INFLATION REPORT

2025-IV

November 7, 2025

TÜRKİYE CUMHURİYET
MERKEZ BANKASI

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1. Overview

While uncertainties surrounding global trade policies are still in play, the global growth outlook remains sluggish. Despite the ongoing uncertainty, global economic activity has followed a moderate course due also to factors such as demand brought forward, and growth forecasts for 2025 have recently been revised slightly higher in many countries. Meanwhile, the fading of these factors coupled with the increased protectionism in global trade are expected to have an adverse impact on the growth outlook for 2026. The weak course of the global demand outlook and supply-side developments have suppressed global energy prices, while non-energy commodity prices have increased driven by precious and industrial metal prices. Although they vary across countries, the global disinflation processes lost momentum overall, while tariff measures have kept inflationary risks in place. Considering these risks, central banks continued with the rate cut cycles at a slower pace. Persisting uncertainties cause portfolio inflows to emerging economies to fluctuate.

Due to the weak global risk appetite in this reporting period, inflows into TRY-denominated assets have decelerated. As the global risk appetite remained sluggish amid uncertainties over trade agreements and global volatilities that escalated in October in particular, inflows into TRY-denominated assets have decelerated. Against this background, Türkiye's CDS premium tracked emerging economies' risk premiums and declined to 245 basis points as of October 31, while the implied volatility of the Turkish lira remained flat in the current reporting period. The strong recovery in the CBRT's reserves continues, and backed also by the rise in gold prices, the CBRT's gross international reserves reached USD 185.5 billion as of October 24.

While financial conditions have remained tight during the current reporting period, the share of Turkish lira deposits hovers close to historical averages. The rate cuts amounting to 350 basis points in the Monetary Policy Committee's (MPC) meetings of September 11 and October 23 have transmitted into deposit and loan rates. Owing to the tight monetary policy stance accompanied by the decisions to phase out FX-protected deposits (KKM), the weight of Turkish lira remains high in the composition of deposits. Despite lower loan rates, the FX-adjusted 13-week annualized growth rate of total loans has recorded a decline in the current reporting period.

In the second quarter of 2025, growth stood above projections. In this period, GDP increased by 4.8% year-on-year and 1.6% on a quarterly basis. Final domestic demand became the driver of growth on an annual basis, whereas in quarterly terms, it has continued to decline since the first quarter. Total investments posted a quarterly increase, while the decline both in private and public consumption caused the final domestic demand to limit quarterly growth. In this period, as exports receded, net exports pulled growth down due to imports brought forward amid global trade uncertainties. Accordingly, final domestic demand is considered to remain weak, although growth hovered above projections in the second quarter.

Leading indicators suggest that domestic demand is at disinflationary levels in the third quarter. During this period, the quarterly growth of the retail sales volume index lost pace, and the index moved below its trend. Sales of white goods declined in the third quarter and remained below their trend. Meanwhile, after a decline in the second quarter, automobile sales recorded an uptick in the third quarter. Card spending increased on a quarterly basis in this period. However, when adjusted for the recent increase in card usage due to the shifts in consumer payment preferences, consumption expenditures are milder. In fact, card spending remained below its long-term trend in the third quarter. The findings from interviews with firms regarding consumption expenditures also confirm the weak course of domestic demand despite a limited quarter-on-quarter rise. On the production side, industrial production remained flat in the third quarter as of August. Excluding the typically volatile sectors, industrial production declined slightly on a quarterly basis. Survey-based indicators such as the Business Tendency Survey (BTS) and PMI imply that the weak course of industrial production continued in the third quarter of the year. The services production index remained flat in the third quarter, continuing the pattern observed in the second quarter. The construction production index, despite losing momentum in the second quarter, gained pace in the third quarter as of August.

The labor market is less tight than implied by the headline unemployment rate. Based on the averages of seasonally adjusted monthly data, employment increased by 0.2% (around 65,000 people) in the third quarter. The unemployment rate decreased by 0.1 percentage points quarter-on-quarter, while the labor

force participation rate remained flat. The labor underutilization rate, despite a quarterly decline, maintained its high level, suggesting that the labor market may not be as tight as implied by the unemployment rate. In the second quarter of 2025, the rise in real per capita wages exceeded the increase in partial labor productivity, leading to higher real unit wages in the non-farm sector.

The seasonally and calendar-adjusted current account balance improved in the third quarter. The foreign trade deficit, in seasonally and calendar-adjusted terms, narrowed in the third quarter on the back of the improvement in both gold and energy trade balances, and the foreign trade balance excluding gold and energy. The subdued outlook observed in exports in this quarter spread across sectors and regions. This is attributed to the third-quarter correction of the front-loaded demand in the second quarter amid heightened uncertainties in global trade. Meanwhile, exhibiting a more pronounced front-loading of demand, imports saw a larger decline than exports in the third quarter. In this period, the decrease in gold imports and the low course of energy prices also contributed to the decline in imports. The improvement in the terms of trade continued in the third quarter. While provisional data point to a widening in the foreign trade deficit in October, the rise in global gold prices appears to have boosted gold demand. Developments in gold prices and the course of gold imports are important in terms of the current account balance. In the third quarter, reserves recorded a significant recovery on the back of the current account surplus driven by seasonal effects and capital inflows. This quarter saw net capital inflows arising from direct investments, portfolio investments, and loans. The net errors and omissions item ran a negative balance, and official reserves increased, offsetting a significant portion of the decline seen in the first quarter.

Consumer inflation fell to 32.9% in October and materialized above the upper band of the forecast range presented in the previous Report. Developments across sub-items over the last three months indicate that while the food prices made an upward contribution to annual inflation, other main groups contributed to disinflation. In the services sector, the back-to-school effect was particularly remarkable in the third quarter, with developments in items with strong time-dependent pricing and backward-indexation patterns standing out. The impact of taxes and administered items on headline inflation has weakened over the previous reporting period. In the current reporting period, international energy prices declined, while non-energy commodity prices increased led by industrial and precious metals. The Global Supply Chain Pressure Index remained close to its historical average, while the global container index and the container index for China, both of which rose significantly in June, decreased in the following months. Despite this moderate course of global supply-side factors, domestic crop production estimates for 2025 were revised down due to supply-side factors such as drought and frost, highlighting the increasingly negative trend in the supply of agricultural and food products. In this period, the Turkish lira remained relatively stable, depreciating only to a limited extent. While data for the third quarter suggest that demand conditions are at disinflationary levels, they also point to a slowdown in the disinflation process. The rise in producer prices decelerated in October compared to the previous months, with annual inflation standing at 27.0%. The downward trend in inflation expectations was interrupted, and expectations and pricing behavior continued to pose risks to the disinflation process.

With 70% probability, inflation is projected to be between 31% and 33% at end-2025 and between 13% and 19% at end-2026. Inflation is projected to decline to single-digit levels at end-2027 and then stabilize at the medium-term inflation target of 5%. The interim targets for 2025, 2026, and 2027 have been kept unchanged in this reporting period at 24%, 16%, and 9%, respectively. The upward revision in the forecast range for 2025 was primarily driven by the increase in the food price assumption. Moreover, the decline in the underlying inflation and inflation expectations was more limited than projected. Besides, the revision in the assumption for TRY-denominated import prices had an upward effect on forecasts. In addition to these developments, the recent course of the output gap above projections pushed the forecast upward. The year-end 2026 inflation forecast was also driven up by the revision in the assumptions for food and import prices. However, under the outlook that the projected monetary policy path is higher compared to the previous reporting period, the monetary policy stance will have more pronounced impact on demand conditions, and inflation expectations will improve. These factