %)



Source: ECB, St Louis Fed.

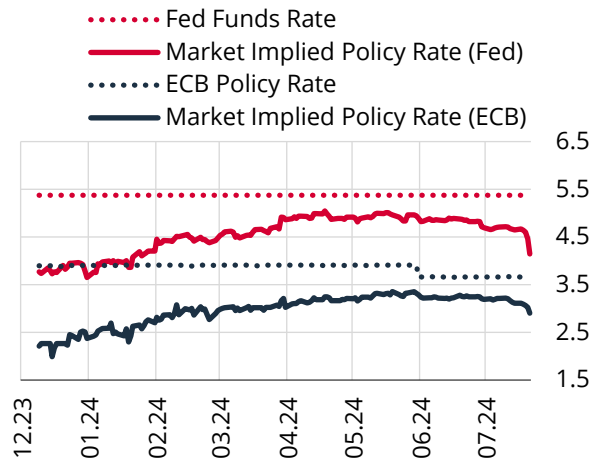
Chart 2.1.3: Consumer Inflation in Emerging Economies (Target, Tolerance Range and Outturn, %)



Source: Bloomberg.

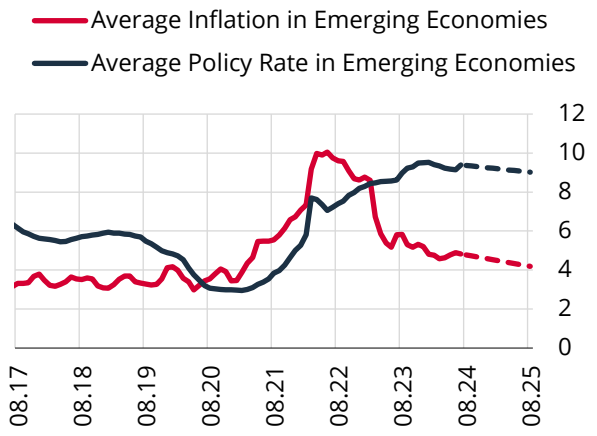
While major central banks continue to communicate that they will act cautiously in cutting rates, rate cuts started to be priced in more. Compared to the previous reporting period, there is an expectation of a sooner first rate cut by the Fed and pricing of a more sizeable cut for the year-end. Regarding the ECB, which initiated the monetary easing by reducing its policy rate by 25 basis points in June in line with expectations, the expected rate cut path also reflects stronger pricing of rate cuts for the year-end. As of August 5, policy rate cuts priced in for the year-end were 135 basis points for the Fed and 86 basis points for the ECB (Chart 2.1.4). While the Fed kept its policy rate unchanged at 5.5% in June, it revised its projection for median policy rate cut from 75 basis points to 25 basis points for 2024, in view of the inflation and employment outlook. Remaining cautious in July, the Fed signaled that, based on data, its first rate cut might be in September. After positive May readings, the rate cut expectations obtained from market prices posted a negative reading (for the first time in four years) for the seasonally adjusted monthly inflation for June. They then significantly increased and strengthened after the Fed meeting, pulling the projection for the first rate cut to September. The ECB, after reducing rates in June, signaled that this decision did not imply further successive rate cuts and kept rates constant at its July meeting. The ECB stressed that it would determine the policy rate path at its next meetings in light of inflation and economic activity. During the current reporting period, the Bank of Canada delivered two rate cuts of 25 basis points each, while the Bank of England and the Danmarks Nationalbank also reduced rates by 25 basis points, reflecting the first easing steps. On the other hand, having ended its negative interest rate policy in March, the Bank of Japan raised its policy rate by 15 basis points in July. Meanwhile, the rate cut cycles of emerging economies also lost some momentum in response to the deceleration of the improvement of their inflation outlooks. In the current reporting period, the National Bank of Romania initiated its rate cut cycle with a reduction of 25 basis points, accompanied by Central Reserve Bank of Peru (25 basis points), Central Bank of Colombia (50 basis points), Czech National Bank (50 basis points), Central Bank of Chile (75 basis points) and Magyar Nemzeti Bank (75 basis points). On the other hand, the Bank of Russia, which revised its inflation forecasts upwards, raised rates by 200 basis points. In the coming period, rate cuts are likely to continue in advanced and emerging economies relying on the decline in inflation. However, considering the levels of inflation, rigidities, and the recent rise in Middle East-related geopolitical risks, it is expected that the rate cuts will be delivered in a way that maintains monetary tightness and sustains the disinflation process. Against this background, policy rates implied by futures suggest that interest rates in emerging economies will continue to be set above inflation rates (Chart 2.1.5).

Chart 2.1.4: Market-Implied Policy Rate for End-2024 (Effective, %)



Source: Bloomberg.

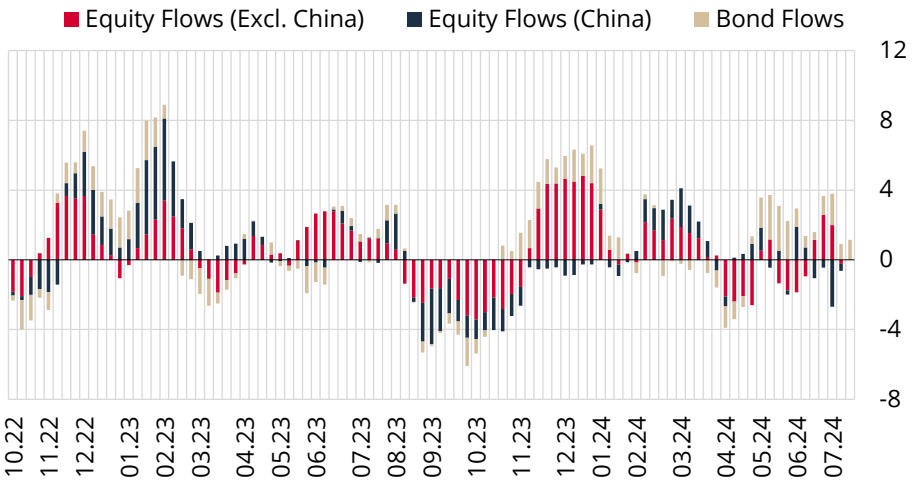
Chart 2.1.5: Futures-Implied Policy Rate and Inflation Expectations* (% Points)



Source: Bloomberg.
* Inflation expectations are from the Bloomberg survey. Emerging economies include Brazil, Chile, Colombia, Czechia, Hungary, India, Indonesia, Mexico, Peru, Poland, Romania, Russia, South Africa, Thailand and the Philippines.

Fluctuations in the global risk appetite and uncertainties regarding the policy decisions of major central banks have led to a volatile course in portfolio inflows to emerging economies. Volatilities in pricing of rate cuts by major central banks, fluctuations in risk perceptions and portfolio flows towards emerging economies due to global uncertainties, which were effective during the previous reporting period, continued into the current reporting period. During the period from May 9 to July 26, 2024, equity markets excluding China and bond markets received portfolio inflows of USD 3.2 billion and USD 8.9 billion, respectively (Chart 2.1.6). Recently, mounting uncertainties regarding the policy decisions of major central banks and rising geopolitical risks driven by the Middle East have come to the forefront as significant risk factors for portfolio movements towards emerging economies.

Chart 2.1.6: Weakly Portfolio Flows to Emerging Economies (Four-Week Moving Average, USD Billion)

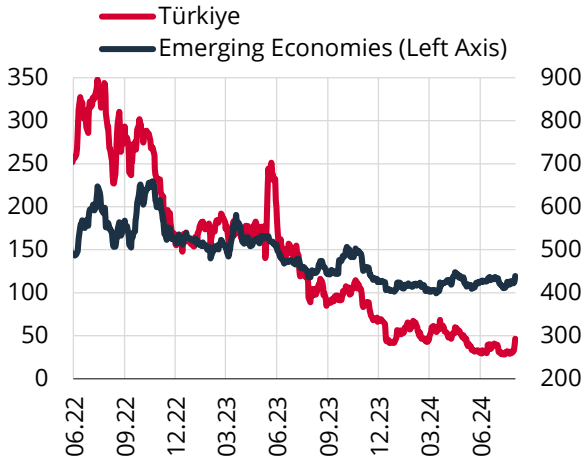


Source: IIF.

2.2 Financial Conditions

In the current reporting period, global risk appetite was favorable for a sustained period, but has recorded a sharp deterioration since mid-July amid geopolitical developments, the Fed's statements regarding caution in rate cuts, and the Bank of Japan's rate hike. In June and July, global financial conditions showed signs of easing as major central banks embarked on rate cuts and the inflation outlook supported expectations that the cuts would continue. However, elevated geopolitical tensions in July and signs of a slowdown in economic activity in the US caused a rapid deterioration in the global risk perception. The Bank of Japan's rate hike decision at the end of July led to a global selling wave, and risk premiums of emerging markets rose rapidly. In early August, Türkiye's risk premium rose to 290 basis points from 260 basis points in June and July, while the overall increase remained limited over the reporting period (Chart 2.2.1). In the May-July period, international investors steered towards emerging market assets amid the improved risk appetite, while portfolio inflows to Türkiye totaled USD 8.59 billion, comprising net inflows of USD 10.26 billion to the government domestic debt securities (GDDS) market and net outflows of USD 1.67 billion from the equity market (Chart 2.2.2).

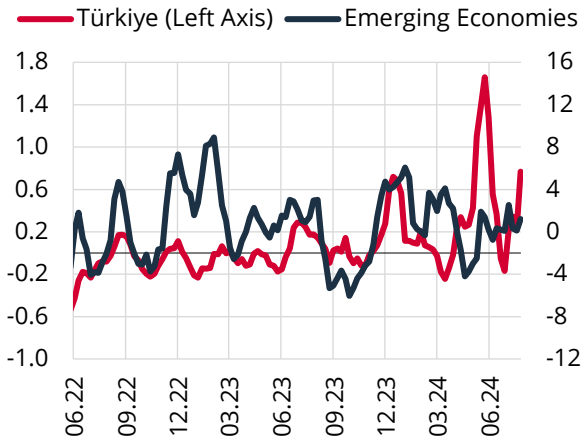
Chart 2.2.1: CDS Premium in Türkiye and Emerging Economies* (Five-Year, Basis Points)



Source: Bloomberg.

* Emerging economies include Brazil, Chile, Colombia, Indonesia, Malaysia, Mexico, South Africa and the Philippines.

Chart 2.2.2: Portfolio Flows to Türkiye and Emerging Economies* (Four-Week Average, USD Billion)

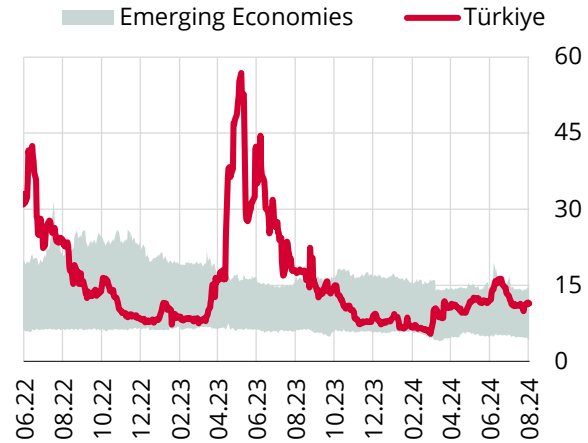


Source: CBRT, IIF.

* Turkish data includes portfolio flows to equity and GDDS markets. Repo is excluded from the GDDS data.

The short-term volatility of the Turkish lira has followed a fluctuating course. After a trend of upsurge in June, the one-month volatility of the Turkish lira has declined since July. The 12-month exchange rate volatility remained on a mild uptrend. Given the latest data, the one-month implied exchange rate volatility of the Turkish lira has become 11.5%, while the 12-month volatility reached 24% (Charts 2.2.3 and 2.2.4). The difference between short and long-term volatilities indicates that policies continue to have an impact on exchange rate stability, yet longer-term risks persist.

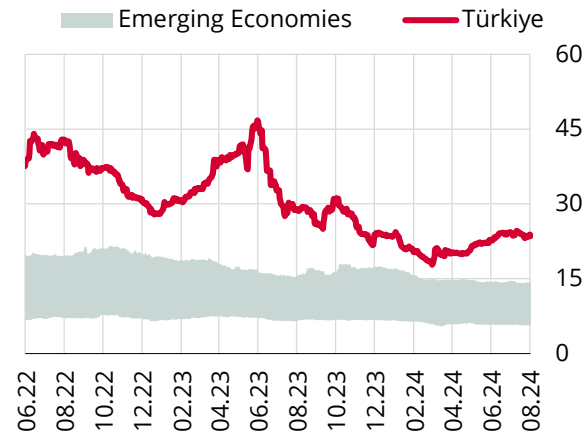
Chart 2.2.3: Implied Volatility of FX Options* (Against USD, One-Month Maturity %)



Source: Bloomberg.

* Emerging economies include Brazil, Chile, Colombia, Hungary, Indonesia, Malaysia, Mexico, Poland, Romania, South Africa and the Philippines.

Chart 2.2.4: Implied Volatility of FX Options* (Against USD, 12-Month Maturity, %)

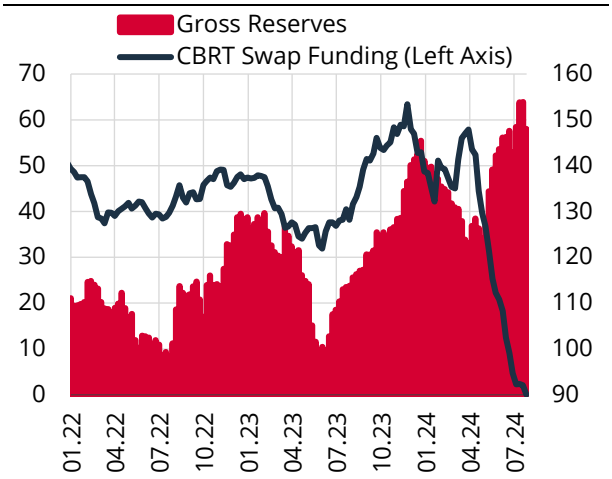


Source: Bloomberg.

* Emerging economies include Brazil, Chile, Colombia, Hungary, Indonesia, Malaysia, Mexico, Poland, Romania, South Africa and the Philippines.

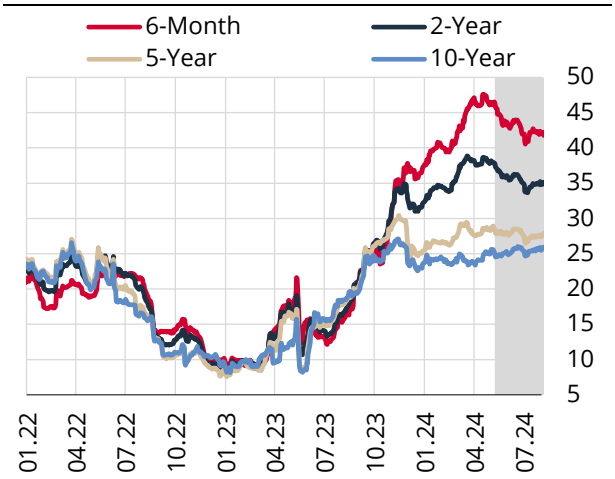
The strong upward trend in CBRT reserves continues. The CBRT's gross international reserves have maintained their upward trend since the previous Inflation Report and reached USD 148 billion as of July 26 (Chart 2.2.5). While this upswing in reserves mirrored the strong interest of residents and non-residents in TL-denominated assets, the non-renewal of CBRT swap transactions in this period limited the total increase. In the reporting period, the swap balance fell by USD 36.8 billion, while net reserves excluding swaps improved by USD 63.3 billion. The total balance of Turkish lira swaps against foreign exchange and gold dropped to zero at the end of July, which ensured a simplified composition in CBRT reserves.

Chart 2.2.5: CBRT's Gross International Reserves (Weekly, USD Billion)



Source: CBRT.

Chart 2.2.6: GDDS Yields (%)

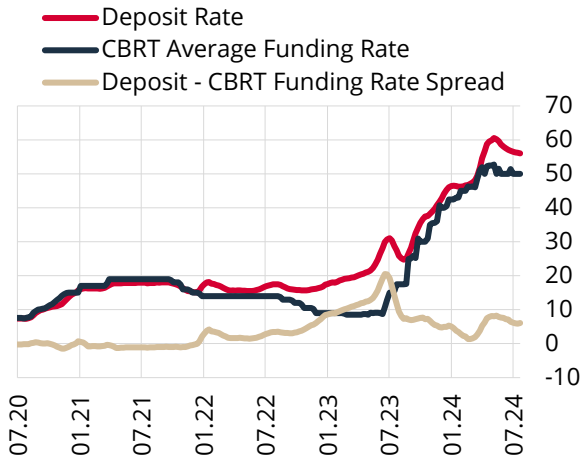


Source: Bloomberg.

Short-term GDDS yields have posted a decline. However, the anticipated improvement in inflation expectations has not yet been reflected in medium and long-term GDDS yields (Chart 2.2.6). Recently, the increased interest of foreigners in the GDDS market has been concentrated mostly on short-term securities. In the period ahead, as disinflation grows stronger, it is expected that market expectations will be anchored more effectively, and the investors' interest will shift towards longer term maturities in the GDDS market.

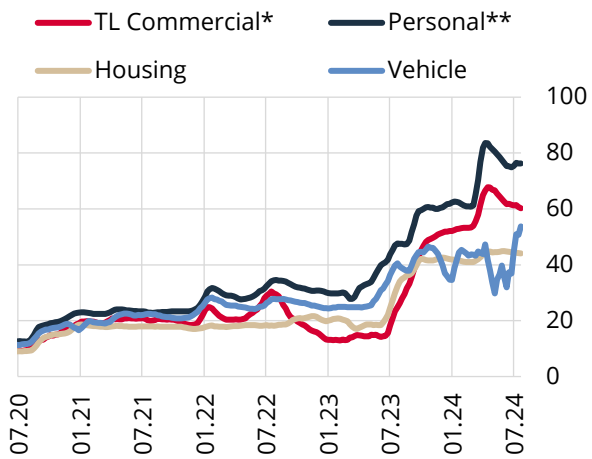
Financial conditions remain tight. The tight monetary policy coupled with improved inflation and exchange rate expectations led residents and non-residents to switch to Turkish lira assets. The resulting cyclical excess liquidity in the market, the plunge in deposit rates on accounts that switched to TL deposits from FX-converted deposits as well as improved inflation and exchange rate expectations that spilled over into the banks' deposit pricing pulled down interest rates to some extent. However, the decline in interest rates was limited by the sterilization of excess liquidity in the market through the increase in reserve requirement ratios for FX-protected deposits as well as deposit and participation fund accounts in May. On the other hand, the cost pressure by the increase in reserve requirement ratios that banks are exposed to was partially offset by the CBRT's arrangement to pay interest on reserve requirements (remuneration) based on rates of renewal and conversion to TL. This pushes deposit rates upwards by supporting banks' interest margins, while at the same time motivating banks to attain their targets. Against this background, the decline in deposit rates lost pace and TL deposit rates reached 55.75% as of July 26 (Chart 2.2.7). Amid the fall in deposit rates and the decline in TL loan demand also fueled by improved inflation expectations pulled down TL loan interest rates (Chart 2.2.8, Box 2.1). TL commercial loan rates stood at 61.8% as of July 26. In retail loans, personal loan rates declined to 74.3% as of July 26, while housing loan rates remained flat at 43.7%, and vehicle loan rates, which mainly fluctuate depending on the status of vehicle campaigns, climbed to 51%.

Chart 2.2.7: Turkish Lira Funding Rates (Four-Week Moving Average, %)



Source: CBRT.

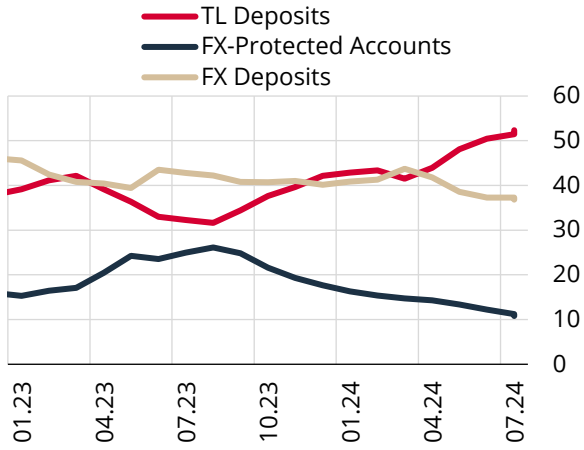
Chart 2.2.8: Loan Rates
(Flow, Four-Week Moving Average, %)



Source: CBRT.
* Excluding overdraft accounts and credit cards.
** Excluding overdraft accounts.

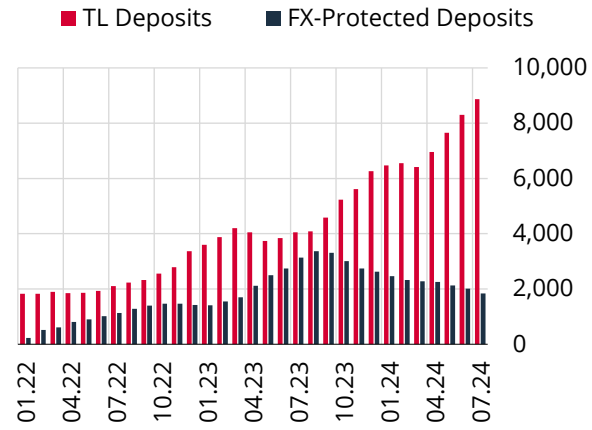
The decrease in FX deposit accounts continued in tandem with the current level of TL deposit rates as well as improved expectations for inflation and the exchange rate. In addition, the conversion to TL time deposits and participation accounts and regulations regarding the share of TL deposits also supported the increase in the share of TL deposits. As of January 1, 2024, with the termination of the FX-protected deposit account openings and renewals, the total stock of FX-protected deposits fell rapidly, which kept the decline in the stock level of FX-protected accounts more limited in the current reporting period (Charts 2.2.9 and 2.2.10). As of July 22, the minimum interest rate for FX-protected accounts to be opened and renewed was reduced from 80% to 70% of the policy rate, and extra returns provided by banks were revoked. In addition, the scope of YUVAM accounts was narrowed to cover only foreign currency transferred from abroad, the extra returns paid to these accounts by the CBRT were reduced, and bank commissions were terminated. As these policy steps suppressed the supply of and demand for FX-converted accounts, the decline in these accounts gained pace as of July 26.

Chart 2.2.9: Deposit Composition
(% Share)



Source: CBRT.

Chart 2.2.10: Turkish Lira Deposit Composition (TRY Billion)

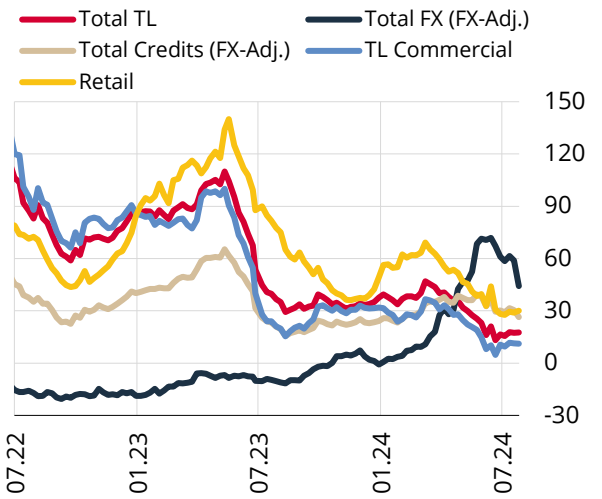


Source: CBRT.

The effect of tight financial conditions on credit growth started to become more pronounced as of the second quarter of 2024. Bolstered by FX commercial loans supply and demand side dynamics, the exchange rate-adjusted FX loans accelerated in the current reporting period. As a result of the significant slowdown in TL commercial loans and the decline in retail loan growth mainly driven by credit cards, the 13-week annualized growth rate of total exchange rate-adjusted loans declined to 26.5% as of July 26 (Chart 2.2.11). On the other hand, the regulation put into effect in May imposed a monthly growth limit of 2% for FX loans, and it was stipulated that Turkish lira required reserves amounting to loans exceeding the

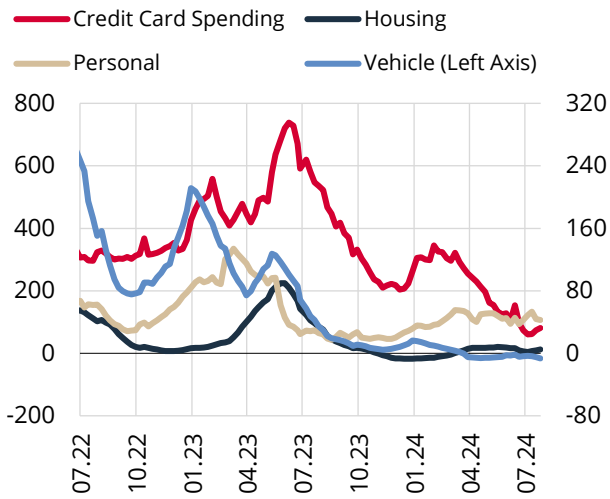
limit will be blocked. Moreover, in July, the monthly growth limit for FX loans was lowered to 1.5% and the scope of the exemption for investment loans was expanded. It was also decided to exempt investment loans extended within the scope of funding provided by international development finance institutions from the growth limits for Turkish lira and foreign currency loans. Amid these changes, FX commercial loan growth has decelerated in recent weeks and the exchange rate-adjusted 13-week annualized growth rate of FX commercial loans became 44.2% as of 26 July. On account of the monetary and quantitative tightening steps, the slowdown in TL loan growth continued and the monthly growth rate of these loans has hovered below the monthly growth limits in recent weeks. The 13-week annualized growth rate of TL commercial loans stood at 11.2% as of 26 July, while that of retail loans declined to 28%. Across subcategories, the 13-week annualized growth rates of housing loans, personal loans and personal credit card balances declined to 4.9%, 42.8% and 32.4%, respectively, as of 26 July (Chart 2.2.12). The 13-week annualized growth rate of vehicle loans remained negative in the current reporting period and stood at -16.

Chart 2.2.11: Loan Growth (13-Week Annualized, FX-Adjusted, %)



Source: CBRT.

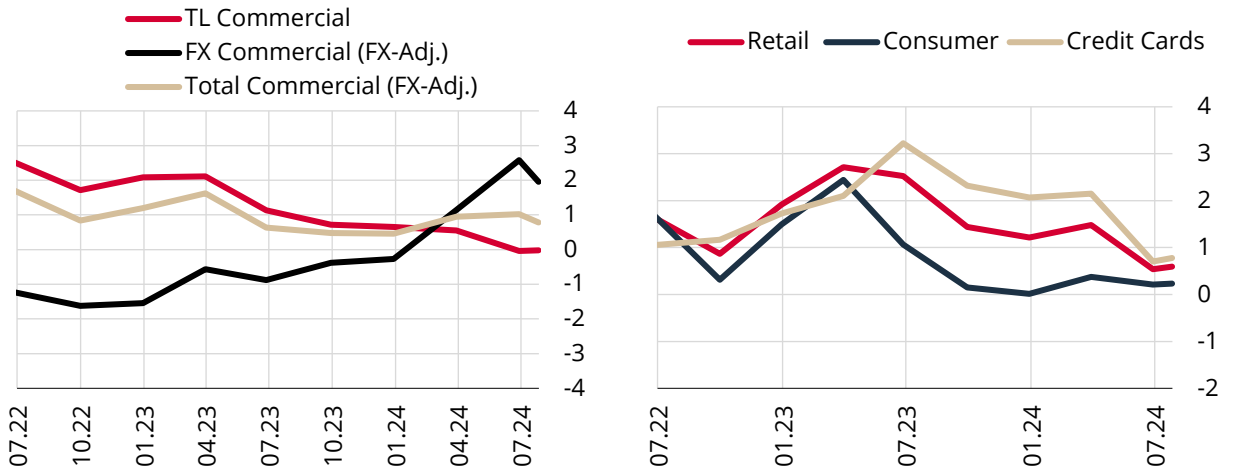
Chart 2.2.12: Retail Loan Growth (13-Week Annualized, %)



Source: CBRT.

Real credit utilization converged to long-term averages in TL commercial and retail loans, while it deviated slightly from long-term averages in FX commercial loans. An analysis of realized loan changes reveals that in the second quarter of 2024, the FX-adjusted total commercial loans remained flat compared to their long-term averages. This was driven by the offsetting of real TL commercial loan utilization, which remained below long-term averages, by the significant acceleration in FX commercial loans. The advantage in FX commercial loan interest rates relative to TL loan interest rates coupled with favorable exchange rate and inflation expectations pushed the FX loan demand upwards (Box 2.1). Moreover, the improvement both in the risk premium and the banks' external borrowing conditions supported FX loan supply. However, due to the tightened FX credit growth limits as of the second half of July, FX-adjusted total commercial loans have started to converge to their long-run value. On the other hand, real retail credit utilization has decreased since the previous reporting period due to the decline in retail credit card balances and personal loans, and converged to the long-term average (Chart 2.2.13).

Chart 2.2.13: Credit Change* (Quarterly, Real, Standardized Value)

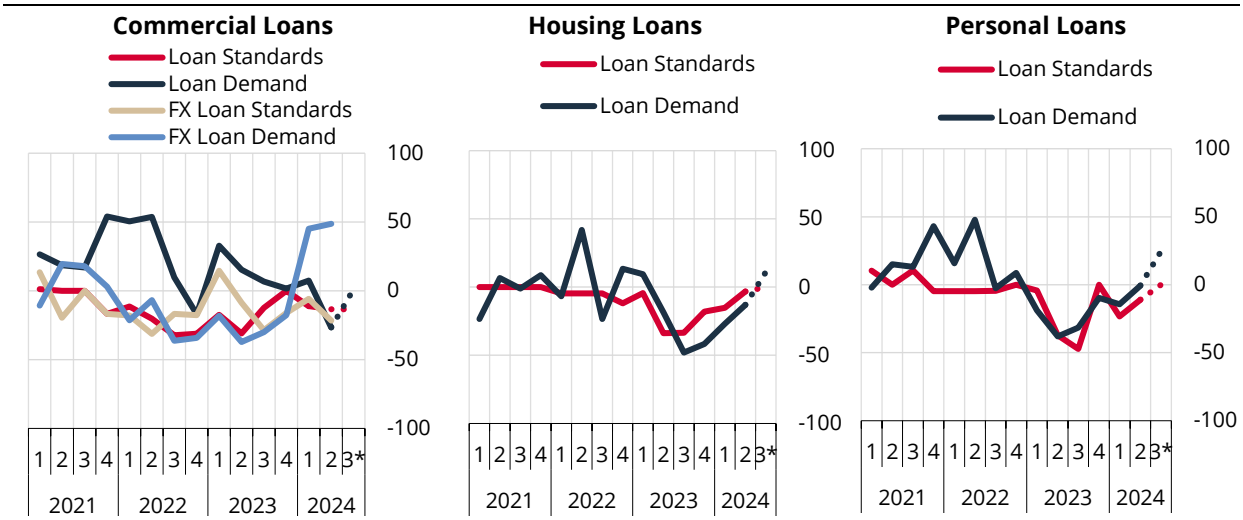


Source: CBRT.

* Series are deflated by CPI. The mean and standard deviations of the series are calculated based on the 2006-2019 period. The quarterly average is taken after real weekly changes are standardized.

The Bank Loans Tendency Survey (BLTS) confirms the acceleration in FX commercial loan demand in the second quarter of 2024. On the other hand, the survey indicates that the slowdown in total commercial loans was driven by the fall in total loan supply and demand, while banks' expectations for the third quarter suggest that total commercial loan demand will edge up, while total commercial loan supply will tighten further. In the second quarter of 2024, the BLTS indicates that all factors affecting banks' credit standards had a tightening impact on credit supply. Although the outlook for the industry and firms and the risk factors related to the collateral demanded, both of which show the trends regarding credit risk, remained in the tightening zone in the second quarter, the liquidity positions of residents are considered to limit the impact of the tightening in financial conditions that started in June 2023 on credit risk in the upcoming period (Zoom-In 2.1). The BLTS indicates that the decline in retail loans in the second quarter of the year was driven by supply and demand-side developments similar to commercial loans, and banks' expectations for the third quarter suggest that the demand for housing and personal loans will increase, but credit standards will remain unchanged (Chart 2.2.14).

Chart 2.2.14: Loan Standards and Loan Demand



Source: BLTS, CBRT.

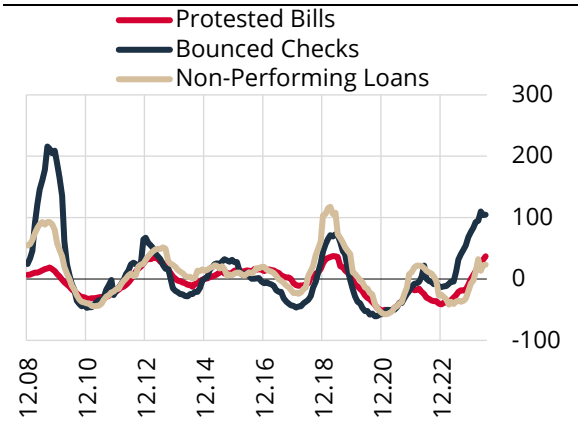
* Denotes banks' expectations. Loan standards and loan demand are calculated as follows: Banks are asked how their loan standards (loan demand) have changed in the past three months. Net trends, which are calculated using percentages, show the direction of change in loan standards (loan demand). An index above zero indicates easing in loan standards (increase in loan demand).

Zoom-in 2.1

Economic Activity and Credit Risk

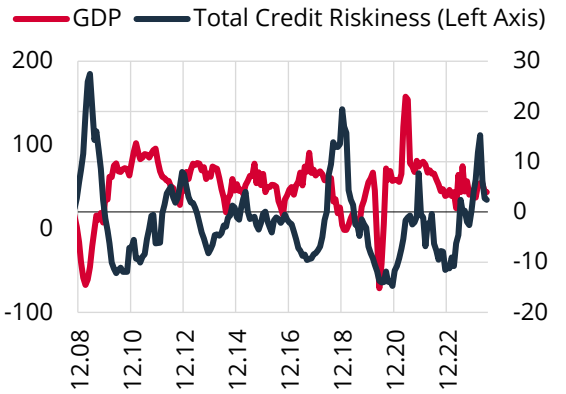
The debt service performance of households and firms (credit risk) can be monitored through various indicators. Protested bills and bounced checks indicate the repayment performance of firms' commercial debts, while households' and firms' debts to banks that are more than 90 days overdue (non-performing loans) indicate the repayment performance of financial debts. Credit risk indicators often move together (Chart 1). However, the periodic increase in one credit risk indicator may start earlier than the other indicators or may be higher than the other indicators. Therefore, a credit riskiness variable is constructed from the sum of the three credit risk indicators.

Chart 1: Annual Growth of Credit Risk Indicators* (%)



Source: CBRT, Risk Center.
* All credit risk indicators consist of flow data (protested bills, bounced checks and loans classified as non-performing loans in the related month). The annual growth of 12-month total amounts is used.

Chart 2: Economic Activity and Credit Riskiness* (%)

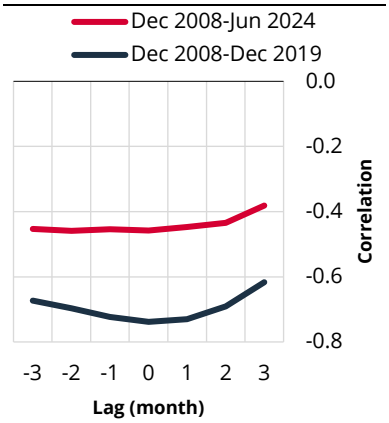


Source: CBRT, Risk Center.
* The chart shows the annual growth of the 3-month sum of protested bills, bounced checks and non-performing loans, and the annual growth of quarterly GDP. 2024Q2 GDP data is forecast.

Credit risk is expected to increase in periods when monetary policy and financial conditions get tighter, and economic activity contracts. In fact, there is a very strong negative correlation between economic activity and credit risk indicators (Chart 2). However, this correlation weakened after 2020. While the simultaneous correlation between economic activity and credit riskiness is -74% between 2008 and 2019, it falls to -46% in the 2008-2024 period (Chart 3). After 2020, policies to support the cash flows of firms and households and the notable strengthening of residents' liquidity positions given the low interest-rate environment are considered to have led to a weakening in the negative correlation between economic activity and credit risk. Compared to December 2019, total loan growth, which hovered above inflation until 2024 is also considered to support the argument that liquidity positions of residents strengthened in this period. By end-June 2024, total loan growth compared to 2019 approached cumulative inflation, which suggests that real loan growth hovered around zero in this period (Chart 4). The total non-performing loans ratio and the bounced check ratio were below the long-term (2009-2024) average as of June 2024, indicating that the recent monetary tightening had a limited spillover effect on credit risk (Chart 5).

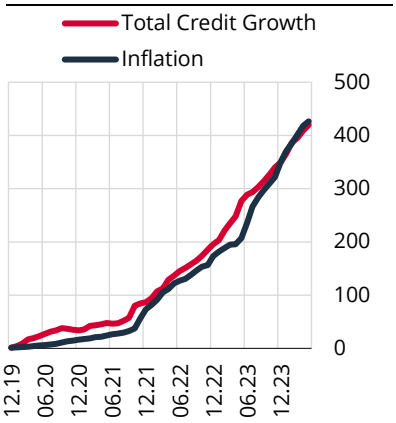
In sum, policies implemented after 2020 have strengthened liquidity positions and resilience of residents against financial shocks. Therefore, the tightening in financial conditions that started in June 2023 is expected to have a relatively weaker impact on credit risk compared to previous periods.

Chart 3: Correlation Between Economic Activity and Credit Riskiness* (%)



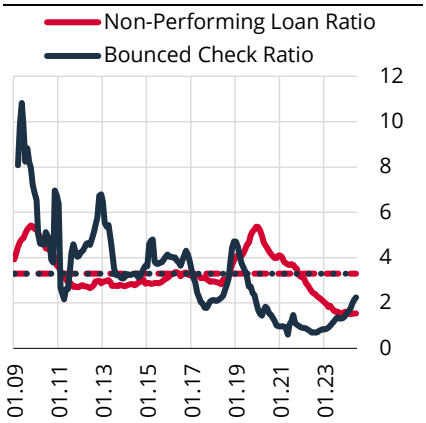
Source: CBRT, Risk Center.
* The chart shows the correlation between the annual growth of 3-month aggregate economic activity and credit riskiness for different lags. Negative lags indicate that credit riskiness leads GDP.

Chart 4: Credit Growth and Inflation (Compared to December 2019, %)



Source: CBRT.

Chart 5: Non-Performing Loans and Bounced Check Ratio* (%)



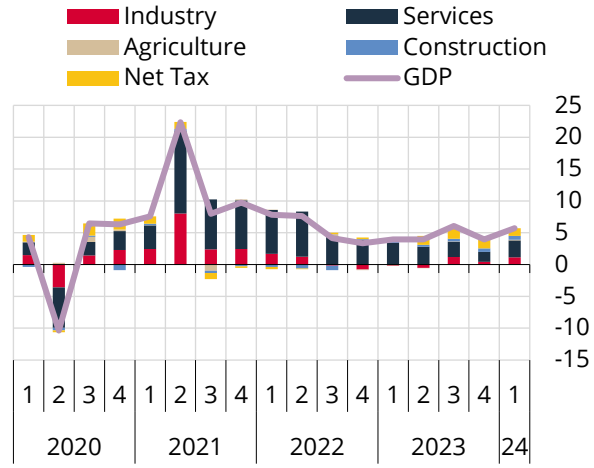
Source: CBRT, Risk Center.
* Dashed lines show the January 2009-June 2024 average of the related series.

2.3 Economic Activity

Supply and Demand Developments

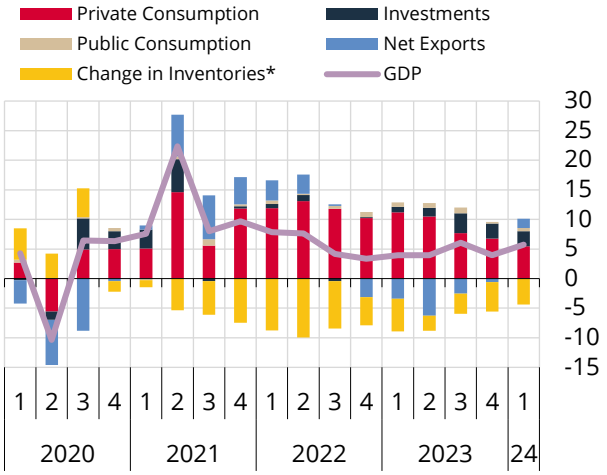
In the first quarter of the year, economic activity was robust. GDP increased by 5.7% year-on-year. Quarter-on-quarter, the GDP growth rate rose to 2.4%, pointing to an acceleration in economic activity. In this quarter, the main driver of annual growth on the production side continued to be the services sector. While the value added of the industrial sector and net tax revenues continued to support growth, the contribution of the construction sector to growth was relatively limited (Chart 2.3.1). On the expenditures side, final domestic demand made the largest contribution to growth in annual terms. This contribution was mainly driven by the increase in private consumption. Although the contribution of private consumption to growth has declined compared to previous periods, it is still high (Chart 2.3.2). In this period, the change in inventories continued to pull growth down, while investments continued to make a strong contribution to annual growth. Among investment items, machinery-equipment investments made the largest contribution. The contribution of construction investments to growth also increased in the first quarter. Meanwhile, net exports made a positive contribution to annual growth for the first time since the third quarter of 2022. On a quarterly basis, the growth in private consumption slightly decelerated in this period, while the positive contribution of net exports to growth increased compared to the previous quarter. In sum, in the first quarter of the year, domestic demand was robust on the back of wage increases, additional campaigns by firms and demand brought forward, while net exports made a positive contribution in both annual and quarterly terms. Accordingly, a more balanced demand outlook was observed with respect to growth composition.

Chart 2.3.1: Annual GDP Growth and Contributions from Production Side
(% Points)



Source: CBRT, TURKSTAT.

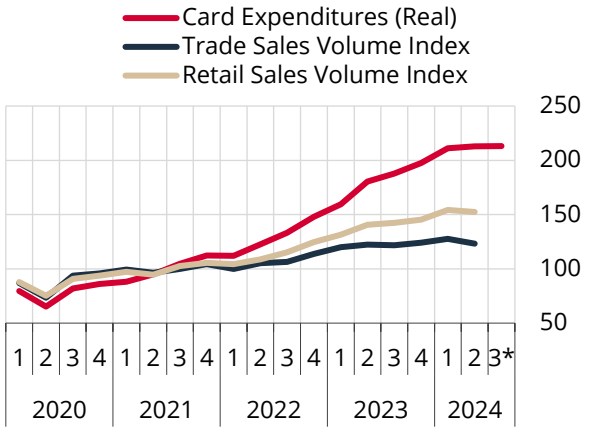
Chart 2.3.2: Annual GDP Growth and Contributions from Expenditures Side
(% Points)



Source: CBRT, TURKSTAT.
* Includes changes in inventories and statistical discrepancy due to chain-linking.

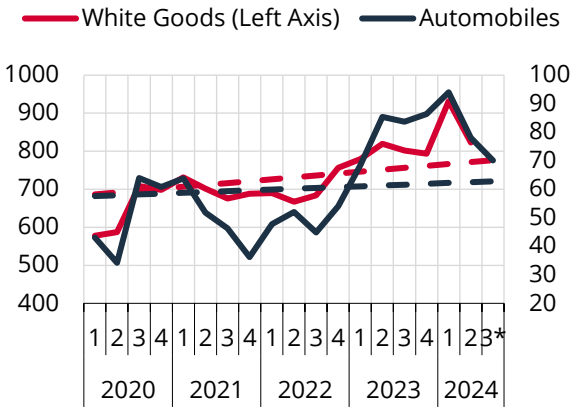
Indicators for the second quarter point to a slowdown in domestic demand, although it remains at inflationary levels. In May, the Retail Sales Volume Index remained almost flat on a monthly basis, but decreased on a quarterly basis. In the same period, the Trade Sales Volume Index posted a sharper decline. In addition to retail trade, two main components of the Trade Sales Volume Index, namely trade of motor vehicles and wholesale trade, also decreased. The Services Production Index, which increased by 1.2% quarter-on-quarter in the first quarter, posted a limited decline by 0.5% in the second quarter as of May. In the second quarter, survey data for manufacturing firms suggest that domestic market orders decreased on a quarterly basis. The findings on consumption expenditures from firm interviews also point to a slowdown in domestic demand (Box 2.2). On the other hand, in the second quarter, there were two religious holidays as well as bridge days related to administrative holidays, making it difficult to get a clear picture of the extent of the slowdown in demand. Although credit card spending decreased in April, it increased in May and June. Thus, the quarterly increase in credit card spending was positive, albeit at a markedly slower pace (Chart 2.3.3). As of July, these expenditures remained flat quarter-on-quarter. Meanwhile, card expenditures, particularly those categorized as discretionary expenditures, started to decline (Zoom-In 2.2). Although white goods and automobile sales remained above their historical trends in the second quarter, they posted a significant quarterly decline (Chart 2.3.4). Automobile sales continued to decrease in July as well. Meanwhile, seasonally adjusted imports of consumption goods decreased in the May-June period, yet remained above the average of the previous year. According to provisional data for foreign trade, imports of consumption goods continued to decline in July, yet remained high.

Chart 2.3.3: Consumption Indicators (Seasonally and Calendar Adjusted, 2021=100)



Source: CBRT, TURKSTAT.
* Average of April-May Retail Sales Volume Index and Trade Sales Volume Index. Credit card spending is as of July. Deflated by CPI.

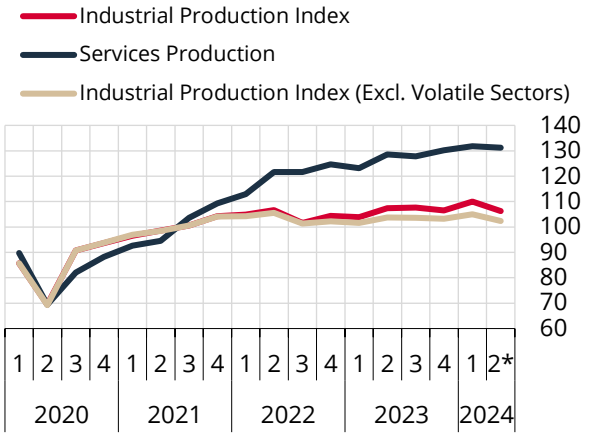
Chart 2.3.4: Sales of White Goods and Automobiles** (Thousand, Seasonally and Calendar Adjusted)



Source: CBRT, ODMD, TURKBESD.
* As of July for automobiles.
** Dashed lines show the average for the 2010-2018 period.

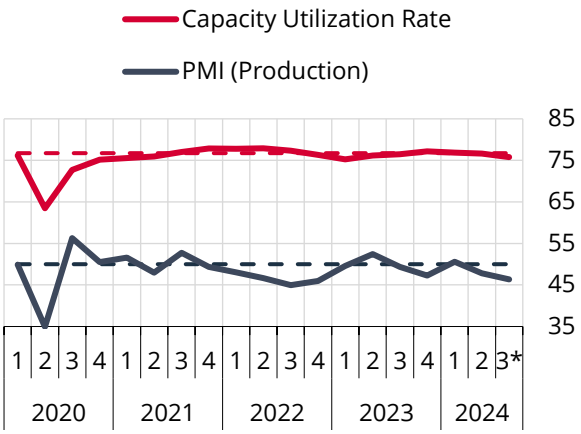
In the second quarter of 2024, both industrial and services production decreased on a quarterly basis. As of May, seasonally and calendar-adjusted industrial production fell by 3.4% quarter-on-quarter in the second quarter (Chart 2.3.5). The decline in industrial production in April was also affected by the bridge days due to the administrative decision to extend the Ramadan holiday, while the compensatory increase in May remained limited. Excluding sectors that are typically highly volatile, the decline in industrial production in the second quarter was smaller than implied by the overall index. Services production posted a limited quarterly decline by 0.5% in May. Accordingly, supply conditions were broadly in line with the demand outlook in the second quarter. Survey-based indicators such as the Business Tendency Survey (BTS) and PMI also confirm the slowdown in industrial activity in the second quarter. In this period, survey indicators for production, employment and demand declined quarter-on-quarter (Chart 2.3.6). The capacity utilization rate, which declined only slightly in the second quarter, dropped by 0.7 percentage points quarter-on-quarter to 75.9% in July. Similarly, the PMI production indicator continued to decline in July.

Chart 2.3.5: Industrial Production and Services Production Indices** (Seasonally and Calendar Adjusted, 2021=100)



Source: CBRT, TURKSTAT.
* Average of April-May.
** Industrial production excluding recorded media, computer-optical instruments, basic pharmacy and other transportation sectors that are typically volatile.

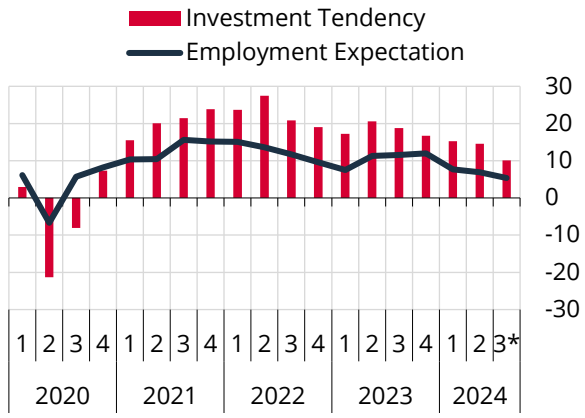
Chart 2.3.6: Capacity Utilization Rate and PMI** (Seasonally and Calendar Adjusted, %)



Source: CBRT, S&P, TURKSTAT.
* As of July.
** Dashed lines show the average Capacity Utilization Rate for the 2011-2019 period, and threshold value for PMI is 50.

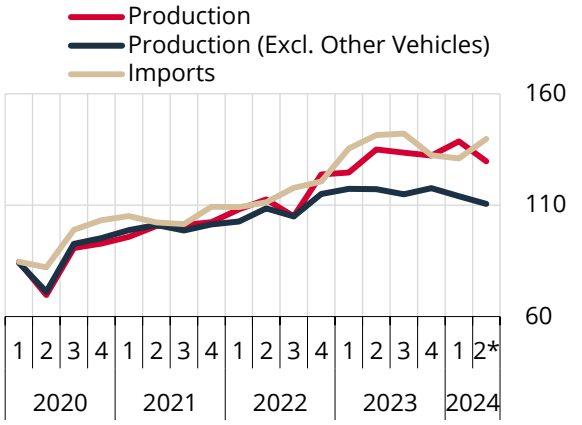
Having slightly declined in the second quarter, investment tendencies and employment expectations of manufacturing industry firms continued to fall in July (Chart 2.3.7). The production of capital goods is in line with the slowdown in investment tendencies. In May, production of capital goods decreased quarter-on-quarter both overall and when vehicles and other transportation are excluded. On the other hand, despite the monthly decrease in May, imports of capital goods excluding transportation vehicles posted a quarterly increase on the back of the rise in April (Chart 2.3.8).

Chart 2.3.7: BTS Expectations for Fixed Capital Investment Spending and Employment (Up-Down, Seasonally Adjusted, %)



Source: CBRT.
* As of July.

Chart 2.3.8: Production and Import Quantity Indices of Capital Goods Excluding Vehicles (Seasonally Adjusted, 2015=100)

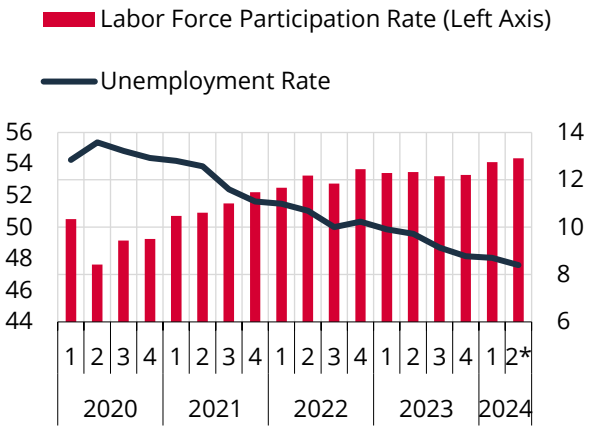


Source: CBRT, TURKSTAT.
* Average of April-May.

Labor Market Developments

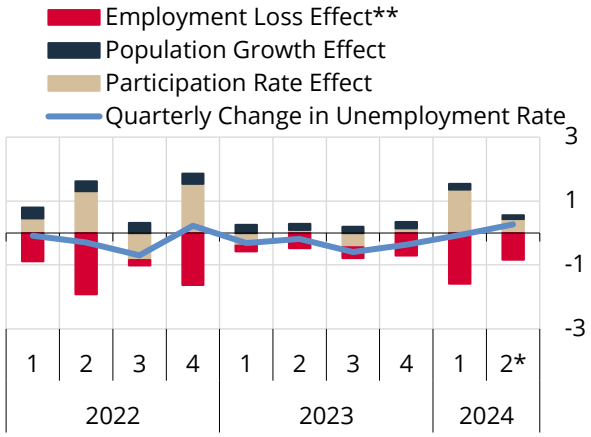
Employment continued to increase in the second quarter. In seasonally adjusted terms, employment increased by 0.9% (296 thousand people) quarter-on-quarter in May. The seasonally adjusted labor force participation rate rose by 0.3 points to 54.4% (Chart 2.3.9). In the second quarter, the unemployment rate decreased by 0.3 points quarter-on-quarter to 8.4%. In this period, population growth and the increase in the participation rate had upward effects of 0.12 and 0.43 points, respectively, on the unemployment rate, while employment growth had a downward effect of 0.83 points (Charts 2.3.10 and 2.3.11). Meanwhile, given the 1.2 percentage point quarterly increase in May in the idle labor force ratio, a complementary indicator of the labor market, and its already high level, the labor market may not be as strong as implied by the main indicators.

Chart 2.3.9: Total Unemployment Rate and Labor Force Participation Rate (Seasonally Adjusted, %)



Source: TURKSTAT.
* Average of April-May.

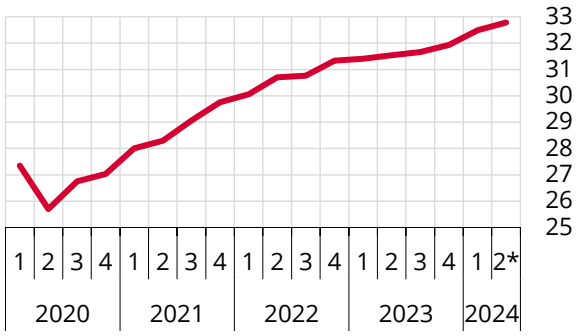
Chart 2.3.10: Contributions to Change in Total Unemployment Rate (Seasonally Adjusted, % Points)



Source: CBRT, TURKSTAT.
* Average of April-May.
** Negative value of the employment loss effect indicates an increase in employment.

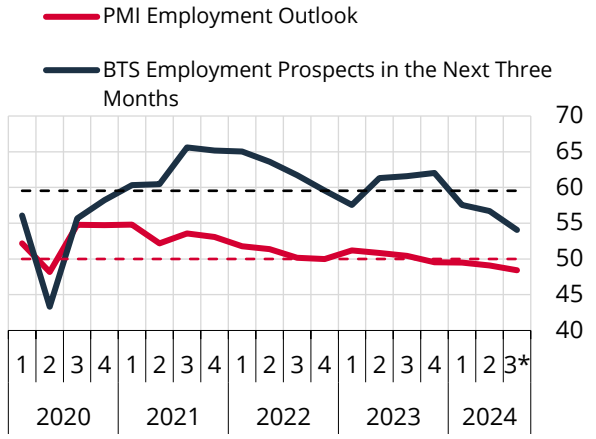
Survey indicators and high-frequency data point to a decline in manufacturing firms' employment expectations for the future. As of July, the number of new job listings is below last year's level, while the total number of job applications is above it. Survey data for manufacturing firms show that firms' employment outlook deteriorated on a quarterly basis, while employment expectations for the next three months fell below their historical average (Chart 2.3.12).

Chart 2.3.11: Total Employment
(Seasonally Adjusted, Million People)



Source: TURKSTAT.
* Average of April-May.

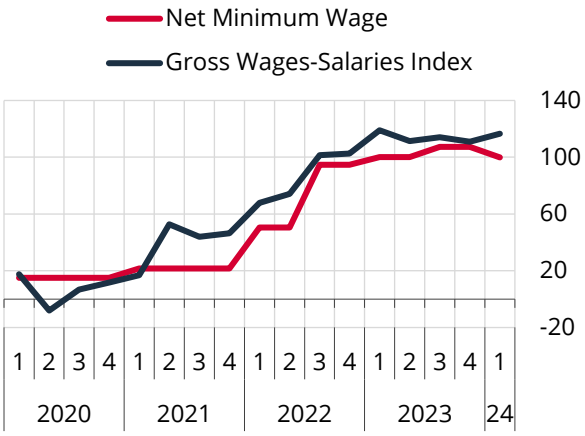
Chart 2.3.12: Employment Outlook and Expectation in the Industrial Sector**
(Seasonally Adjusted, Up-Down)



Source: CBRT, S&P Global.
* As of July.
** BTS indicator is adjusted so that its neutral level will be 50 in line with the PMI. Dashed lines show the average of 2011-2019 for BTS and 50 is the threshold value for PMI.

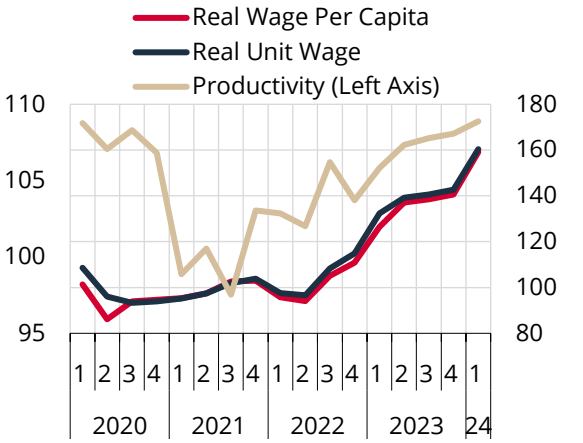
The annual rate of increase in non-farm gross wages was 116.5% in the first quarter of 2024 (Chart 2.3.13). The rise was mainly driven by the almost 100% increase in the minimum wage for 2024 compared to January of the previous year. In the first quarter of 2024, partial labor productivity in the non-farm sector (non-farm value added/non-farm employment) increased slightly as the strong course of economic activity was reflected on the labor market. As productivity growth lagged behind the increase in real per capita wages, real unit wages (real per capita wage/productivity) in the non-farm sector increased in the first quarter (Chart 2.3.14). However, in the rest of 2024, real unit wages are expected to follow a more moderate course compared to the previous year and contribute to the disinflation process.

Chart 2.3.13: Non-Farm Gross Wage and Payroll Index (Seasonally Adjusted, Quarterly % Change)



Source: CBRT, Ministry of Labour and Social Security, TURKSTAT.

Chart 2.3.14: Non-Farm Partial Labor Productivity*, Real Per Capita Wage and Real Unit Wages** (Seasonally Adjusted, 2021=100)



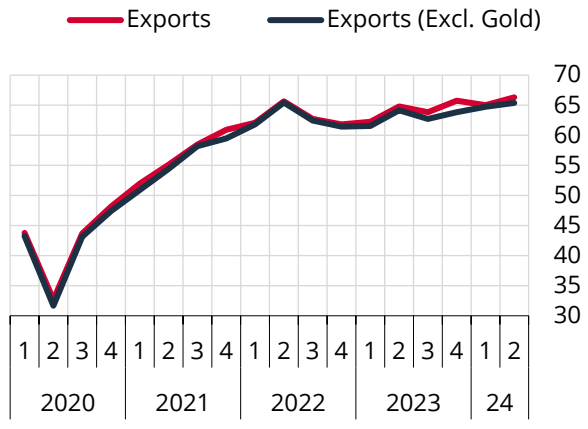
Source: CBRT, TURKSTAT.

* Non-farm value added/non-farm employment.
** Real per capita wage/productivity. Deflated by the CPI.

Foreign Trade and Balance of Payments Outlook

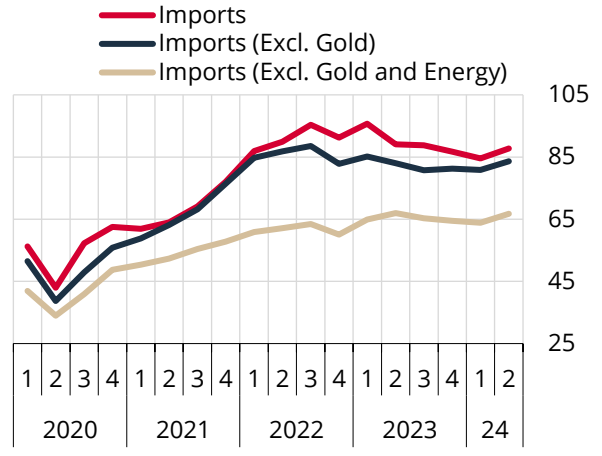
In the second quarter of 2024, exports and imports excluding gold increased. In this period, external demand conditions were favorable as economic activity in Türkiye's main trade partners was relatively positive and the export environment had improved. In the same period, seasonally and calendar-adjusted exports excluding gold increased (Chart 2.3.15). In the second quarter, there were two religious holidays, and bridge days combining these religious holidays with the weekends. These holidays, as well as termination of trade with Israel, curbed the increase in exports excluding gold. Gold exports increased compared to the first quarter and remained around their historical average, playing a role in the moderate quarterly increase in total exports. In this quarter, base metals, other transportation vehicles, petroleum products and fabricated metal sectors made a positive contribution to exports. In annualized terms, exports to the European Union increased slightly in the second quarter, while exports to the Middle East declined. In the second quarter, seasonally and calendar-adjusted total imports posted an increase (Chart 2.3.16). Imports of consumption and intermediate goods made the largest contribution to the quarterly increase. Gold imports increased slightly, while seasonally and calendar-adjusted energy imports remained flat quarter-on-quarter. An analysis of the trends implied by monthly movements in the second quarter suggests that seasonally and calendar-adjusted imports decreased at a similar pace in May after a pick-up in April, and increased slightly again in June. Calendar effects stemming from holidays and bridge days in April and June cause volatility in imports data. However, the downtrend in imports of gold and consumption goods in the last two months of the second quarter is remarkable. Accordingly, the decline in the seasonally and calendar-adjusted foreign trade deficit, which had been volatile on a monthly basis for two consecutive quarters, paused in the second quarter and both the total foreign trade deficit and the foreign trade deficit excluding gold and energy posted an increase in this period. While the foreign trade deficit widened on a quarterly basis, it continued to improve on an annual basis. On the other hand, seasonally and calendar-adjusted provisional foreign trade data showed a flat course in exports and a decline in imports on a monthly basis in July. Thus, the seasonally and calendar-adjusted foreign trade deficit narrowed in July and remained below the second-quarter average. On the back of the rebalancing in domestic demand, it is noteworthy that the core foreign trade deficit decreased on a three-month moving average basis compared to the previous Inflation Report and recorded lower values than the headline deficit. Imports of consumption goods continued to decline in July, following the May-June period, and hovered close to the previous year's average. In this framework, the course of imports, particularly of consumption goods, in the rest of the third quarter will be closely monitored with respect to the rebalancing in demand.

Chart 2.3.15: Exports (Seasonally and Calendar Adjusted, USD)



Source: CBRT, TURKSTAT.

Chart 2.3.16: Imports (Seasonally and Calendar Adjusted, USD)

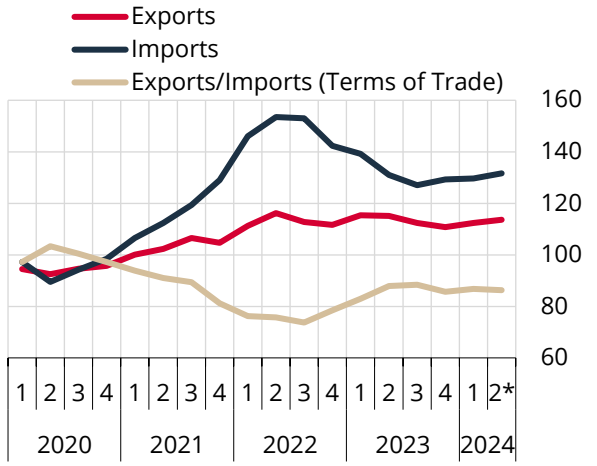


Source: CBRT, TURKSTAT.

As of May, the terms of trade remained almost flat quarter-on-quarter, while the real rebalancing in foreign trade, which had been going on for several quarters, came to a halt. According to the foreign trade unit value indices for the second quarter calculated based on the April-May average, exports and imports prices increased slightly and at similar rates quarter-on-quarter (Chart 2.3.17). The terms of trade have remained relatively high for the last three quarters, supporting the trade balance. Meanwhile, according to the foreign trade quantity indices calculated as of May, seasonally and calendar-adjusted exports and imports increased, but the increase in imports was higher (Chart 2.3.18). Thus, the real rebalancing in foreign trade, which had been observed for the last three quarters, paused in the second quarter. An

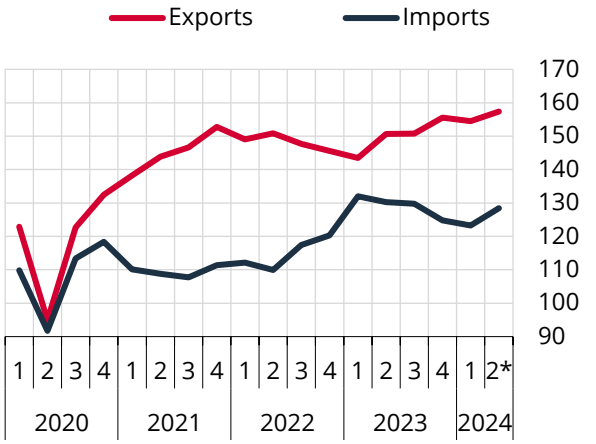
analysis by goods groups reveals that all goods groups contributed to the rise in the quantity of imports, while the increase in the quantity of imports of consumption goods was stronger than that of other groups (Chart 2.3.19). The strong increase in April was influential in the course of imports of consumption goods, which declined in May. According to June foreign trade data, imports of consumption goods, which declined in nominal terms, are expected to continue to fall also in quantity terms.

Chart 2.3.17: Foreign Trade Unit Value Indices (2015=100)



Source: TURKSTAT.
* Average of April-May.

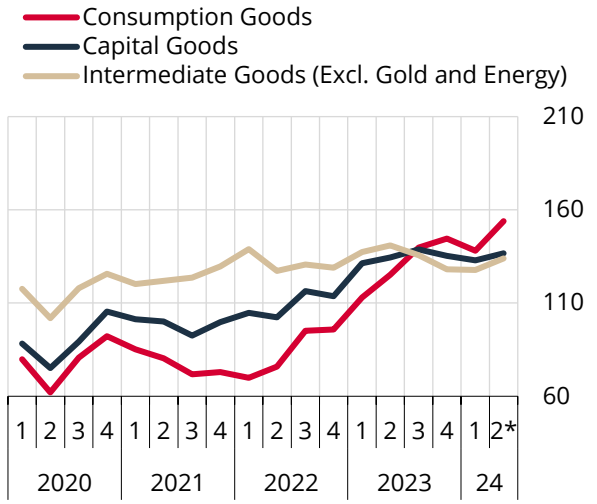
Chart 2.3.18: Foreign Trade Quantity Indices (Seasonally Adjusted, 2015=100)



Source: CBRT, TURKSTAT.
* Average of April-May.

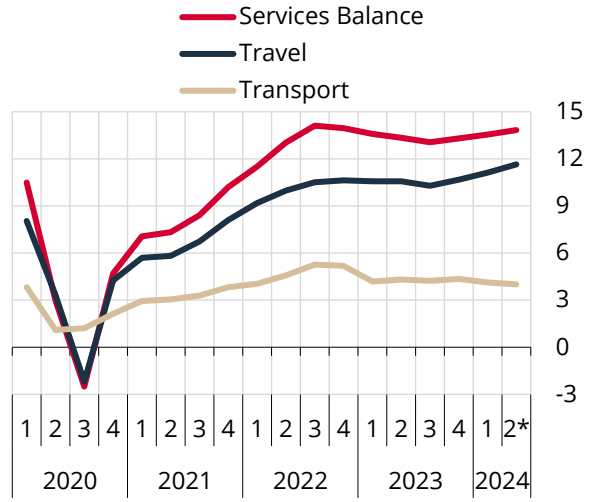
The favorable course in the services balance continues to strengthen on the back of travel revenues. The surplus in the balance of services continued to increase in the second quarter as seasonally and calendar-adjusted net travel revenues continued to rise in May, while transportation revenues, another important item, remained flat (Chart 2.3.20). The ongoing uptrend in the seasonally and calendar-adjusted number of foreign visitors continued to be the main driver of the rise in travel revenues. Current and preliminary data suggest that the number of foreign visitors and net travel revenues remained relatively high in June.

Chart 2.3.19: Import Quantity Indices by Good Categories (Seasonally Adjusted, 2015=100)



Source: CBRT, TURKSTAT.
* Average of April-May.

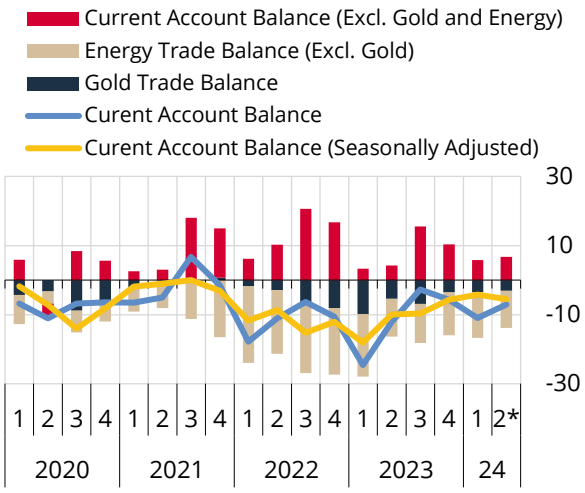
Chart 2.3.20: Services Balance (Seasonally and Calendar Adjusted, USD Billion)



Source: CBRT.
* Average of April-May.

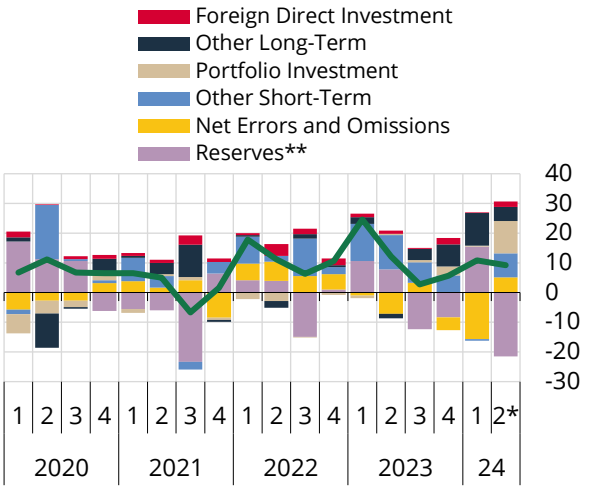
While the current account balance continued to improve on an annual basis, the quarterly improvement came to a halt due to the widening foreign trade deficit despite the strong outlook in the services balance. In the second quarter, the favorable contribution of the services balance to the current account balance continued to increase. However, the uptrend in the seasonally and calendar-adjusted balance of payments-defined goods trade balance came to a halt in this period due to the holidays and connected bridge days, and the goods trade deficit widened slightly to remain close to the level of the last quarter of 2023. Thus, the seasonally and calendar-adjusted current account deficit widened slightly quarter-on-quarter in the second quarter (Chart 2.3.21). Similarly, the current account surplus excluding gold and energy, which is a main trend indicator, also declined in seasonally and calendar-adjusted terms in the second quarter. In the upcoming period, the course of imports, particularly that of consumption goods, will be decisive for the course of the foreign trade deficit and the current account deficit.

Chart 2.3.21: Current Account Balance (Quarterly, USD Billion)



Source: CBRT.
* The values implied by foreign trade data have been used for June.

Chart 2.3.22: Financing of the Current Account Deficit (USD Billion)



Source: CBRT.
* Cumulative figures of April-May.
** Denotes the CBRT reserves plus the cash and deposits at banks abroad. A negative value indicates an increase in reserves.

Portfolio investments played a larger role in financing the current account balance, while the net errors and omissions item posted inflows and reserves increased in the second quarter. As of May, non-residents' direct investments increased in the second quarter compared to the previous quarter due to the rise in capital inflows. Meanwhile, portfolio inflows to equity and debt securities markets and short-term investment items such as loans posted a quarter-on-quarter increase (Chart 2.3.22). In this period, the net errors and omissions item recorded inflows while reserves also increased. Leading indicators suggest that official reserves increased again in July after posting a limited decline in June. In the upcoming period, when the current account deficit will decline due to seasonal effects, the decline in the financing need and the diversification in the financing composition will also contribute to reserve accumulation.

Public Finance Developments

In the first half of the year, the central government budget ran a deficit of TRY 747.2 billion and a primary deficit of TRY 172.8 billion. In this period, the financing need was met by both domestic and external borrowing, and approximately USD 7 billion worth of financing was obtained from international capital markets. It is estimated that the ratio of the central government debt stock to national income was 23.6% in June 2024, while the ratios of domestic and external debt stocks to national income were 11.6% and 11.9%, respectively.

In the January-June period, revenues and expenditures increased by 103.8% and 93.7%, respectively, compared to the same period of the previous year. In this period, the proportion of primary expenditures covered by tax revenues was 80.3%. The contribution of personnel expenditures to the rise in primary expenditures was also attributable to the wage adjustments for civil servants. Current transfers, which have a significant share in primary expenditures, recorded an annual increase of 74.8% in the first half of the year. This development was driven by the increase in the amount of holiday bonuses for retirees in 2024, as well as the increase in the number of retirees due to the EYT (early retirement package) regulation and the

high annual increase in the allocated revenues. Moreover, the Electricity Generation Corporation received TRY 86.7 billion for its assignment expenditures, and the Turkish Grain Board and Turkish State Railways received TRY 48.9 billion and TRY 30.9 billion, respectively, as part of the CBRT's lending facility, which stood out among the primary expenditures in the first six months. On the other hand, tax revenues remain robust on the back of the domestic demand outlook, which continues to increase year-on-year despite a quarterly slowdown, the course of inflation, and the regulations introduced in July 2023. In fact, the Special Consumption Tax and domestic Value Added Tax items, which are highly sensitive to domestic demand, made the most significant contribution to the annual growth of tax revenues. Restructuring revenues totaling TRY 39.5 billion collected in the first half of the year also contributed to the budget.

The ratio of the annualized budget deficit to national income is estimated to be around 4.9% as of June. It should be noted that factors such as the course of tax revenues, the amount of earthquake expenditures, and the contribution of the public savings and efficiency package announced in May to the budget will be decisive in the year-end value of this ratio.

Zoom-In 2.2

Monetary Tightening and Development of Credit Card Spending

Monetary tightening is influential on credit card spending, particularly discretionary spending. Despite its high level, total card spending has remained relatively flat in the recent period (Chart 1). This zoom-in analyzes the recent normalization trend in credit card spending in more detail by categorizing spending items into discretionary and non-discretionary spending. Items such as food, health, fuel, and catering, which are considered to better reflect households' main spending patterns, are categorized as non-discretionary spending items. The remaining items, such as jewelry, car rentals, casino-drinking establishments, and electronic goods, are grouped as discretionary or comparatively more optional spending items.[1] The share of discretionary spending in total card spending is around 30%. Based on this categorization, Chart 2 presents the trajectory of credit card spending in the one-year period that followed the monetary tightening.

Monetary tightening is expected to have a relatively slower and more gradual impact on households' non-discretionary spending while leading to an earlier decline in discretionary spending. In fact, excluding the tightening in 2021, which coincided with the pandemic,[2] credit card spending was consistent with this hypothesis in the two previous periods of monetary tightening (Charts 3 and 4). An analysis of the last tightening period reveals that credit card spending in 2024 was broadly in line with this expectation, similar to previous tightening periods.[3] This tightening period differs from previous ones in that the slowdown in discretionary and non-discretionary spending took place over a longer period after the start of the tightening. This may be attributed both to the increased inclination toward credit card spending due to changed payment habits compared to previous periods (increased preference for paying by credit cards instead of in cash) and to consumers' creation of a liquidity/savings buffer as a result of the pre-tightening strong consumer loan growth.

[1] Food, health, fuel, catering, grocery stores and shopping malls, clothing, cosmetics, building supplies, vehicles and servicing, and furniture are categorized as non-discretionary items, while jewelry, car rentals, casino-drinking establishments, electronic goods, services sectors, telecommunications, travel-transportation, stationery, accommodation, contractor services, social services, and direct marketing are categorized as discretionary items. Although both groups contain some spending items that may be considered non-discretionary or discretionary, this categorization seems suitable given the typical consumption patterns of households. A similar categorization was made in "Grigoli, F., & Sandri, D. (2023). Monetary policy and credit card spending, BIS Working Papers No. 1064." Similar to this zoom-in, items such as travel expenses are categorized as "discretionary" spending, while items such as grocery shopping are categorized as "consumer staples" in the relevant paper.

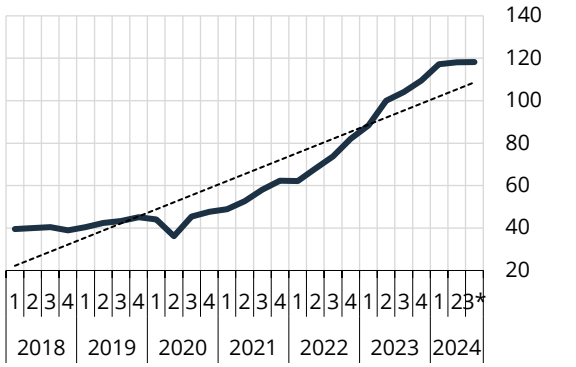
[2] Since the pandemic period also affected non-discretionary spending items, other tightening periods were chosen in place of this period, given the possibility of confusion between the tightening effect and the pandemic effect in such an analysis.

[3] An analysis of only the three discretionary spending items with the highest weight (electronic goods, services sectors, and telecommunications) also reveals a similar pattern.

The data indicate that both non-discretionary and discretionary spending trended upwards until February 2024, while the impact of the tightening became more pronounced as of March 2024, particularly in discretionary spending groups. Meanwhile, credit card spending for non-discretionary spending items has relatively flattened as of April.

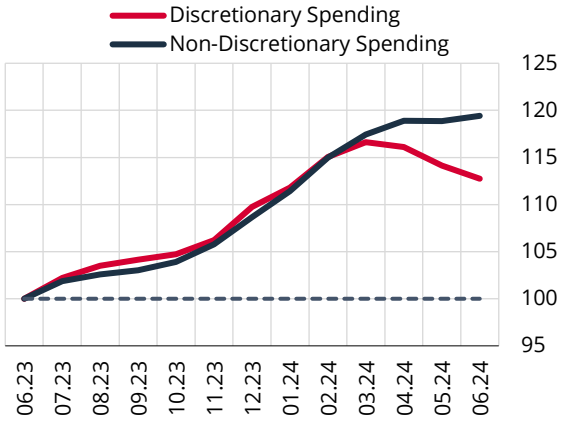
In sum, credit card spending started to decelerate in the second quarter, both in total and when analyzed in terms of discretionary or non-discretionary spending. This slowdown was more pronounced in the discretionary spending group, which was expected to be impacted more significantly and quickly by the monetary tightening.

Chart 1: Credit Card Spending (Seasonally and Calendar Adjusted, 2023Q2=100)



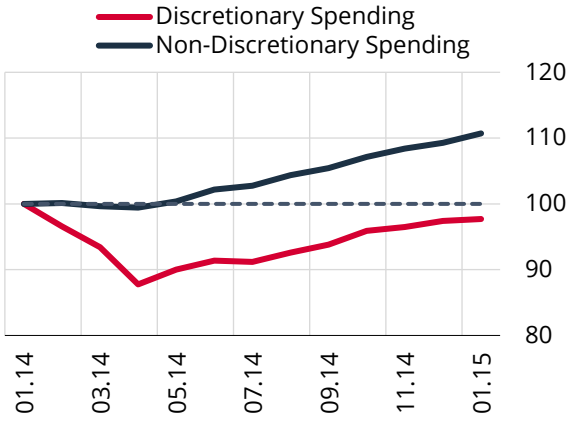
Source: CBRT.
* Deflated by the CPI. The third quarter of 2024 denotes the first three weeks of July. The dashed line represents the linear trend.

Chart 2: Credit Card Spending* (Seasonally and Calendar Adjusted, 3-Month Moving Average, 2023 June=100)



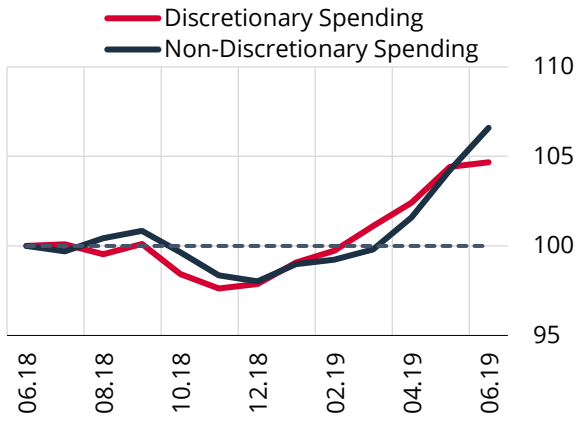
Source: CBRT.
* Deflated by the CPI. The airlines item is excluded due to price ceiling practices. Three-month moving averages are used to reduce the volatility of spending items on a monthly basis.

Chart 3: Credit Card Spending (Seasonally and Calendar Adjusted, 3-Month Moving Average, 2014 January=100)



Source: CBRT.

Chart 4: Credit Card Spending (Seasonally and Calendar Adjusted, 3-Month Moving Average, 2018 June=100)



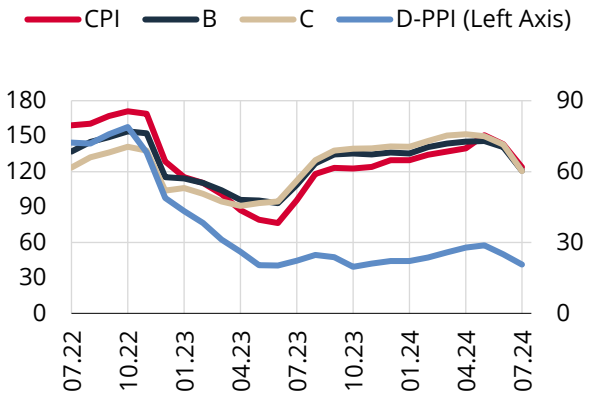
Source: CBRT.

2.4 Inflation

Consumer inflation ended July 2024 at 61.8%, remaining within the forecast range given in the previous Inflation Report (Chart 2.4.1). USD-based commodity prices, which had been on the rise since January, declined from the level they hit in April and followed a mild course throughout the second quarter. Global commodity prices continued to decrease in July, driven by non-energy commodities. The Global Supply Chain Pressure Index remained at its historical average in the second quarter. The nominal currency basket increased at a very limited rate in the reporting period. Against this background, producer price pressures on consumer inflation eased. Demand conditions, which strengthened in the first quarter of 2024, are

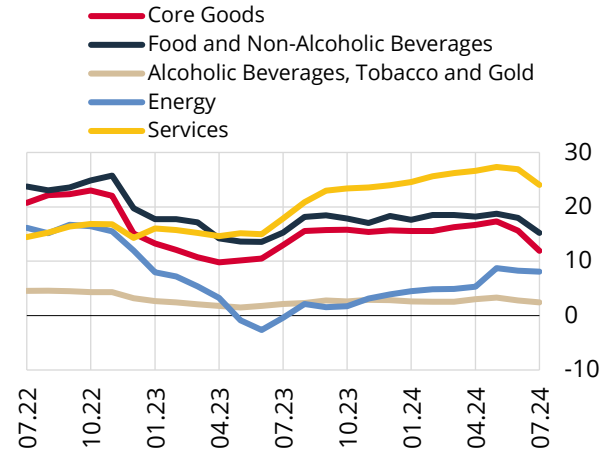
estimated to have weakened in the second quarter, but the output gap is expected to have remained at inflationary levels. Although inflation expectations declined across all horizons in this period, the current levels still exceeded the Inflation Report projections and continued to pose an upside risk. An analysis of second-quarter developments by sub-items reveals that the most significant contribution to the rise in annual consumer inflation came from the energy group in which the base effects were evident, followed by the services sector. Annual energy inflation posted a substantial increase due to the expiry of the one-year free residential use of the first 25 cubic meters of natural gas in May and the low base in May 2023 stemming from the free use of natural gas. Having maintained its large contribution, services remained the main group that stands out in the course of consumer inflation (Zoom-In 2.3). Meanwhile, core goods and food groups had smaller contributions to annual inflation than in the previous quarter (Chart 2.4.2).

Chart 2.4.1: CPI, D-PPI, B Index and C Index* (Annual % Change)



Source: TURKSTAT.
* B index: CPI excluding unprocessed food, energy, alcoholic beverages, tobacco, and gold.
C index: CPI excluding food and non-alcoholic beverages, energy, alcohol-tobacco, and gold.

Chart 2.4.2: Contributions to Annual CPI (% Points)

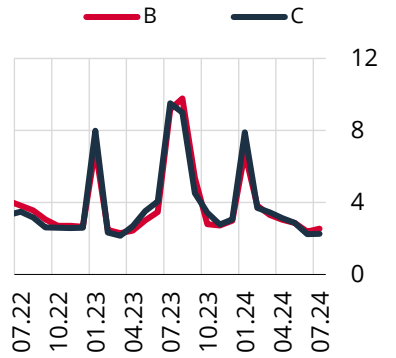


Source: CBRT, TURKSTAT.

Despite the rise in annual headline inflation in the second quarter, the underlying inflation decelerated in line with the projections in the Inflation Report 2024-II. Seasonally adjusted data pointed to a slowing tendency in the monthly increases of the B and C indices (Chart 2.4.3). In the second quarter, seasonally adjusted monthly average increases in the B and C indices were 2.8% and 2.7%, respectively (4.6% and 5.0% in the first quarter). The average rate of increase in the indices continued to decelerate in July compared to the second quarter, standing at 2.4%. Alternative indicators such as median inflation, SATRIM and dynamic factor model-based inflation also displayed a similar tendency and confirmed this outlook (Chart 2.4.4). An analysis of the subgroups of the B index reveals that price increases lost pace across all subgroups in the second quarter of the year, with core goods standing out with the lowest quarterly increase (Chart 2.4.5). This development in core goods was mainly led by durable consumption goods on the back of the domestic demand outlook and the recent mild course of exchange rates. The slowdown in prices of durable goods was driven by automobile prices that remained mild due to sales campaigns as well as by electric and non-electric household appliances excluding white goods. However, price increases in furniture were relatively pronounced. On the other hand, the rise in services prices was relatively strong in this period (11.80% quarter-on-quarter) despite having decelerated over the previous quarter (Table 2.4.1). A similar picture was also observed across the services subgroups. Despite having weakened over the previous quarter, the rents subgroup registered the largest price increase (19.49%). Internet and phone call charges were influential in the communication group's prominent inflation reading in this period (11.97%). The widespread practice of contract-based price-setting in rents and in Internet charges on the communication services front causes high backward indexation and inertia in these groups. Another subgroup that stood out with a high rate of price increase in this period was the restaurants and hotels services. The slowdown in consumer inflation is contained by the strong course of catering services inflation despite the recently weakened cost pressures on red meat. In addition, the rise in hotel rates, which were significantly affected by tourism-related developments, grew stronger in this period. Meanwhile, education, health, recreation and sports items came to the fore with their impact on the other services inflation. The high course of education services prices continues due to private school fees. These fees, which tend to be subject to high

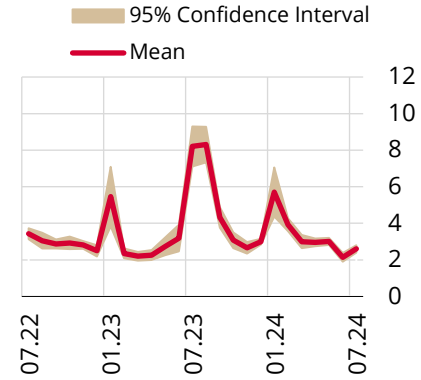
backward indexation and are also affected by wage developments, are expected to have a gradually weakening impact on consumer inflation over the summer months depending on price announcement dates. On the other hand, it should be noted that the upward effect of education services on consumer inflation may be pronounced in September due to private university fees. The quarterly price increase in processed food, another component of the B index, also decelerated over the previous period but still remained relatively strong. While a limited decline was observed in the rate of increase in processed food prices in July, price increases in core goods and services groups saw a temporary acceleration in seasonally adjusted terms.

Chart 2.4.3: B and C Indices (Seasonally Adjusted, Monthly % Change)



Source: CBRT, TURKSTAT.

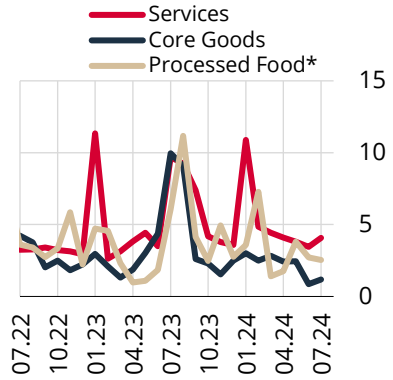
Chart 2.4.4: Six Different Indicators of Underlying Inflation* (Seasonally Adjusted, Monthly % Change)



Source: CBRT, TURKSTAT.

* Monthly average of seasonally adjusted B and C indices, SATRIM, Median, the index excluding most volatile items and dynamic factor models. Shaded area shows the 95% confidence interval.

Chart 2.4.5: Subgroups of B Index (Seasonally Adjusted, Monthly % Change)

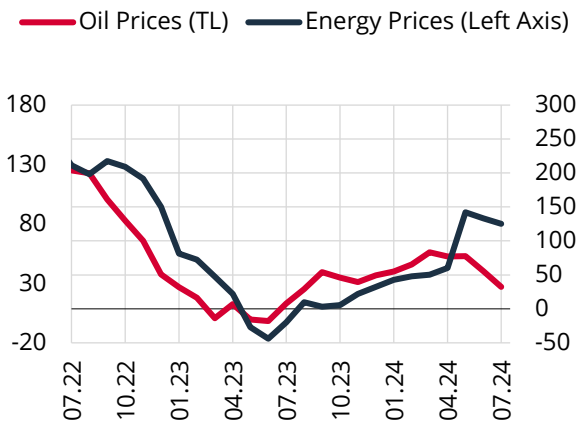


Source: CBRT, TURKSTAT.

* Processed food is not adjusted for seasonality due to absence of statistically significant seasonal effects.

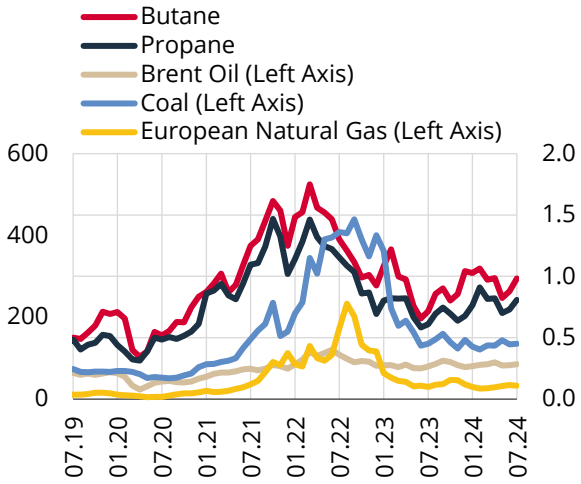
In the second quarter, the expiry of the free use of the first 25 cubic meters of natural gas was the primary factor influencing the course of energy prices, and the group's annual inflation rose significantly due to the low base in May 2023 stemming from the free use of natural gas. Domestic energy prices were up by 6.41% in the second quarter of the year (Table 2.4.1). The international Brent crude oil price, which was at around USD 85 on average in March, increased in April after a fluctuating course due to supply-side effects as well as the fall in inventory levels and ongoing geopolitical risks, before declining again in the following period. The average oil price ended June at approximately USD 83 but picked up again in July. As the currency basket was on a mild track in the second quarter, the course of domestic fuel prices was shaped by TL-denominated international oil price movements. The leading development affecting domestic energy prices in the second quarter was the mechanical increase in residential natural gas prices due to regulations, despite easing external price pressures (Chart 2.4.6). Upon expiry of the free use of the first 25 cubic meters of natural gas, household natural gas prices rose sharply (28.7%) in May. Except for coal and natural gas prices, global energy commodity prices decreased in the second quarter (Chart 2.4.7). The rise in municipal water prices strengthened in the second quarter, largely due to developments in Istanbul. Against this background, the contribution of the energy group to annual consumer inflation grew by 3.36 points over the previous quarter to 8.28 points, making this group the most significant contributor to the rise in annual consumer inflation (Charts 2.4.2 and 2.4.6). In July, energy prices surged due to the increase in residential electricity prices as well as the automatic tax increase in fuel oil and bottled gas.

Chart 2.4.6: Energy Prices (Annual % Change)



Source: Bloomberg, CBRT, TURKSTAT.

Chart 2.4.7: Energy Commodity Prices* (USD, EUR)



Source: Bloomberg.
* Brent oil prices are per barrel, coal prices are per ton, butane and propane prices are per gallon. European natural gas prices are in euro and per MWh.

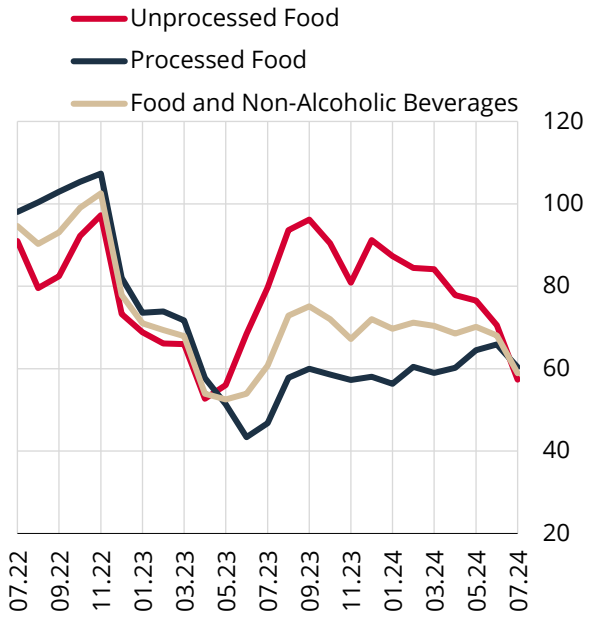
Table 2.4.1: Consumer Prices

	Quarterly % Change (Seasonally Adjusted)				Annual % Change			
	2023		2024		2023		2024	
	III	IV	I	II	III	IV	I	II
CPI	**25.94**	**10.35**	**13.99**	**8.46**	**61.53**	**64.77**	**68.50**	**71.60**
B	**26.30**	**8.73**	**14.51**	**8.52**	**67.22**	**68.02**	**71.89**	**70.40**
C	**24.77**	**9.56**	**15.75**	**8.46**	**68.93**	**70.64**	**75.21**	**71.41**
1. Goods	25.19	9.47	9.86	8.00	52.39	55.46	58.17	62.56
Energy*	**33.71**	**17.08**	**10.80**	**6.41**	**10.25**	**27.19**	**37.32**	**84.58**
Food and Non-Alcoholic Beverages	**22.68**	**10.41**	**11.93**	**10.85**	**75.14**	**72.01**	**70.41**	**68.08**
Unprocessed Food	25.24	8.72	12.08	11.66	96.17	91.23	84.14	70.50
Fresh Fruits and Vegetables	36.95	-0.13	6.44	22.38	102.46	81.29	82.67	78.61
Processed Food*	22.81	10.50	12.68	8.48	59.95	58.05	58.97	65.89
Core Goods	**23.06**	**6.44**	**8.56**	**5.84**	**53.23**	**52.81**	**56.46**	**50.62**
Clothing and Footwear	17.27	8.19	7.97	5.81	31.36	39.74	49.12	46.87
Durable Goods (Excl. Gold)	24.41	3.89	9.61	3.69	65.61	60.70	61.11	46.89
Furniture	23.32	7.25	16.21	10.90	62.08	55.21	60.00	70.60
Automobile	28.93	3.68	4.88	2.70	72.91	72.24	66.93	40.87
Electric and Non-Electric Appliances*	22.01	6.56	10.79	0.91	57.63	47.89	54.94	45.35
Other Durable Goods*	23.07	9.30	13.75	5.08	53.37	55.64	62.98	60.78
Other Core Goods*	22.69	9.17	11.31	6.76	50.10	50.42	55.25	59.17
Alcoholic Beverages, Tobacco Products, and Gold*	**26.24**	**9.45**	**6.58**	**13.36**	**67.19**	**71.18**	**65.30**	**66.94**
2. Services	**28.66**	**12.01**	**21.43**	**11.80**	**86.46**	**90.66**	**96.48**	**95.27**
Rent	24.06	20.16	25.77	19.49	95.03	108.58	123.95	123.64
Restaurants and Hotels	24.69	12.57	22.50	10.99	92.48	93.24	94.97	90.67
Transport	61.82	5.52	8.36	10.57	95.97	92.44	94.41	103.54
Communication	13.20	13.39	16.54	11.97	55.04	63.92	71.99	67.45
Other Services	27.14	13.75	15.33	13.58	81.64	85.20	90.41	89.06

Source: CBRT, TURKSTAT.
* No seasonality detected.

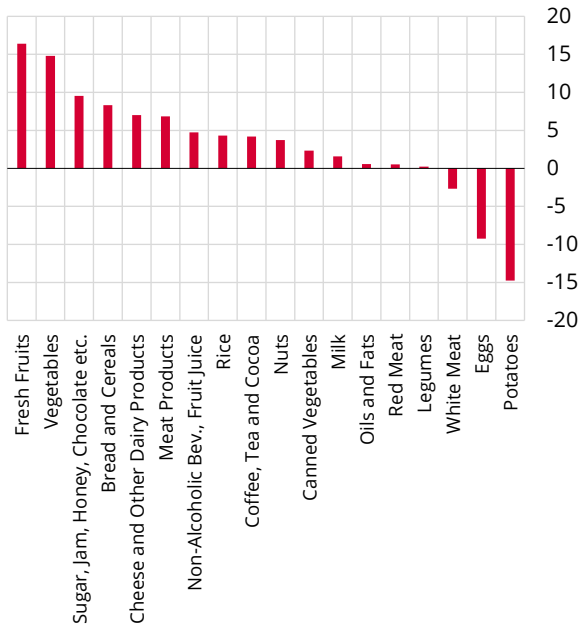
Having declined below headline inflation in April for the first time in three years, annual food inflation maintained this outlook throughout the quarter. Annual inflation of the food and non-alcoholic beverages group dropped by 2.33 points to 68.08% in the second quarter. Annual inflation was down by 13.64 points in unprocessed food but up by 6.92 points in processed food (Chart 2.4.8). In seasonally adjusted terms, the rate of increase in food inflation was similar to that in the previous quarter, while a breakdown by subgroups reveals a divergence in the form of a stronger price increase in fresh fruits and vegetables (22.38%) and a deceleration in the other food subgroup (7.48%) (Table 2.4.1). In this period, prices of fresh fruits and vegetables, more visibly those of fruits, increased at a rate significantly above their historical average (Chart 2.4.9). Other sub-items that stood out with price increases above historical averages were confectionary and chocolate, bread and cereals affected by cumulative cost pressures, cheese and other dairy products affected by the rise in raw milk prices, and processed meat products affected by cumulative increases in red meat prices. Having been the leading factor in the food prices outlook in the first quarter of the year, red meat prices returned to their historical trend in the second quarter. Meanwhile, prices of white meat, a substitute for red meat and the exports of which has been restricted by a quota regulation, recorded a rise below their historical average in this period. Potatoes and eggs were other products that posted price increases below their historical trend in the second quarter of the year (Chart 2.4.9). In July, the monthly rise in food prices was close to that of the previous month, while prices of fresh fruits and vegetables increased at a rate above their seasonal averages.

Chart 2.4.8: Food Prices (Annual % Change)



Source: CBRT, TURKSTAT.

Chart 2.4.9: Food Prices by Sub-Items* (2024Q2 % Deviation of Change from Historical Average, Sorted)



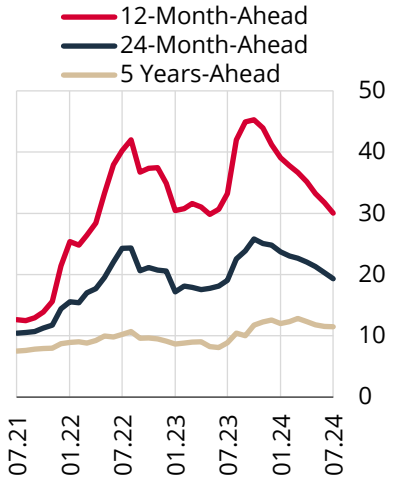
Source: CBRT, TURKSTAT.
* Denotes the difference between the 2024Q2 quarterly percentage change and the historical average (second quarter average of the 2012-2021 period).

Prices of alcoholic beverages and tobacco products went up by 14.84% in the second quarter of the year, while the rise in specific taxes on these products as well as the price adjustments by producer firms pushed the group's monthly increase in July to 5.84%. While prices of alcoholic beverages were up by 3.87% in the second quarter due to producer firms, those of tobacco products rose by 15.91%. Thus, annual inflation in the alcoholic beverages and tobacco group increased by 4.95 points over the previous quarter to 67.93%, adding a further 0.30 points of contribution to annual inflation. In July, the group's prices were also affected by the D-PPI-based automatic tax increase.

Drivers of Inflation

Inflation expectations continued to decline, albeit remaining above the projections in the previous Inflation Report. According to the Survey of Market Participants in July, the 12-month-ahead inflation expectation decreased by 5.15 points over the previous reporting period to 30.02%, while the 24-month-ahead inflation expectation receded by 2.73 points to 19.32%. Meanwhile, the five-year-ahead inflation expectation was revised down by 0.82 points to 11.50% (Chart 2.4.10). Despite these favorable developments, the inflation expectation for end-2024 stood at 42.95%, taking a value above the forecast range presented in the previous Inflation Report. Survey data imply that market participants expect the year-end inflation target for 2024 to be reached with a lag of a few months. On the other hand, data from the Business Tendency Survey and the Consumer Tendency Survey indicate that the inflation expectations of the real sector and consumers are higher but are on the decline. While the distribution of responses to the Survey of Market Participants' 12-month-ahead CPI inflation expectation shifted to the left, no significant change was observed in the structure of the distribution (Chart 2.4.11). After a fall in June, the diffusion index increased slightly in July led by the services sector. As the services sector continued to spread the impact of shocks over time, the diffusion index for the sector remained above the headline index throughout the period (Chart 2.4.12).

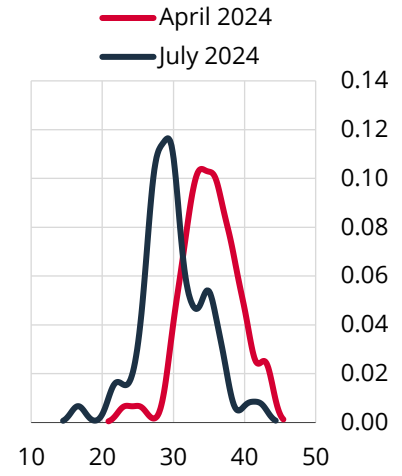
Chart 2.4.10: Consumer Inflation Expectations* (%)



Source: CBRT.

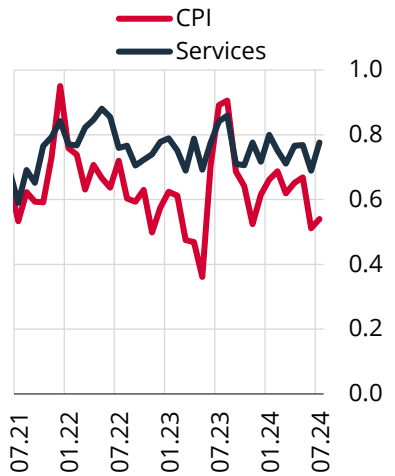
* Results of the CBRT Survey of Market Participants that polls real and financial sector representatives as well as professionals.

Chart 2.4.11: Distribution of Survey of Market Participants (12-Month-Ahead CPI Expectations)



Source: CBRT.

Chart 2.4.12: Diffusion Indices of CPI and Services Sector* (Seasonally Adjusted, Monthly)

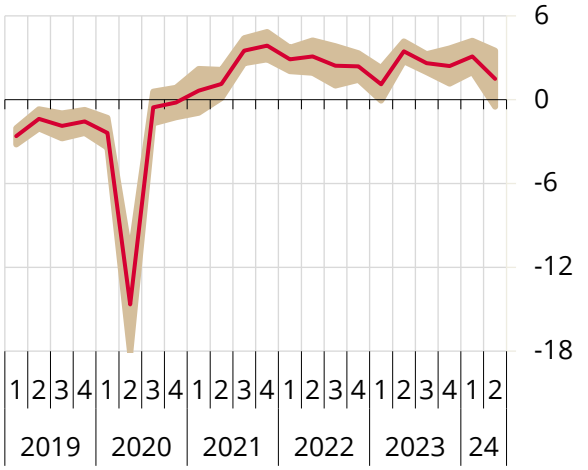


Source: CBRT, TURKSTAT.

* Calculated as the ratio of the difference between the number of items with increasing prices and the number of items with decreasing prices to the total number of items.

Aggregate demand conditions are assessed to have weakened in the latest reporting period. Demand conditions, which gained strength in the first quarter of 2024, are estimated to have lost momentum in the second quarter of the year, but the output gap is estimated to have remained at inflationary levels (Chart 2.4.13). In addition to the BTS and PMI, leading indicators such as the sales of white goods and vehicles (Chart 2.3.4) also suggest that the slowdown in aggregate demand conditions was driven by domestic demand. Meanwhile, the uncertainty band derived from the output gap series produced by the CBRT continued to widen, showing that the uncertainty surrounding this outlook increased. Although loan developments remained volatile, an analysis based on 13-week averages reveals that loan utilization declined in the second quarter of the year. In terms of sub-items, retail loans weakened more apparently, primarily led by credit cards. Notwithstanding this decline, the real credit change was above its historical trend mainly due to commercial loans (Chart 2.4.14). Developments in July indicated that the deceleration in loan utilization became further pronounced. Against this background, it is projected that aggregate demand conditions will continue to weaken as the lagged effects of monetary policy become more evident, and will be supportive of the disinflationary path in the remainder of the year.

Chart 2.4.13: Output Gap* (%)



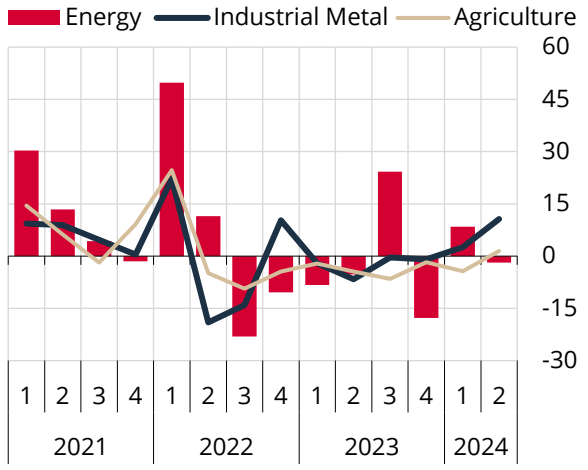
Source: CBRT.
* Displayed with 95% confidence interval, which is computed based on eight output gap indicators calculated with various methods.

Chart 2.4.14: Total Credit Change* (13-Week Average, Real, Standard Value)

Source: CBRT.
* Weekly credit changes adjusted for exchange rates are deflated by the CPI. The 13-week average is taken after weekly real changes are standardized. The mean and standard deviations of the series are calculated based on the 2006-2019 period.

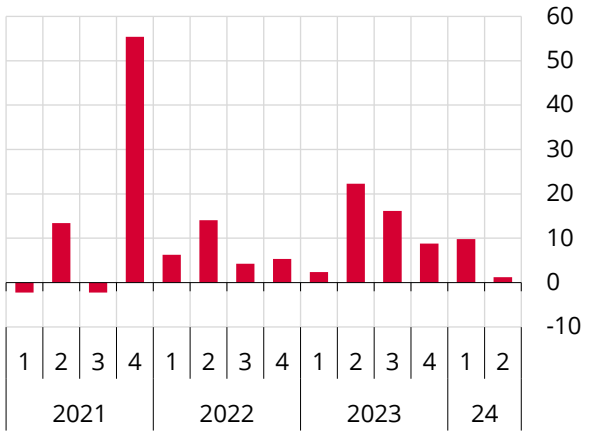
Global commodity prices did not register a significant change throughout the second quarter. The prevailing stability of the Turkish lira contributed to the alleviated course of external cost pressures. Global commodity prices, which were on an upward track in the early months of the year, started falling in late April. Following the widespread price increases in April, a divergence was observed between energy and non-energy groups. Energy prices decreased while industrial metal and agriculture prices rose in May, whereas energy prices increased moderately while prices in non-energy groups dropped in June. In the overall quarter, the industrial metal subgroup stood out with a strong price hike (Chart 2.4.15). While the developments in June were largely carried over into July, mild price increases continued in the energy group and non-energy prices declined. In the second quarter of the year, the rise in the nominal currency basket was very limited (Chart 2.4.16). This has alleviated cost pressures, on highly import-sensitive items in particular, and favorably affected the inflation outlook.

Chart 2.4.15: Commodity Price Indices (Quarterly % Change)



Source: Goldman Sachs.

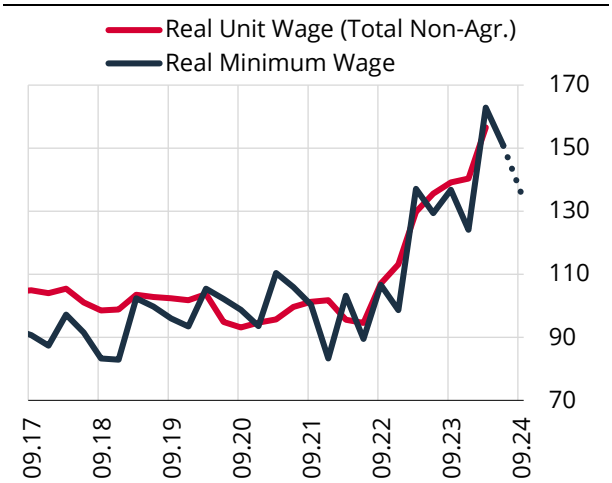
Chart 2.4.16: Currency Basket* (Quarterly % Change)



Source: TURKSTAT.
* USD and euro have equal weights. Calculations are based on the average exchange rate in the last month of the relevant quarter.

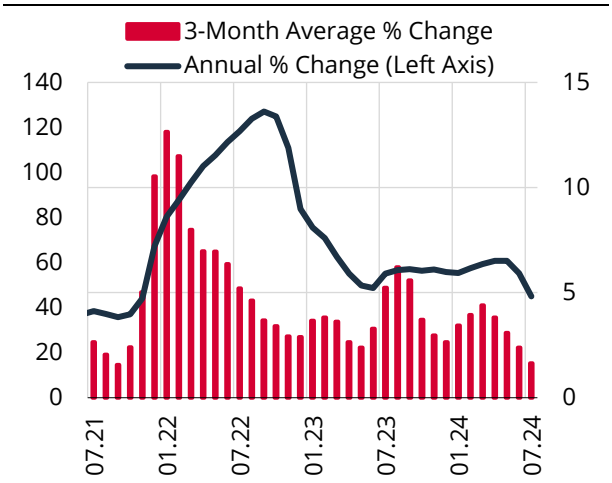
The underlying producer inflation weakened in the second quarter of the year. At the beginning of the year, real wages increased across the economy (Chart 2.4.17). Unlike 2022 and 2023, the minimum wage was kept constant in July this year, which is expected to limit the general wage increases in the remainder of the year. It is projected that nominal wages will continue to increase but real wages will not change significantly. As for the cost developments other than wages, global freight indices diverged from each other in the second quarter. While global and China container indices rose in this quarter, dry cargo transport indices fell. Domestic supplier delivery times saw a partial normalization compared to the previous quarter. In the latest reporting period, commodity prices were milder and global supply chain conditions did not register any marked change. Consequently, over the last three months of more convenient global cost conditions and more stable exchange rates, the underlying manufacturing inflation decelerated steadily (Chart 2.4.18).

Chart 2.4.17: Real Unit Wage per Hour Worked* (Value Added, 2015=100, Seasonally Adjusted) **and Real Minimum Wage****
(2021=100)



Source: CBRT, TURKSTAT.
* Deflated by the CPI. Real wage per hour worked/productivity.
** Deflated by the seasonally adjusted CPI. Forecast is used for the 2024Q3 inflation data.

Chart 2.4.18: Manufacturing Prices Excluding Petroleum and Base Metals



Source: CBRT, TURKSTAT.

Despite the natural gas effect, the contribution of taxes and administered items to the headline inflation rate decreased in the second quarter of the year. In July, electricity tariffs increased, and lump sum taxes were revised upwards. The expiry of free use of the first 25 cubic meters of natural gas was the most significant administered price development in the second quarter, which pushed May's headline inflation up by 0.64 points. The rise made in residential and commercial electricity tariffs in July had an unfavorable impact on inflation both directly and indirectly. Fuel and bottled gas prices increased in July as lump sum taxes were raised at the rate of six-month D-PPI inflation. Another energy group-related development was the increases in municipal water tariffs in June and July. While urban transport tariffs were raised in May and June, the rise became more pronounced following the surge in fuel prices in July. The increases in bridge and highway tolls in May adversely affected costs and expectations, despite having limited direct effects. Bread prices posted significant increases in May and June that continued at a decelerated pace in July. In early May, raw milk reference prices were raised but this had a more limited effect on prices of milk, cheese and other dairy products than in the previous periods. While prices of tobacco products rose in the second quarter due to producer firms, the revision in the lump sum tax pushed up prices of alcoholic beverages in July along with tobacco products. The rise in prices of alcoholic beverages was larger than implied by the tax revision. As the tax effect on tobacco products was partially reflected on final prices, approximately half of the need for an increase was carried over into August. The Turkish Medical Association increased the tariffs in July, leading to a rise in prices of the related health services items. The increase made in natural gas tariffs at the start of August was another significant development.

Zoom-In 2.3

Persistence in the Subcategories of Consumer Inflation

The persistence of consumer inflation gives insight into the rate of disinflation. Inflation persistence can be defined as the tendency for inflation to slowly (or sluggishly) converge towards a central bank's target following changes in the drivers of inflation. In this zoom-in, we employ a univariate model-based approach, a method in the empirical literature, to determine the extent of persistence. Accordingly, we estimated autoregressive equations (with four lags in total) using quarterly inflation rates for 141 subcategories with a sufficient sample size based on seasonally adjusted data from five-digit household price indices.[4] The sum of statistically significant (at 5%) autoregressive coefficients was considered indicative of persistence. Then, the estimation for each subcategory was aggregated with its weight in the consumption basket to obtain persistence coefficients for CPI and the related group. This simple approach does not take into account the source of the shock, thus constituting a useful first step in acquiring information on the persistence in the subcategories of inflation (Table 1).

Table 1: Persistence in CPI Subcategories (Sample Period: 2006Q2 2021Q3)

	Share in the CPI (%, 2024)	Persistence Coefficient
Services	27.8	0.48
Rent	5.1	0.76
Services excluding rent	22.8	0.42
Goods	72.2	0.21
CPI	**100**	**0.28**

Source: CBRT.

Services inflation shows relatively high persistence. The analyses indicate that persistence in services inflation (0.48) is more than twice as high as goods inflation (0.21) for the estimation period (Table 1). In fact, there is a significant difference of about 47 points between the annual inflation rates of services and core goods. The backward-looking pricing behavior prevalent across the services sector causes the effects of shocks to spread over a long period of time and the slowdown in services inflation to emerge with a lag. The fact that the current composition of inflation is mostly services-based makes inflationary pressures persistent and could increase the real economic cost of disinflation. Coupled with secondary effects, high services inflation, particularly in rents, education, health, and catering services, exerts pressure on wages as well, especially in urban areas.

Rent inflation stands out among subcategories with high persistence. An analysis of the drivers of persistence by subcomponents reveals that rent inflation ranks among the top with its high persistence. The time-dependent pricing structure of rental contracts and the widespread tendency towards backward indexation led to high persistence in rents. Moreover, the ratio of rents to house prices soared following the devastating earthquake in Türkiye. Due to both earthquake-driven supply-side factors and high persistence, rent inflation is expected to remain high and continue to have a significant role in the course of consumer inflation during the disinflation process, albeit to a lesser extent.

[4] The study sample covers the period between 2006Q2 and 2021Q3. The main objective is to gain insights into the extent of persistence among subcategories in relative terms during a period when inflation subcategories followed a relatively mild course.

Consistent with the low persistence coefficient, the decline in goods inflation is more pronounced during periods of disinflation. The analyses reveal that goods prices show low persistence in the sample period. As a matter of fact, state-dependent price-setting behavior is more prevalent than time-dependent price-setting behavior for goods in Türkiye.[5] The high share of goods in the consumer price index keeps persistence relatively low in the index. On the other hand, since the shocks to inflation in recent years have been broad-based rather than relative price shocks, persistence coefficients are likely to have increased compared to what is estimated in this analysis.[6] Meanwhile, the finding that services have a relatively higher persistence coefficient is expected to remain valid. Analyses of the decline from the peak during periods of disinflation suggest that core goods inflation has historically decelerated at a faster pace, consistent with the above findings. Exchange rate stability in the post-monetary tightening period is the main reason for this fact. Moreover, the sensitivity of these goods to financial conditions is also relatively marked. These factors support the slowdown in core goods in general. Since the recent tightening, core goods inflation, especially prices of durable goods, has been on a favorable track owing to the mild course of exchange rates and the domestic sales outlook. Disinflation in goods prices is accompanied by services inflation over time, but the downtrend in services inflation emerges with a lag due to the prevailing price-setting behavior, as the above analysis suggests. On the other hand, indicators suggest that the underlying services inflation is also slowing down, although it remains higher than that of goods.

[5] Inflation persistence may stem from some firms not revising their prices quickly and price changes occurring incrementally across firms or products. Some firms may choose to revise their prices right after a shock, while others may leave prices fixed for such reasons as contractual or price-setting cycles and then revise them at a future fixed period (such as the end of a contract). Inflation persistence will be particularly high if firms revise their prices in a time-dependent manner (i.e. at regular intervals). Inflation will remain high for some time, as it takes time for all firms to react to a change in monetary policy or the economy.

[6] Factors such as non-anchoring of expectations, indexation, the existence of a wage-price spiral, firms' price-setting behavior (state/time-dependent), strategic complementarities among firms, and the level of tightness in the labor market can increase persistence.

Box 2.1

Real Sector Inflation Expectations and Borrowing Behavior

Inflation expectations are fundamental components of economic agents' strategic decisions, including pricing, investments and the use of loans. Inflation expectations in Türkiye have been following a volatile trajectory in recent years, and the expectations of real sector companies and households have been persistently high. These developments weaken the monetary policy transmission mechanism by influencing the decisions and behavior of these economic agents. Theoretically, when inflation expectations surge, the cost of loans in real terms would decline, thereby boosting loan demand. In this study, we investigate the extent to which inflation expectations affect firm behavior in terms of bank loans by using firm-level data on loans, which also describes the disaggregation based on currency of denomination, loan rates and maturity composition. In a nutshell, the findings of this study show that the firms with relatively higher levels of inflation expectations tend to use more TL loans at higher cost and shorter maturity than other firms.

The literature examining how inflation expectations shape decision-making process has been growing.[1] The prior body of studies utilizing survey-based inflation expectations mostly focuses on consumption and financing behavior of households.[2] Meanwhile, it is known that pricing, labor demand and investments of non-financial firms are directly linked to inflation expectations.[3] Among the studies focusing on firms, Coibion et al. (2020) utilize survey data from the Italian case and document that firms with higher inflation expectations are more likely to inflate prices, increase loan demand and abate employment and investments.

In this Box, we exploit micro data from the BTS in order to assess the impact of inflation expectations on borrowing tendencies of manufacturing firms.[4] The CBRT has recently started to disseminate "Sectoral Inflation Expectations" datasets to the public, which allow for the monitoring of the inflation expectations formed by market participants, households and real sector firms in an aggregated manner. The real sector indicator that is derived from the BTS dataset is employed in this study.[5]

In the context of this study, we first associate inflation expectations with TL loan use, then we iterate the same analysis for FX loan use. We expect that firms facing a surge in inflation expectations may also experience deteriorating exchange rate expectations and thus refrain from carrying FX credit risk. Furthermore, we specifically examine the impact of inflation expectations on bank borrowing for sub-periods such as post-2020 era that was characterized by high inflation and sizeable currency shocks. Our analyses also quantify the effect of inflation expectations on TL loan interest rates and the share of short-term loans in order to take the implications on financing costs and maturity structure into consideration.

Data and Methodology

Within the scope of this study, we combine several different datasets. In the first step, we use micro data from the BTS questionnaire comprised of firm responses. By design, the BTS allows one to track the medium-term inflation expectations in addition to short-term expectations on sales, production and export activities. In this regard, we follow the course of inflation expectations at firm-level through the responses given to the question "What is your annual expectation for inflation rate over the next 12 months (as an annual percentage)?".

[1] Please see D'Acunto et al. (2023).
[2] Please see Bachmann et al. (2015); Botsch and Malmendier (2023); Coibion et al. (2023).
[3] Please see Boneva et al. (2020); Weber et al. (2022); Born et al. (2023).
[4] In this Box, we summarize the findings obtained from the work of Akgündüz, Çolak, Özbekler and Yılmaz (2024).
[5] Please see Ayanoğlu, Özertaş and Seven (2024).

In the second step, we merge BTS inflation expectations with the dataset retrieved from the Revenue Administration, which includes balance sheet and income statements of firms at annual frequency. The third step entails the utilization of micro-level loan data allowing the monitoring and analysis of firm loans in detail. We aggregate TL- and FX-denominated performing loans at firm-month level, which are subsequently matched with BTS data and firm financial statements.

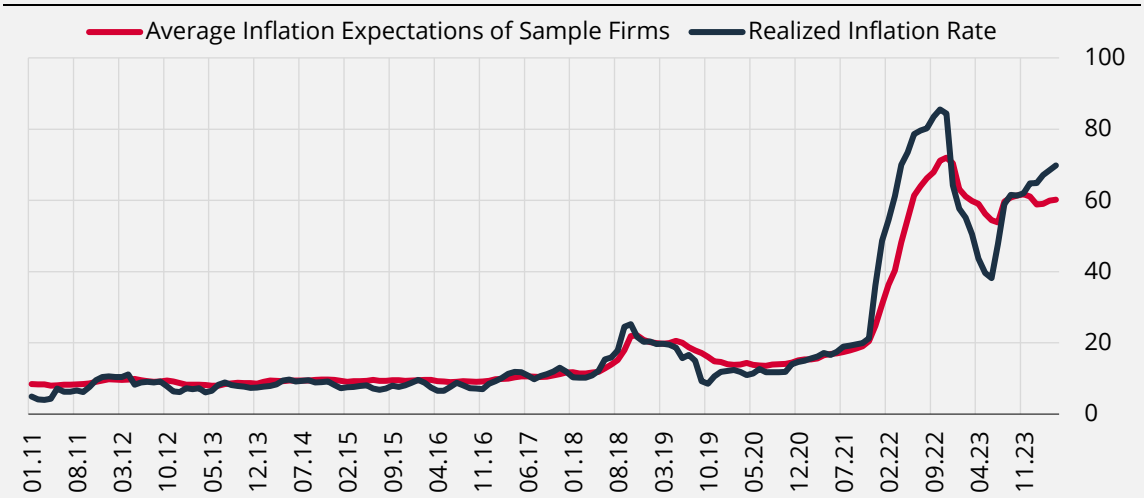
Once we match these datasets, we end up with 3,159 manufacturing firms for the sample period spanning January 2011-April 2024. The set of sample firms displays rising inflation expectations on average in recent periods in line with the overall macroeconomic conditions (Chart 1).

We use the following empirical specification to estimate the impact of inflation expectations on financing decisions via bank loans:

$$\Delta(Loan\ Level)_{it} = \beta CPI\ Inflation\ Expectations_{it} + \gamma Firm\ Controls_{it-12} + \delta_i + \theta_{st} + \tau_{pt} + \varepsilon_{it} \quad \textbf{(1)}$$

In Equation (1), $\Delta(Loan\ Level)_{it}$ measures the monthly change of firm i's nominal loan balance (expressed in millions TL) from time t-1 to time t. This outcome variable is calculated for TL and FX loan balances separately. $CPI\ Inflation\ Expectations_{it}$ represents the examined firm's 12-months ahead inflation expectations at a specified time t. The vector of $Firm\ Controls$ accounts for the lagged values of time-varying firm features.[6] Equation (1) is also saturated with firm (δ_i), sector-by-month (θ_{st}) and location-by-month (τ_{pt}) fixed effects. The sector and location definitions used as input for fixed effects are taken at 2-digit NACE and NUTS-3 levels, respectively. Standard errors are clustered at the firm-level.

Chart 1: Inflation Expectations of Sample Firms and Inflation Realizations (%)



Results

Baseline findings are given in Table 1. Column (1) estimates the impact of firm inflation expectations' direction and level on the trend of TL loan use for the whole sample period by also considering other controls and fixed effects. In these results, we observe that the $CPI\ Inflation\ Expectations$ variable is assigned with a positive and statistically significant coefficient.[7] This implies that firms with relatively higher inflation expectations are more likely to increase their TL loan stock. Column (2) repeats the same estimation for the post-2020 sample period, which coincided with notable inflation and currency shocks. In this period, we continue to observe the effect of worsened inflation expectations on the tendency toward TL loans. In the matter of economic significance, a one percentage-point

[6] In the scope of this work, we control for firm size, equity to assets ratio, sales to assets ratio, return on assets, current ratio and the number of employees. These variables that can be obtained in annual frequency are later distributed to monthly observations.

[7] The robustness checks that are not tabulated in this Box indicate that firms' expectations regarding PPI inflation are also effective in determining their loan use.

deterioration (increase) in inflation expectations is related to an additional 4.1% rise in TL loans when we consider the coefficient for the whole sample period.[8] For the post-2020 sample period, a one percentage-point deterioration (increase) in inflation expectations is associated with an additional 2.3% rise in TL loans.[9]

Columns (3) and (4) focus on the relationship between inflation expectations and FX loan demand. In spite of the null effect for the whole sample period, we observe that firms with increasing inflation expectations reduce FX loan use in the post-2020 period considerably. Aggregate indicators pointing to a decline in FX loans and rapid increase in TL loans even among exporters during that period further support the validity of these findings. Concerning the current macroeconomic situation, our findings imply that FX loan demand may be strengthened in the case of a potential future downward trend in inflation expectations.

In the next stage of this study, we assess the implications on cost of financing on top of the change in TL loan use. (Table 2). In this analysis, while we preserve the specification in Equation (1), the estimations are only conducted for the firm observations with non-zero TL loan balances. The results presented in Table 2 are based on the dependent variable defined as the weighted-average TL loan costs of examined firms ($TL\ Loan\ Interest\ Rate$).[10] The findings show that deteriorating inflation expectations (and accompanying additional loan use) are related to elevated interest rates. In turn, this implies that firms tend to access loan financing with increasing TL loan interest rates due to higher inflation and the resultant negative real interest rates expectations.

In the subsequent step, we analyze how the maturity of firms' borrowings shifts in tandem with a rise in inflation expectations. By using the same information on the credit dataset, which is aggregated at firm-month level, we calculate the time-varying share of short-term loans (those with maturity of 0-12 months) in total outstanding loans (termed as $Short-Term\ TL\ Loan\ Ratio$. The findings in Table 3 document that increasing inflation expectations positively and significantly influence the tendency to use short-term loans. Given that banks are prone to shortening loan maturities against the high inflation outlook, these inferences point out that firms with stronger inflation expectations are directed to rather short-term loans to access TL-denominated financing.

Table 1: Inflation Expectations and Loan Use

	(1) Δ(TL Loan Level)	(2) Δ(TL Loan Level)	(3) Δ(FX Loan Level)	(4) Δ(FX Loan Level)
CPI Inflation Expectations	0.035***	0.053***	0.019	-0.064***
	(0.012)	(0.020)	(0.014)	(0.023)
Sample Period	2011-2024	2020-2024	2011-2024	2020-2024
Observations	220.404	65.850	220.404	65.850
Firm Controls	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Sector x Month FE	Yes	Yes	Yes	Yes
Location x Month FE	Yes	Yes	Yes	Yes

Notes: Standard errors clustered at firm level are given in parentheses. ***, ** and * represent significance at 1%, 5% and 10%, respectively. Loan balances are expressed in TRY million.

[8] The marginal effect of the increase/decrease in inflation expectations on the $\Delta(TL\ Loan\ Level)$ is calculated as the ratio of the average impact per firm from the model (approximately TRY 35 thousand) to the sample average (approximately TRY 860 thousand) in the relevant period.

[9] It should be noted that these findings are contingent on the examined period and sample coverage.

[10] Our findings are qualitatively invariant to the use of stock or flow data on loan interest rates.

Table 2: Inflation Expectations and Cost of Loans

	(1) TL Loan Interest Rate	(2) TL Loan Interest Rate
CPI Inflation Expectations	0.086*** (0.004)	0.039*** (0.006)
Sample Period	2011-2024	2020-2024
Observations	130.155	41.418
Firm Controls	Yes	Yes
Firm FE	Yes	Yes
Sector x Month FE	Yes	Yes
Location x Month FE	Yes	Yes

Notes: Standard errors clustered at firm level are given in parentheses. ***, ** and * represent the significance at 1%, 5% and 10%, respectively. Loan balances are expressed in TRY million.

Table 3: Inflation Expectations and Maturity of Loans

	(1) Short-Term TL Loan Ratio	(2) Short-Term TL Loan Ratio
CPI Inflation Expectations	0.206*** (0.018)	0.154*** (0.016)
Sample Period	2011-2024	2020-2024
Observations	122.105	39.146
Firm Controls	Yes	Yes
Firm FE	Yes	Yes
Sector x Month FE	Yes	Yes
Location x Month FE	Yes	Yes

Notes: Standard errors clustered at firm level are given in parentheses. ***, ** and * represent significance at 1%, 5% and 10%, respectively. Loan balances are expressed in TRY million.

Concluding Remarks

In this study, we explore how inflation expectations of manufacturing firms change the use, cost and maturity of bank loans by utilizing the BTS data. The empirical findings for the whole sample period, derived from detailed micro datasets, suggest that a rise in inflation expectations is linked to increasing TL loan demand, whereas the impact on FX loan demand is not statistically significant. When the analyses are repeated for the post-2020 period, coinciding with exacerbated exchange rate volatility and inflationary pressures, we continue to observe significant results of TL loans together with a negative effect of inflation expectations on FX loan use. Moreover, elevated inflation expectations of firms are associated with higher financing costs implying that firms with higher inflation expectations (relative to other peers) are settling for higher loan interest rates to access TL financing. Last but not least, we document that the share of short-term loans in total loan composition increases when inflation expectations rise.

The results of this study underscore the vital role of normalization in inflation expectations on ensuring a well-functioning credit market and on diminishing the excessive movements in loan demand. When inflation expectations are not anchored and exhibit a volatile pattern, it might cause a new wave of TL loan demand, additional hikes in money supply and further worsening of inflationary pressures by weakening the strength of the monetary policy transmission mechanism. The CBRT aims to prevent sudden acceleration in TL loan demand with the ongoing macroprudential policies until inflation expectations are normalized permanently. The CBRT has also implemented restrictive measures on FX loan growth with the anticipation of possible additional FX loan demand stemming from the normalization of inflation expectations. When the effect of monetary policy stance on inflation expectations becomes visible, monetary transmission mechanism is expected to function more efficiently, with diminishing need for stricter macroprudential regulations.

References

Akgündüz, Y. E., Çolak, M. S., Özbekler, M. D., & Yılmaz, M. H. (2024). Inflation expectations and borrowing behavior: Evidence from Türkiye. Work-in-Progress.

Ayanoğlu, Ö. A., Özertaş, K. Y., Seven, Ü. (2024). Enflasyon beklentilerinin takibi için yeni bir yayın: Sektörel enflasyon beklentileri. *Merkezin Güncesi*, Available at https://tcmbblog.org/wps/wcm/connect/blog/tr/main+menu/analizler/enflasyon_beklentilerinin_takibi_icin_yeni_bir_yayin_sektorel_enflasyon_beklentileri.

Bachmann, R., Berg, T. O., & Sims, E. R. (2015). Inflation expectations and readiness to spend: Cross-sectional evidence. *American Economic Journal: Economic Policy*, 7(1), 1-35.

Boneva, L., Cloyne, J., Weale, M., & Wieladek, T. (2020). Firms' price, cost and activity expectations: Evidence from micro data. *The Economic Journal*, 130(627), 555-586.

Born, B., Enders, Z., Müller, G. J., & Niemann, K. (2023). Firm expectations about production and prices: Facts, determinants, and effects. *In Handbook of Economic Expectations* (pp. 355-383). Academic Press.

Botsch, M. J., & Malmendier, U. (2023). The long shadows of the great inflation: Evidence from residential mortgages. Available at SSRN: https://ssrn.com/abstract=3888762.

Coibion, O., Georgarakos, D., Gorodnichenko, Y., & Van Rooij, M. (2023). How does consumption respond to news about inflation? Field evidence from a randomized control trial. *American Economic Journal: Macroeconomics*, 15(3), 109-152.

Coibion, O., Gorodnichenko, Y., & Kumar, S. (2018). How do firms form their expectations? New survey evidence. *American Economic Review*, 108(9), 2671-2713.

Coibion, O., Gorodnichenko, Y., & Ropele, T. (2020). Inflation expectations and firm decisions: New causal evidence. The *Quarterly Journal of Economics*, 135(1), 165-219.

D'Acunto, F., Malmendier, U., & Weber, M. (2023). What do the data tell us about inflation expectations? *In Handbook of Economic Expectations* (pp. 133-161). Academic Press.

Weber, M., D'Acunto, F., Gorodnichenko, Y., & Coibion, O. (2022). The subjective inflation expectations of households and firms: Measurement, determinants, and implications. *Journal of Economic Perspectives*, 36(3), 157-184.

Box 2.2

Findings from Interviews with Firms

The CBRT holds face-to-face meetings with firms as part of the "Economic Lens to the Real Sector" (ELRS).[1] This box summarizes the findings from the interviews conducted in the April-June 2024 period.

Economic activity slowed down in the second quarter of the year.

While domestic demand decreased mainly due to the final consumers' demand for durable goods, the export outlook was preserved with the support of sales to non-prime markets. Consequently, aggregate demand slowed down compared to the previous quarter. Expectations that domestic demand would remain weak in the third quarter were widely communicated during the second quarter interviews.

While the investment stance continued to be weak, firms that have investment plans focused more on machinery-equipment and energy investments to reduce costs and increase productivity. In this quarter, easing of cost pressures, reflection of cost increases to a large extent in prices, moderate expectations regarding cost increases for the upcoming period and demand conditions led to the reduction in price increase plans.

The weakening in domestic sales, which started in April, continued throughout the quarter.

Demand brought forward in the previous period, price increases and tight financial conditions were the main reasons behind the slowdown. The support to consumer demand given by widespread and attractive campaigns limited the slowdown as consumer demand turned towards products with easy financing facilities or affordable prices. Sales of food, fast-moving consumer goods and apparel remained positive due to the campaigns, the slowdown in the sales of white goods and furniture was more evident, campaigns limited the deceleration in automobile sales, and weakness in sales of housing continued. On the other hand, the effect of tight financial conditions on sales was more apparent in intercompany trade.

The pace of price increases decelerated in **the food and fast-moving consumer goods** sectors and campaigns supported their sales. With the support of campaigns, **apparel** sales remained vibrant as in the first quarter, while increase in the number of the tourist had a limited impact on sales. Sales of **white goods and furniture** were below usual seasonal levels. Demand brought forward in previous periods, the decrease in the availability of credit card installments facilities, the increase in financing costs and weakness in the housing market were highlighted as the main factors depressing demand. The sales of **automotive** sectors declined less than expected due to use of financing campaigns and price discounts for the models affected from new security regulations (GSR II) effective from July and demand brought forward before the additional import tax on Chinese automobiles. High housing prices and current credit conditions continued to suppress **housing** demand.

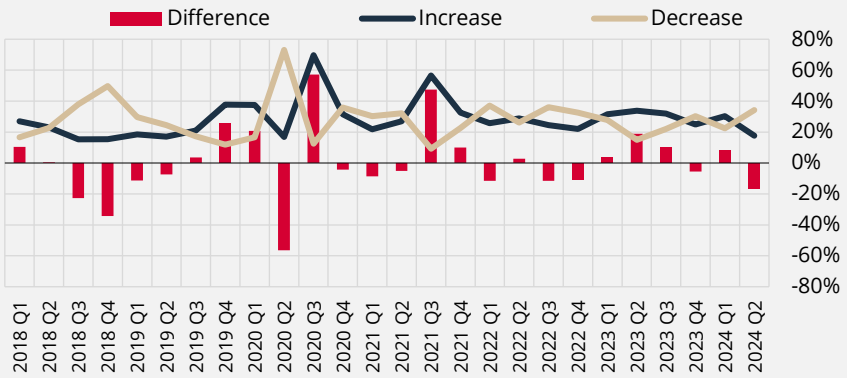
In the second quarter of the year, exports remained flat compared to the previous quarter.

Foreign demand conditions did not change significantly. Firms continued to create export opportunities through quality, fast delivery, access to new markets and product development. On the other hand, costs in TL terms and geopolitical risks continued to be highlighted as factors that pose a risk to the export outlook. For the upcoming periods, the beginning of the end of tight monetary policies in the advanced countries created expectations of new opportunities and a positive impact for exports.

[1] 1The main purpose of this study is to obtain information on periodic production, domestic and international sales, investments, employment, credit conditions, and cost and price developments in a timely manner, to closely monitor economic activity, and to improve the communication between the CBRT and real sector representatives, through meetings with firms in different sectors. The findings obtained from the semi-structured interviews constitute a high-quality and timely source of information for monetary policy decisions. Interviews are held with firms in the manufacturing industry, and trade and services sectors within the framework of the sample created by considering their weight in the total economic activity at sectoral, regional and scale levels. The charts are produced by scoring the anecdotal information obtained from the firm interviews. This study includes evaluations and inferences based on interviews with firms and does not reflect the views of the CBRT. The information and findings obtained may differ from the official statistics, information and findings that will be published later.

The weakness in the **apparel** industry continued due to the cost pressures, and specifically, competition conditions in low value-added product groups. **Textile** exports were relatively more positive due to developments in the Red Sea and the increase in the demand of European customers as a result of depletion of their stocks. While the search for non-European markets continued, decrease in freight rates in long-distance markets hardened competition in **furniture** exports. Exports of the **white goods** sector remained flat on a quarterly basis, while costs caused pricing difficulties. In the **automotive** industry, exports remained strong. Firms that introduced new products to the market have a relatively low labor share in their costs and produce efficiently, with automation standing out more positively, although increasing costs made it difficult to compete with rival countries. While high energy costs, quotas and increasing Far East competition continued to be main determinants for the exports of the **basic metal** industry, export volume increased slightly due to some firms benefiting from geopolitical developments. Overall, the outlook for the **tourism** was in line with seasonality and forecasts. However, pressure on profitability was felt due to increasing costs in TL terms.

Chart 1: Demand Perception of Firms* (Compared to the Previous Quarter)



Source: CBRT ELRS.

* Demand perception shows the evaluation made by considering the current sales, orders and expectations of the firms. The difference series shows the difference between firms with a positive perception of demand and those with a negative perception of demand compared to the previous quarter, and provides information on the prevalence of the change in demand perception, not the size of the change.

In the second quarter of 2024, production activity has slowed down while exporting firms preserved much of their strength.

For firms operating mainly in the domestic market, weakening demand, financial conditions and predictions that the weakening in domestic demand may become evident in the second half of the year suppressed production. Exporting firms maintained the current level of production throughout the quarter.

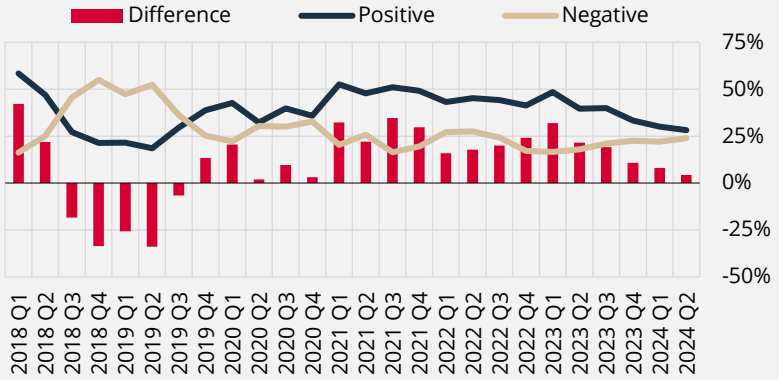
For the sectoral developments, the anticipation that the domestic demand would slow down in the second half of the year suppressed production in the **automotive** industry. On the export side, while the main industry kept its strength, it was emphasized that competition, especially with Chinese firms, became harder in the sub-industry channel. Following a strong first quarter in the **white goods** industry, domestic demand had a downward trend in the second quarter, while there was no additional movement observed on the export side. Accordingly, production remained flat on a quarterly basis. In **furniture**, a deeper slowdown in domestic demand compared to white goods reflected on production. In **machinery and equipment**, tight financial conditions limited the demand for investment goods in the domestic market. As there was no additional movement observed on the export side, the production showed a downward trend in quarterly terms. In the **chemicals** industry, while firms' purchases in the first quarter affected the second quarter's demand in the domestic market, the weakening of exports caused a slowdown in production. In the **textile and apparel** industry, while domestic demand remained similar compared to the previous quarter, the signals regarding the decrease in the level of stocks held by European customers supported foreign demand, and production remained flat.

In construction sub-industry and basic metal, while the activity caused by the demand brought forward did not continue in the domestic market in the second quarter, the infrastructure side also slowed down. On the other hand, the driving effect of post-earthquake activity on demand continued. Due to flat exports, production remained similar to the previous quarter.

Firms continue to have weak investment stance.

Financing costs and developments in domestic and foreign demand conditions were highlighted among the reasons for those firms that did not have investment plans. In this period, firms were cautious about starting new investments, and they focused on machinery-equipment and energy investments in order to reduce costs and enhance productivity. Under current conditions, the investment stance of exporting firms that diversified their products and gained new customers/markets remained relatively positive. Also, firms with strong equity capital or high ability to access investment financing through alternative channels maintained a positive investment stance.

Chart 2: Investment Stance of Firms* (Next 12 Months, %)



Source: CBRT ELRS.
* Investment stance shows the evaluation made by considering the investment appetite of the firms for the next 12 months. The difference series shows the difference between the number of firms with a positive investment stance and firms with a negative investment stance, and provides information on the prevalence of the change in investment stance, not the size of the change.

On a sectoral basis, the investment stance was relatively positive especially in the **food, machinery-equipment, fabrication metal and automotive sub-industry** sectors among the manufacturing industry. **Textile, apparel and construction** sectors stood out among the sectors with negative investment stances. Idle capacity in the textile sector, increasing costs of production and uncertainties about demand in the apparel sector affected investment appetite negatively. In the construction sector, investment appetite remained weak due to high land prices, low housing demand and tight financial conditions.

The tendency to keep current levels of employment continued in the second quarter.

Although the rate of firms planning an increase in employment declined notably, the majority of firms still had tendency to maintain their current employment levels. In the recent period, a limited number of firms that could predict demand for their products, increase capacity and invest in new facilities and machinery stated that they were planning to increase employment. On the other hand, firms were cautious about reducing employment due to the difficulties related to finding employees and the motivation of retaining skilled workers.

In the second quarter of the year firms emphasized less about financing needs.

The emphasis on financing needs for working capital declined, especially in June, following persistently high levels in April. This decline was stirred by costs due to exchange rate and commodity prices. In addition, the tendency of some firms to extend maturities with the motivation of remaining in cash and the impact of delays on cash flow were cited as the main factors that increased financing needs. Although there were some firms stating that investments started in previous periods increased financing needs, the emphasis on financing needs arising from investments declined on a quarterly basis.

Even though credit conditions tightened throughout the second quarter, there was a gradual loosening in the interest rates offered in each month. The strong lending appetite of banks in the first quarter, weakened in April, following the measures taken in March, and that was reflected in limited allocations.

While high TL loan costs continued to suppress credit demand, the tendency towards FX loans continued. In this context, access to credit throughout the second quarter remained largely similar to the previous quarter.

Emphasis on difficulties in intercompany trade conditions increased. While tightening in the maturity channel was more pronounced in the first months of the quarter, rising difficulties in intercompany trade depending on cash flow were highlighted in June. Increases in term premium and cash discount rates caused extensive use of cash purchases, especially in the supply channel.

As of the second quarter, the number of bad checks as well as delays in payments started to increase, although it was not common across the market. Currently, receivables problems were considered manageable, however risks across sectors were highlighted for upcoming periods.

Cost increases and expectations abated in the second quarter of the year while the rate of firms planning price increases declined for the next period.

Firms' emphasis on cost increases fell in each month throughout the quarter. The most significant improvement was observed in costs related to labor and exchange rate, followed by energy and input costs excluding the exchange rate effect.

In addition to easing cost pressures, reflection of cost increases to a large extent in prices, moderate expectations regarding cost increases for the upcoming period and demand conditions led to the reduction in price increase plans. Improvement in pricing behavior in quarterly basis was more evident for trade and manufacturing compared to services.

Box 2.3

The Relation Between Credits and Exports Using Firm Level Data

The existing literature shows that firms may need financing to increase their exports, and thus, the use of credit may increase their exports (Feenstra et al., 2014). One reason for this is that firms may have to make upfront expenditures for some procedures, such as compliance with export market regulations and product standards. They may also have to make payments for some cost items, such as freight, customs duties and insurance, before they can earn export revenues. Finally, export transactions take longer to complete than domestic sales, and therefore, export revenues are paid to firms with a delay (Chor and Manova, 2012). This Box examines whether there is a positive relationship between credit use and firms' export growth as implied by the arguments in the literature.

Data and Methodology

For the analysis, a panel dataset covering the period 2009-2023 is constructed by matching the firm-level export data from the Ministry of Trade, the balance sheet and income statement data from the Revenue Administration and the stock credit data of the Risk Center on a firm basis. Firms with a balance sheet, positive net sales, more than one employee, that export and use credit for at least three years are included in the analysis. The relationship between the credit balances of the firms and their exports is estimated with the following equation:

$$\Delta \ln(export)_{it} = \beta \Delta \ln(credit)_{it} + \Gamma \mathrm{X}_{\mathrm{it}} + \alpha_i + \lambda_t + \delta_{St} + \epsilon_{it} \quad \textbf{(1)}$$

where $\Delta \ln(export)_{it}$ represents the logarithmic difference of the export value of firm *i* in year *t* and $\Delta \ln(credit)_{it}$ represents the logarithmic difference of the TL-denominated loan stock amount of firm *i* in year *t*. α_i ,λ_t , and δ_{St} denote firm, year and sector-year fixed effects, respectively. The X_{it} matrix contains the lagged values of firm characteristics that change over time (logarithm of the total assets, trade payables and number of employees and leverage ratio). The error term is represented with ϵ_{it}. The β coefficient in the equation shows the elasticity of export growth to credit growth.

In order to solve the possible endogeneity problem, the equation is estimated with the Instrumental Variables (IV) method in addition to Ordinary Least Squares (OLS). First, using the annual loan balance changes of banks, the following instrumental variable is defined for each firm-year observation: [1]

$$IV_{it} = \sum_b \omega_{i,b,t-1} * \Delta \ln(credit)_{b,-i,t} \quad \textbf{(2)}$$

where $\omega_{i,b,t-1}$ denotes the share of bank *b* in the loans used by firm *i* in year *t-1* and $\Delta \ln(credit)_{b,-i,t}$ represents the logarithmic growth of the total loans provided by bank *b* to firms other than firm *i* in year *t*.

As a second instrumental variable, the method used by Amiti and Weinstein (2018) to decompose credit change into supply and demand components is utilized. Amiti and Weinstein (AW) decompose the credit change rate of firms with credit relationships with at least two banks, ($D_{b,i,t}$), into a firm-year fixed effect, $\alpha_{i,t}$ (firm borrowing channel) and a bank-year fixed effect, $\beta_{b,t}$ (bank lending channel):

$$D_{b,i,t} = \alpha_{i,t} + \beta_{b,t} + \epsilon_{i,b,t} \quad \textbf{(3)}$$

In the AW method, bank credit growth ($D^B_{b,t}$) is decomposed into bank-specific supply shocks ($\beta^{AW}_{b,t}$) and the increase in credit demand of firms using credit from the bank with the following equation:

$$D^B_{b,t} = \beta^{AW}_{b,t} + \sum_i \phi_{i,b,t-1}\, \alpha^{AW}_{i,t} + \sum_i \phi_{i,b,t-1}\, \epsilon_{b,i,t} \quad \textbf{(4)}$$

[1] This instrumental variable is also called the Bartik instrumental variable in the literature since it was first used by Bartik (1991).

where $\phi_{i,b,t-1}$, denotes the share of firm *i* in total credits provided by bank *b* in year *t-1*, and $\alpha_{i,t}^{AW}$ represents the growth of credit demand of firm *i*. Similarly, firm credit growth ($D_{i,t}^{I}$) is decomposed into the increase in the firm's credit demand ($\alpha_{i,t}^{AW}$) and the credit supply shocks of banks that provide loans to the firm ($\alpha_{i,t}^{AW}$) as follows:

$$D_{i,t}^{I} = \alpha_{i,t}^{AW} + \sum_b \omega_{i,b,t-1}\, \beta_{b,t}^{AW} + \sum_b \omega_{i,b,t-1}\, \epsilon_{b,i,t} \quad \textbf{(5)}$$

Using the bank shocks obtained by simultaneously estimating the equation system consisting of equations (4) and (5) above, the following Bartik instrument variable is defined for firm credit growth[2]:

$$IV_{it}^{AW} = \sum_b \omega_{i,b,t-1} * \beta_{b,t}^{AW} \quad \textbf{(6)}$$

Results

Table 1 presents the results of equation (1) estimated at the firm level. The first column in the table shows the estimation results using the whole sample. According to the OLS results in Panel A, when the whole sample is considered, a 10 percent increase in the firm's TL credit volume is associated with a 0.2 percent increase in exports. The results estimated with the IV method shown in Panels B and C show that a 10 percent increase in credit volume increases firms' exports by 0.5 percent and 0.6 percent, respectively.

Table 1: Estimation Results

	Dependent Variable: Change in Exports (Log Difference)				
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
	Whole Sample	**SME**	**Large**	**2009-2019**	**2020-2023**
Panel A: OLS					
Change in Credits (Log Diff)	0.02***	0.02***	0.01***	0.03***	0.01***
	(0.0014)	(0.0015)	(0.0043)	(0.0022)	(0.0023)
Obs.	423.755	373.700	47.755	262.507	149.890
Panel B: IV (Bartik)					
Change in Credits (Log Diff)	0.05***	0.06***	0.03***	0.08***	0.04***
	(0.0174)	(0.0208)	(0.0142)	(0.0162)	(0.0191)
F-test	134.29	96.58	51.19	92.82	61.25
Obs.	423.755	373.700	47.755	262.507	149.890
Panel C: IV (AW)					
Change in Credits (Log Diff)	0.06***	0.08***	0.04***	0.09***	0.04***
	(0.0111)	(0.0139)	(0.0183)	(0.0152)	(0.0184)
F-test	60.35	38.90	17.08	43.18	15.38
Obs.	423.755	373.700	47.755	262.507	149.890

Notes: Standard errors clustered at firm level are in parenthesis. ***, ** and * represent significance at 1%, 5% and 10%, respectively. F-test results reveal that all instruments pass the weak instrument test.

[2]Since $\phi_{i,b,t-1}$ and $\omega_{i,b,t-1}$ are predetermined and hence independent from error terms, the equation system is estimated using the moment conditions $\sum_i \phi_{i,b,t-1} E(\epsilon_{b,i,t}) = 0$ and $\sum_b \omega_{i,b,t-1} E(\epsilon_{b,i,t}) = 0$.

The second and third columns of the table show the model results according to firm size. In all models, the coefficient of credit increase is higher in SMEs than in large firms. This can be explained by the fact that SMEs have more limited internal financial resources and need more external financing to increase their exports. Finally, in the fourth and fifth columns, the sample period is divided into two, and the difference in coefficients is examined. In the post-pandemic period when the credit volume increased rapidly, the causal relationship between credits and exports weakened. In the pre-pandemic period, a 10 percent growth in firm credit volume increased exports by 0.8 and 0.9 percent, respectively, when alternative instrumental variables were used, while it increased by 0.4 percent after the pandemic. In this period, when firms increased their credit use, the decrease in the contribution of an extra increase in credit amount to export growth may have had an effect on this decline. The increase in the share of credits received by relatively inefficient firms with limited export growth potential in total credits may be another reason for this decline.

References

Amiti, M. & Weinstein, D. E. (2018). How much do idiosyncratic bank shocks affect investment? Evidence from matched bank-firm loan data. *Journal of Political Economy*, *126*(2), 525-587.

Bartik, T. J. (1991). Who benefits from state and local economic development policies? Kalamazoo, MI: W.E. Upjohn Institute for Employment Research.

Chor, D. & Manova, K. (2012). Off the cliff and back? Credit conditions and international trade during the global financial crisis. *Journal of International Economics*, *87*(1), 117-133.

Feenstra, R. C., Li, Z., & Yu, M. (2014). Exports and credit constraints under incomplete information: Theory and evidence from China. *Review of Economics and Statistics*, *96*(4), 729-744.

3. Medium-Term Projections

3.1 Current State, Short-Term Outlook and Assumptions

Changes in Key Forecast Variables

In the first quarter of 2024, demand conditions were slightly stronger than projected in the previous Inflation Report, and domestic demand remained resilient. In the first quarter, the contribution of private consumption to growth decreased, while that of net exports increased, signaling a more balanced demand outlook in terms of the composition of growth. Despite pointing to a slowdown compared to the first quarter, demand indicators for the second quarter of the year are still at inflationary levels and above the projections of the previous Inflation Report. Accordingly, the output gap forecasts for the first and second quarters of 2024 have been revised upwards (Table 3.1.1).

Consumer inflation, which fell to 61.8% in July, was well within the forecast range presented in the previous Inflation Report. The contribution of energy prices to inflation went up as projected following the expiry of the free natural gas use for households. Meanwhile, global commodity prices and the exchange rate were on a mild track. Consequently, consumer inflation was in line with the Inflation Report 2024-II projections in the second quarter. As for July, annual inflation was slightly above the mid-point of the previous Report's forecast due to the adjustments in administered prices and taxes as well as the developments in unprocessed food prices, which are largely outside the control of monetary policy (Table 3.1.1).

In the second quarter of 2024, the underlying trend of inflation eased in line with the projections of the previous Inflation Report. Seasonally adjusted data indicate that price increases across all subgroups of the B index slowed in the second quarter of the year. Price increases in core goods weakened due to the mild course of the exchange rate and the slowdown in domestic demand, while price increases in services remained relatively strong, albeit at a slower pace than in the previous quarter. In July, the underlying trend of inflation was mostly in line with the projections. Despite the decline in the 12- and 24-month-ahead inflation expectations compared to the previous reporting period, year-end inflation expectations for 2024 and 2025 are still above the forecasts presented in the previous Inflation Report.

Table 3.1.1: Changes in Key Forecast Variables*

	2024-I	2024-II
Output Gap	3.1	1.5
(%)	(2.8)	(1.0)
Consumer Inflation**	69.8	61.8
(Annual % Change)	(69.8)	(61.2)
B-Index Inflation**	72.7	60.3
(Quarter-End, Annual % Change)	(72.7)	(60.4)

* Figures in parentheses denote values presented in the previous Inflation Report.
** Denotes inflation in April for 2024-I and July for 2024-II.

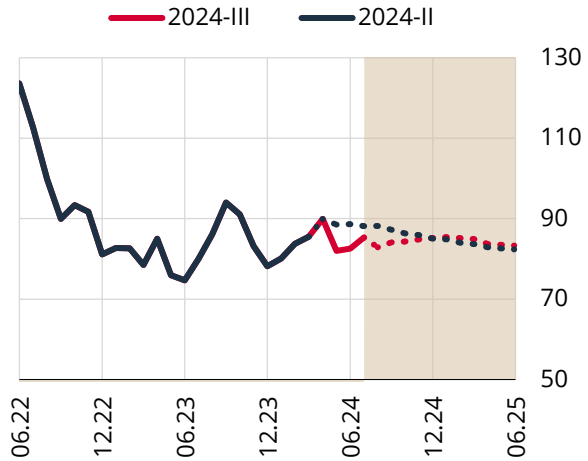
Assumptions for Exogenous Variables

The assumptions for the global growth outlook have been largely maintained compared to the projections of the previous Inflation Report. The indicators for global growth edged up further in the second quarter of the year, led by the services sector. For the rest of the year, growth forecasts for the euro area, one of Türkiye's trading partners, have been revised upwards, while the growth outlook for the countries in the Middle East and Africa deteriorated significantly. Against this background, the assumption for the Export-Weighted Global Growth Index, based on Türkiye's foreign trade partners, has been revised downwards by 0.1 percentage points to 2.0% for 2024 and upwards by 0.1 percentage points to 2.4% for 2025 (Table 3.1.2).

Despite the favorable inflation outlook in advanced economies, central banks continue to communicate that they will be cautious in cutting interest rates. As global labor markets have started to rebalance, price increases in the services sector have eased, while fluctuations in commodity prices and geopolitical developments adversely affect the global disinflation process. The underlying trend of services inflation has recorded a decline, which was more evident in the US data. Accordingly, even though rate-cut pricing regarding the advanced economy central banks has strengthened amid the favorable developments in the inflation outlook, central banks maintain their cautious stance with a data-driven approach. Emerging economies, on the other hand, have been more cautious about rate cuts due to slower convergence of inflation to targets. Against this background, in line with the decline in inflation, interest rate cuts are likely to continue in the coming period in advanced and emerging economies. However, given the current level of global inflation, stickiness and geopolitical risks, the cuts are expected to continue in a manner that will maintain monetary tightness and support disinflation.

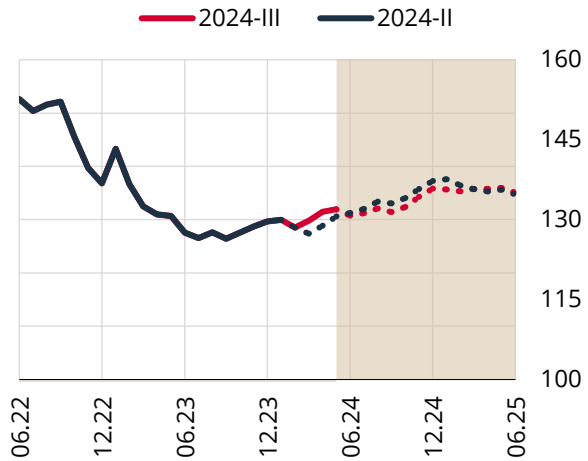
Geopolitical developments and the global growth outlook continued to shape commodity prices. After falling in May, oil prices edged up in June and July, reaching the levels projected in the previous Report. The recent fluctuations in oil prices have been due to geopolitical developments, particularly the tension in the Middle East and Ukraine. The ongoing production cutback by OPEC+ member countries has had a supply-side impact on oil prices as well. Accordingly, while assumptions for the rest of the year are in line with the projections of the previous reporting period, the assumption for the 2024 average oil price decreased from USD 86.4 to USD 84.2 due to the realizations (Chart 3.1.1). On the other hand, prices of industrial metals and agricultural commodities recorded a decline in this period. Thus, the rise in energy commodity prices was offset by non-energy commodity prices, resulting in a minor revision in assumptions for import prices in general (Chart 3.1.2).

Chart 3.1.1: Revisions in Oil Price Assumptions* (USD/bbl)



Source: Bloomberg, CBRT.
* Shaded area denotes the forecast period.

Chart 3.1.2: Revisions in Import Price Assumptions* (Index, 2015=100)



Source: CBRT, TURKSTAT.
* Shaded area denotes the forecast period.

The assumption for 2024 food prices is maintained. Annual food inflation stood at 68.1% in the second quarter of 2024, falling below headline inflation for the first time in many months. In July, the annual change in food prices dropped to 59.9%, in line with the assumptions of the previous Report. Accordingly, the assumption for food price inflation is maintained at 35.5% and 15% for 2024 and 2025, respectively (Table 3.1.2).

Table 3.1.2: Revisions in Assumptions*

	2024	2025
Export-Weighted Global Growth Index (Annual Average % Change)	2.0 (2.1)	2.4 (2.3)
Oil Prices (Average, USD)	84.2 (86.4)	82.9 (82.3)
Import Prices (USD, Annual Average % Change)	0.7 (0.8)	2.8 (2.6)
Food Price Inflation (Year-End % Change)	35.5 (35.5)	15.0 (15.0)

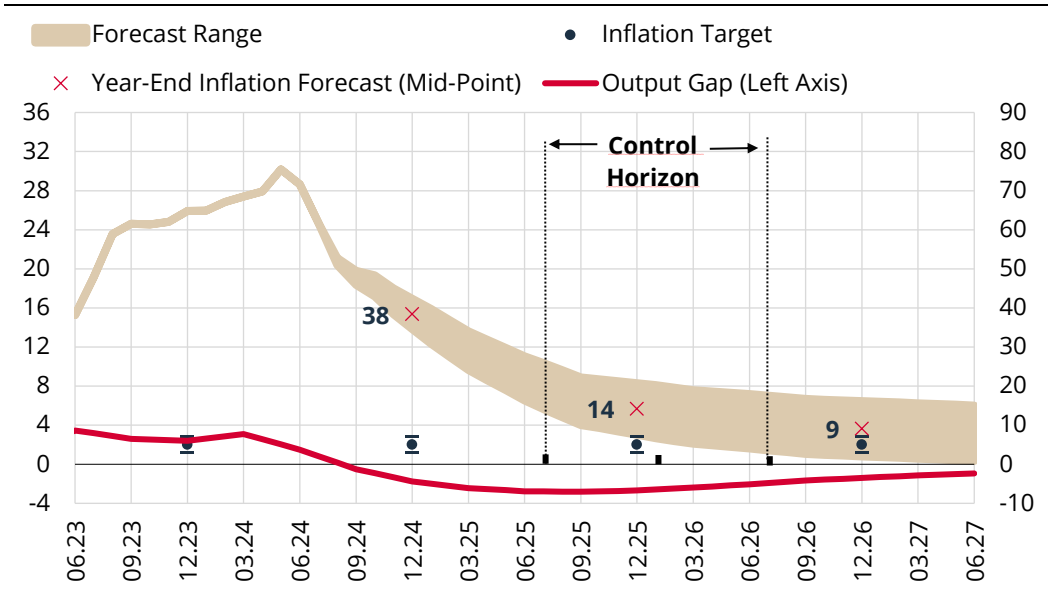
* Figures in parentheses denote values presented in the previous Inflation Report.

The forecasts are based on an outlook in which macroeconomic policies are determined in a coordinated manner focused on disinflation by adopting a medium-term perspective. In this context, it is assumed that fiscal policy will continue to be formed so as to contribute to the rebalancing process in the economy, and that administered prices, borrowing and tax and income policies will be determined to support the disinflation process. In addition, the outlook underlying our forecasts also implies that earthquake-related expenditures will be balanced and spread over a long period of time so as not to adversely affect budgetary discipline and macro financial stability.

3.2 Medium-Term Outlook

Year-end inflation forecasts for 2024, 2025, and 2026 are maintained at 38%, 14% and 9%, respectively. With 70% probability, inflation is projected to be between 34% and 42% (with a midpoint of 38%) at end-2024, between 7% and 21% (with a midpoint of 14%) at end-2025 and to fall to single-digit levels at 9% at end-2026, before stabilizing at 5%, the medium-term inflation target (Chart 3.2.1). Due to increased uncertainty amid recent geopolitical developments and global financial volatility, forecast ranges have been kept the same as in the previous Report. The projections are based on an outlook in which the tight monetary policy stance will be maintained, and the coordination of economic policies will be ensured until a significant and sustained improvement is achieved in the inflation outlook.

Chart 3.2.1: Inflation Forecasts* (%)



Source: CBRT, TURKSTAT.
* Shaded area denotes the 70% confidence interval for the forecast.

The year-end inflation forecast for 2024 is maintained at 38% as the upward and downward effects on forecasts offset each other. In July, consumer inflation stood at 61.8% year on year, remaining within the forecast range projected in the previous reporting period. The slowdown in demand was more limited than projected. Thus, the upward revision to the projected output gap pushed up the inflation forecast. In addition, the less-than-expected decline in inflation expectations also had an upward impact on the inflation forecast. On the other hand, the mild course of the Turkish lira and the downward revisions in assumptions for import prices and administered prices pulled the year-end inflation forecast down. The year-end inflation forecast has been maintained as these upward and downward effects offset each other (Table 3.2.1).

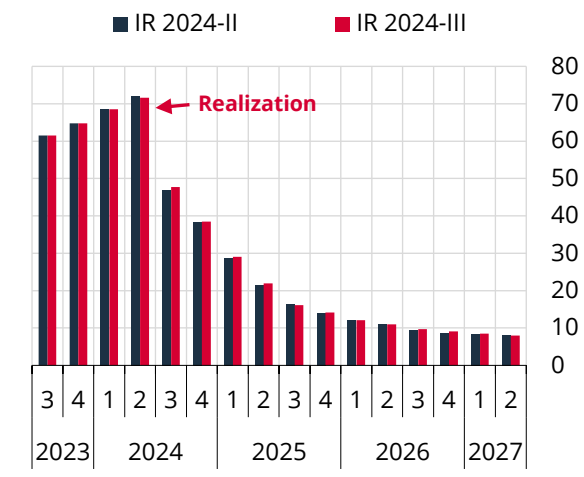
Table 3.2.1: Revisions in Year-End Inflation Forecasts for 2024 and Sources of Revisions

	2024
Inflation Report 2024-II Forecast (%)	38
Inflation Report 2024-III Forecast (%)	38
Forecast Revision Compared to Inflation Report 2024-II	0.0
Sources of Forecast Revision (% Points)	
Inflation Expectations /Underlying Trend	+0.2
Turkish Lira Import Prices	-0.1
Output Gap	+0.2
Administered Prices	-0.3

Source: CBRT.

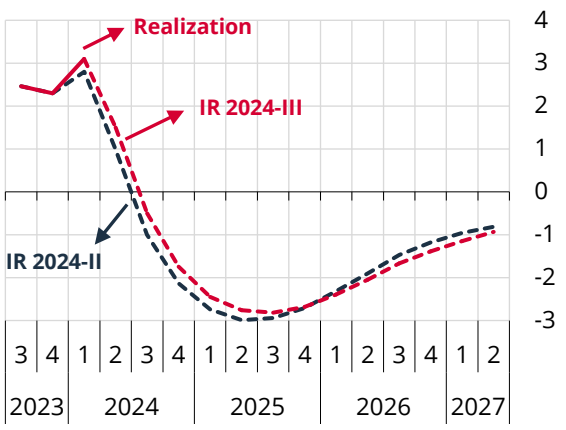
The year-end inflation forecast for 2024 is maintained at 38% (Chart 3.2.2). The slowdown in demand was less pronounced than projected in the previous Inflation Report (Chart 3.2.3). Against this background, the upward revision of the output gap forecast pushed the year-end inflation forecast up by 0.2 percentage points. The revision in TL-denominated import prices, on the other hand, brought the forecast down by 0.1 percentage point. The downward revisions in the assumptions for administered prices had a downward effect on year-end inflation forecasts of 0.3 percentage points (Table 3.2.1). The slower-than-projected decline in inflation expectations had an estimated upward impact of 0.2 percentage points on year-end inflation.

Chart 3.2.2: Inflation Forecast (Quarter-End, Annual, %)



Source: CBRT, TURKSTAT.

Chart 3.2.3: Output Gap Forecast (%)



Source: CBRT.

The forecasts are based on the assumption that there will be heightened uncertainty in global financial markets compared to the previous Inflation Report's projections, while the global growth outlook will remain largely consistent with past projections. Even though the ongoing improvement in the inflation outlook and recent developments regarding services inflation have bolstered expectations for rate cuts by advanced economy central banks, it is expected that a cautious and data-driven stance will be maintained in the coming period. Geopolitical risks, fluctuations in global risk appetite and uncertainty regarding interest rate cuts by advanced economy central banks have led to choppy portfolio inflows into emerging markets. The favorable reserve outlook in the current reporting period contributed to the improvement of Türkiye's risk premium. Therefore, the fact that Türkiye will maintain a tight monetary policy stance until sustained price stability is achieved will help mitigate the potential adverse effects of global financial market volatility on the country's risk premium.

Forecasts rely on a monetary policy that will remain tight until a significant and sustained decline in the underlying trend of monthly inflation is observed, and inflation expectations converge to the projected forecast range. With the contribution of the financial policies that will support and strengthen monetary transmission and the monetary policy communication that emphasizes the decisive tight stance, the convergence of inflation expectations to the Inflation Report forecasts in the short term and to the inflation target in the medium term is critical for ensuring a permanent decline in inflation. Macroprudential policies will continue to be implemented to enhance the effectiveness of monetary transmission, and the tightness in financial conditions will be maintained with the contribution of measures to support the monetary policy. The ongoing slowdown in loan growth will be a much more significant contributor to the moderation in domestic demand, and demand conditions will have a downward impact on inflation in the period ahead. In addition, the forecast is based on an outlook in which coordination among economic policies will be maintained.

The disinflation process under way since June will gain further momentum in the period ahead. Annual inflation, which peaked in May and began to decline in June, ended July at 61.8%, well within the forecast range presented in the previous Inflation Report. In July, monthly inflation increased temporarily due to the adjustments in administered prices and taxes as well as supply-side developments in unprocessed food prices. The third quarter of the year will see a notable decline in annual inflation, owing to the favorable base effect from the last year. On the other hand, increased electricity prices for businesses are likely to push services sector prices up in the coming months through the cost channel. The upward impact of education services on consumer inflation is expected to be significant in September due to private university tuition fees. However, with the maintenance of prudent monetary policy stance, inflation is projected to decline steadily over the rest of the year. The decline in inflation expectations was slightly smaller than projected in the previous Report. The slowdown in demand conditions is anticipated to become more pronounced in the upcoming period due to the maintenance of the tight monetary policy stance and the tightening in financial conditions (Chart 3.2.3). Moreover, the decisive monetary policy stance is expected to bring the underlying trend of monthly inflation down on the back of the moderation in domestic demand, the real appreciation of the Turkish lira and the improvement in inflation expectations, and disinflation will continue to grow stronger for the rest of the year. During this process, the seasonally adjusted average monthly inflation is projected to fall to around 2.5% in the third quarter and to slightly below 1.5% in the last quarter. As the stickiness in services inflation weakens during this process and the tight monetary stance is maintained in line with the targets, the downtrend in the underlying trend of inflation to its historical average will extend into 2025. The coordination of monetary and fiscal policies will contribute to this process.

3.3. Key Risks to Inflation Forecasts and Possible Impact Channels

The outlook underlying the medium-term forecasts presented in the previous section is shaped by the assessments and assumptions of the Monetary Policy Committee. However, the inflation outlook may be subject to various risks associated with these factors, leading to a divergence in the monetary policy stance projected in the baseline scenario. The risks that are identified in the baseline scenario and have the potential to change the outlook are listed below and summarized in Table 3.3.1.

The ongoing stickiness in services prices poses an upside risk to consumer inflation. The prevailing price-setting behavior in the services sector leads to significant inertia, a protracted impact of shocks on inflation and causes price increases in this sector to be inconsistent with the disinflationary path. Price increases in services slowed in the second quarter compared to the first quarter yet remained relatively strong. In this

period, rents, communication and restaurants-hotels stood out as subgroups with strong price increases. In September, education services are likely to push consumer inflation up due to private university tuition fees. The strong course of services inflation continues to play an important role in the disinflation process by keeping the upside risks to consumer inflation alive.

Food prices displayed a mild course in July. However, above-average seasonal temperatures and supply-side factors may pose upside risks to prices in the food group, especially for fresh fruits and vegetables.

Inflation expectations are on the decline but remain above the Inflation Report forecasts. Inflation expectations of market participants, firms, and consumers play a key role in price-setting behavior, portfolio preferences, and consumption/credit demand. High inflation expectations may pose an upside risk to the consumption trend and credit demand. Thus, domestic demand may build resistance, and the process of moderation may be disrupted. According to the Survey of Market Participants (SMP), inflation expectations have recently declined across all time horizons, yet the current levels are still above the Inflation Report forecast range and continue to pose an upside risk to the inflation forecasts. Firms' and consumers' inflation expectations, on the other hand, remain high and are more sensitive to inflation and exchange rate realizations (Box 3.1). Maintaining inflation expectations in line with the CBRT's inflation forecasts in the short term and inflation targets in the medium term is critical to the disinflation process. This necessitates keeping a cautious and decisive stance in monetary policy.

Domestic demand weakened in the second quarter of the year yet remains at inflationary levels. Recent indicators suggest that domestic demand, which was strong in the first quarter of 2024, weakened to some extent in the second quarter. However, the two holidays and bridge days make it challenging to ascertain the extent of the demand slowdown in the second quarter. The output gap remained positive in the second quarter, and demand conditions were inflationary. Nevertheless, the moderation in domestic demand is expected to become more pronounced in the second half of the year due to the lagged effects of the current tight monetary policy and the ongoing tightening in financial conditions. The dampening effects of monetary tightening on domestic demand may not be immediate enough, and this may pose upside risks to forecasts.

Despite the more favorable course of commodity prices compared to the previous reporting period, the volatility stemming from geopolitical developments poses an upside risk to inflation forecasts. Non-energy commodity prices declined compared to the previous reporting period. On the other hand, oil prices picked up again. The ongoing geopolitical tensions in Russia-Ukraine, the Middle East and the Red Sea as well as the decisions of the OPEC+ member countries to cut production, create upward supply pressures on oil prices. The impact of these developments on transportation and input costs is being monitored. Geopolitical developments may also influence risk perceptions towards Türkiye through foreign demand and export revenues.

The coordination of monetary and fiscal policies is of utmost importance for the disinflation process. The incomes policy may affect inflation and expectations through the production cost and demand channels. Adjustments in administered prices and taxes that are not in line with the projected disinflation path may put pressures on inflation. Accordingly, the steps to be taken to increase the tax collection efficiency and the share of direct taxes in total tax revenues will support the disinflation process. In order to achieve the projected disinflation path, it is vital to take into account the CBRT's inflation forecasts in relation to the adopted policies, particularly in regard to the adjustments in administered prices and taxes, and to support the tight monetary policy stance with a prudent fiscal policy.

Table 3.3.1: Key Risks to Inflation Forecasts and Possible Impact Channels*

Risk	Evaluation of Risks Compared to the Baseline Scenario and Possible Effects on Inflation (↑ | ↔ | ↓)	Tracked Indicators
Inertia in services inflation	• The ongoing stickiness of services prices keeps upside risks to inflation alive. ↑	• Key inflation indicators • Inertia in services inflation
Course of food prices	• Temperatures above seasonal norms and supply-side developments may exert upward pressure on unprocessed food prices. ↑	• Prices of fresh fruits and vegetables
Inflation expectations not converging to the projected forecast range	• Despite the improvement in medium-term inflation expectations, the elevated level of expectations keeps upside risks to inflation forecasts alive. ↑	• Key inflation indicators • Indicators for inflation expectations • Sectoral inflation expectations • Distribution of inflation expectations • Inflation uncertainty indicators • Survey and market pricing-based inflation and exchange rate expectations
Demand conditions	• Domestic demand remained inflationary in the second quarter, albeit at a slower pace, which continues to exert demand-side pressure on inflation. ↑ • Rebalancing in domestic demand is expected to become more evident with the contribution of tight monetary policy and tight financial conditions. ↓	• Domestic demand indicators • Retail Sales Volume Index and Trade Sales Volume Index • Interviews with firms and survey data • Credit card spending • White goods and automobile sales
Geopolitical developments and the course of commodity prices	• The ongoing geopolitical tensions in Russia-Ukraine and the Red Sea and the continued production cuts by OPEC+ countries pose upside risks to oil prices from the supply channel. ↑ • Oil and commodity prices are likely to remain volatile due to geopolitical risks. ↑	• Crude oil prices and demand-supply balance • OPEC+ decisions • Indicators for domestic energy market • Administered prices

Risks to the effectiveness of coordination between monetary and fiscal policies	• Lack of coordination between monetary and fiscal policies may pose risks to inflation and the moderation in domestic demand.	↑	• Adjustments in administered prices and taxes • Developments in tax revenues and public expenditures • MTP and fiscal policy measures • Budget and public debt stock indicators • Structural budget balance forecasts • Share of direct taxes in total taxes
	• Introducing reforms in direct taxes and/or tax collection efficiency may reduce the need for indirect taxes, thereby having a downward impact on prices.	↓	
	• Administered price adjustments being inconsistent with the projected downward path in inflation may pose an upside risk to inflation.	↑	

* Each risk row in the table indicates the possible channel and the direction for the change in inflation forecasts in case the mentioned risk materializes. The signs ↑, ↓ indicate that the risk to the inflation forecast is upward and downward, respectively. The ↔ sign is used when the net impact on the inflation forecast is not completely clear. The indicators through which the risk is monitored are also listed in the right column.

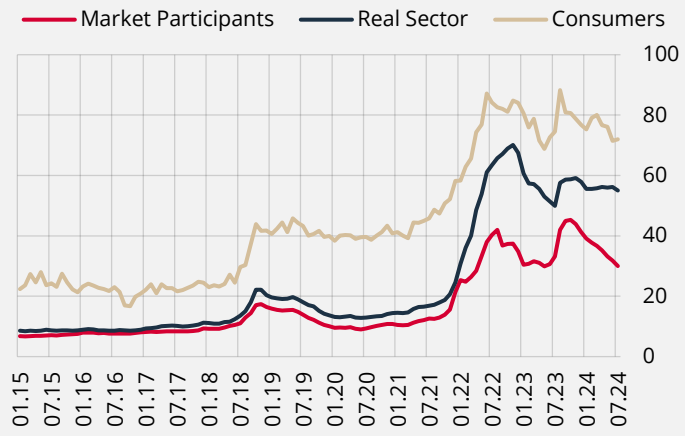
Box 3.1

Determinants of Sectoral Inflation Expectations

Inflation expectations play a critical role in decision-making processes by reflecting economic agents' estimates of future price increases. Therefore, inflation expectations are of great importance for central banks' policy decisions and the effectiveness of the monetary transmission mechanism. Expectations of different economic agents (firms, consumers/households, market participants) affect the economy through different channels. Firms determine their pricing, wage-setting, inventory holding and investment strategies in line with their inflation expectations. So, inflation expectations of firms are of great importance in terms of the future course of inflation, since they also have price-setting power. Another important expectation for monetary policy is the inflation expectations of consumers. Consumer expectations are watched closely as they matter for labor force participation, portfolio preferences and consumption-savings decisions. For instance, high inflation expectations of consumers may have a direct inflationary impact on the aggregate demand level in the economy by bringing demand forward. Finally, inflation expectations of market participants can be influential on pricing in financial markets, as they reflect the predictions of decision-making experts, especially in the field of finance.

The CBRT compiles the inflation expectations of different economic agents for the next 12 months through its SMP and the BTS, and the Consumer Tendency Survey (CTS) conducted in cooperation with TURKSTAT. In this context, in June 2024, in addition to the inflation expectations of market participants that it is already publishing, the CBRT started to share real sector and household inflation expectations with the public by combining them under the Sectoral Inflation Expectations. Chart 1, which compares sectoral expectations, shows that even in periods of low inflation, household expectations are higher than those of firms and market participants. While the expectations of firms were more moderate than those of households and at similar levels to those of market participants, they are significantly above the expectations of market participants after 2022. The exchange rate increases in 2018 and 2021, and the subsequent high course of inflation have led to a deterioration in the expectations of all sectors. On the other hand, with the monetary tightening process that started in June 2023, expectations started to decline gradually despite the rise in inflation, unlike previous periods. This divergence was driven by the tight monetary policy stance as well as the forward guidance that this stance will be maintained until a significant and permanent fall in inflation is achieved. Following the announcement of the lower-than-expected June inflation data, 12-month-ahead inflation expectations fell to 30% among market participants and 55% in the real sector in July. Consumer expectations increased slightly in July, reaching 72%. In this framework, in order to understand the reasons behind the divergence in inflation expectations of different sectors, this Box analyzes the sensitivity of revisions in inflation expectations of economic agents to key macroeconomic variables.

Chart 1: 12-Month-Ahead Inflation Expectations (%)



Source: CBRT, TURKSTAT.

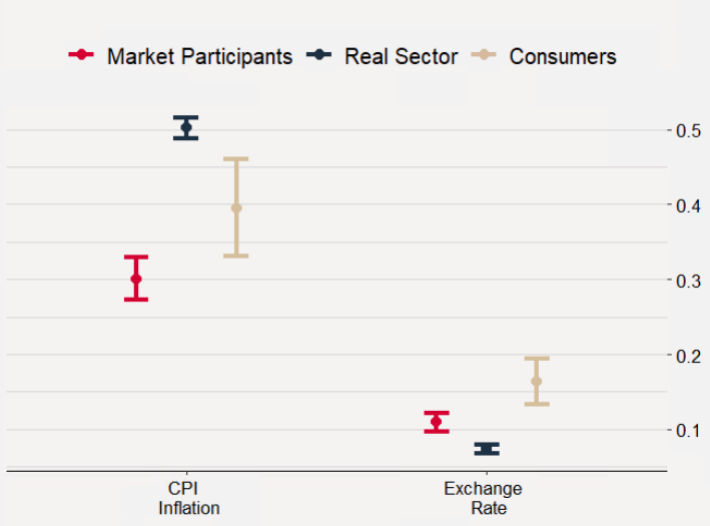
Gülşen and Kara (2021) find that inflation realizations and exchange rate changes have an impact on market participants' inflation expectations. Accordingly, in order to measure the sensitivity of sectoral inflation expectations to key macroeconomic variables such as inflation and exchange rates, econometric analyses were conducted using micro data from the three aforementioned surveys (SMP, BTS and CTS) in panel data format. The cross-sectional unit of the panels is the market participant in the SMP and the firm in the BTS. Since CTS is not applied to a fixed group of consumers, the pseudo-panel method is used for this data. In this method, consumers are grouped according to their gender, age, income and education, and the cross-sectional unit is formed over these groups. The inflation expectations of the group are obtained by averaging the expectations of consumers within this group. In all sectors, the dataset covers the January 2015 -July 2024 period.

In order to measure the sensitivity of the change in expectations to macroeconomic variables, Model 1 below is estimated using the 12-month-ahead annual consumer inflation expectation obtained from each survey. In the model, $\Delta\pi_{i,t|t+12}^{expectation}$ denotes the change (update) in the 12-month-ahead annual CPI inflation expectation of respondent *i* in month *t*. The one-month lagged value of monthly CPI inflation ($\Delta\pi_{t-1}^{CPI}$) and the monthly exchange rate change ($\Delta USD/TRY_t$) are used as explanatory variables. To control for unobservable survey respondent-specific fixed effects (μ_i), respondent fixed effects are included in the model for the SMP and the BTS, and group fixed effects are included for the CTS. The coefficients β_1 and β_2 indicating the sensitivity to monthly inflation realization and USD/TRY exchange rate change are shown in Chart 2 with 90%% confidence intervals for different sectors.

$$\Delta\pi_{i,t|t+12}^{expectation} = \beta_0 + \beta_1\Delta\pi_{t-1}^{CPI} + \beta_2\Delta USD/TRY_t + \mu_i + \varepsilon_{it} \qquad \text{(Model 1)}$$

All six coefficients estimated for market participants, firms and consumers are statistically significant at the 90%% level. The results suggest that all three groups are sensitive to realized inflation when forming their 12-month-ahead expectations. A sectoral comparison reveals that firms are most sensitive to the realization of monthly inflation, while consumers are most sensitive to the exchange rate. Professionals' sensitivity to both macroeconomic variables is more limited compared to other sectors. This suggests that consumers are more sensitive to the exchange rate that they observe on a daily basis in expectation formation.

Chart 2: Sensitivity of Expectations to Macroeconomic Variables* (Model 1 Results)



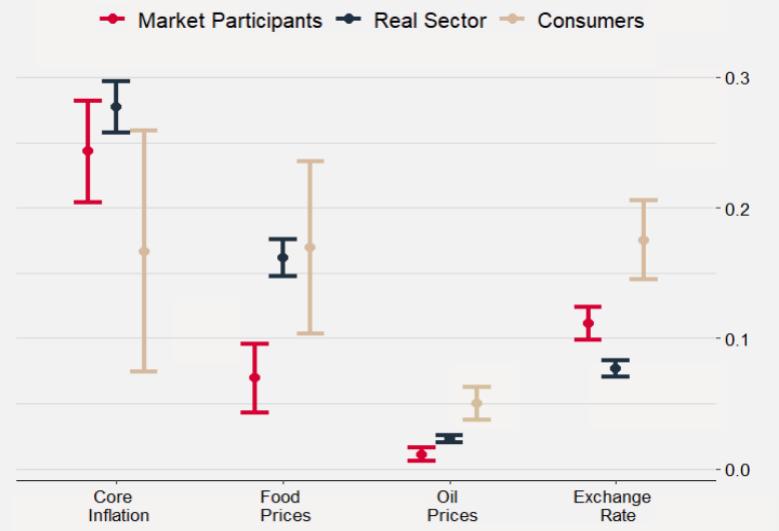
Source: CBRT.
* For each sector, the mid-point of the bars represents the estimated coefficient, and the length of the bars represents the 90% confidence interval.

D'Acunto et al. (2019) show that consumer expectations are more sensitive to prices of products that are frequently observed in daily life such as groceries and gasoline. Similarly, Angelico and Di Giacomo (2019) state that past shopping experiences are effective in determining consumers' inflation expectations. Based on these studies, Model 2 is estimated to measure the sensitivity of expectations to different price developments in more detail. In this model, instead of monthly CPI inflation, monthly change in C index ($\Delta\pi^{C}_{t-1}$), monthly food inflation ($\Delta\pi^{Food}_{t-1}$) and monthly change in Brent[1] oil price in USD ($\Delta Brent_{t-1}$) are included. The estimation results of Model 2 coefficients are presented in Chart 3.

$$\Delta\pi^{expectation}_{i,t|t+12} = \alpha_0 + \alpha_1\Delta\pi^{C}_{t-1} + \alpha_2\Delta\pi^{Food}_{t-1} + \alpha_3\Delta Brent_{t-1} + \alpha_4\Delta Dollar/TL_t + \mu_i + \varepsilon_{it} \qquad \text{(Model 2)}$$

The results suggest that market participants and firms attach more importance to core inflation than consumers when forming their inflation expectations. Consumers' sensitivity to core inflation is positive and significant but quite limited. On the other hand, food inflation, Brent oil and the USD/TRY exchange rate are more influential on consumers' forecast revisions, while their impact on professionals' forecasts is limited.

Chart 3: Sensitivity of Expectations to Macroeconomic Variables* (Model 2 Results)



Source: CBRT.
* For each sector, the mid-point of the bars represents the estimated coefficient, and the length of the bars represents the 90% confidence interval.

The backward-indexation behavior in expectations updated by market participants and firms is mostly based on core inflation, which reflects the underlying trend of inflation. On the other hand, consumers form their expectations by looking relatively less at core inflation and more at food prices, Brent oil prices and the exchange rate. This underlines the importance of frequently consumed products, such as food products and gasoline, which are affected by Brent oil prices, and the exchange rate, the price of which can be observed daily, in consumers' expectation formation. Moreover, the high sensitivity of consumer inflation expectations to food and gasoline prices, which are highly volatile and relatively outside the monetary policy sphere of influence, leads to a weakening in monetary transmission through the expectations channel.

In conclusion, the indexation behavior linked to the realizations in macroeconomic variables plays a significant role in determining inflation expectations in all sectors. While this behavior is mostly driven by core inflation for market participants and firms, it is mostly driven by food and energy prices and

[1] Due to the strong relationship between gasoline prices in Turkish lira and exchange rates, Brent oil prices were added to the model in order to capture the effect of gasoline prices.

exchange rate developments for consumers. Reduced sensitivity to past macroeconomic variables in expectation formation and more attention to the CBRT's forecasts with a forward-looking approach will have an impact on the costs of the disinflation process. Moreover, the decline in annual inflation and the stabilization in exchange rates are expected to have a favorable impact on inflation expectations of all economic agents in the upcoming period. The course of inflation expectations, which are closely monitored, will be decisive for the monetary policy outlook in the upcoming period.

References

Angelico, C., & Di Giacomo, F. (2019). Heterogeneity in inflation expectations and personal experience. Available at SSRN: https://ssrn.com/abstract=3369121.

D'Acunto, F., Malmendier, U., Ospina, J., & Weber, M. (2019). Salient price changes, inflation expectations, and household behavior. Available at SSRN: https://ssrn.com/abstract=3373120.

Gülşen, E., & Kara, H. (2021). Policy performance and the behavior of inflation expectations. *International Journal of Central Banking*, 17(70), 179-224.

CENTRAL BANK OF THE REPUBLIC OF TÜRKİYE
Head Office
Hacı Bayram Mah., İstiklal Cd. 10 Ulus, 06050
Ankara, Türkiye
www.tcmb.gov.tr
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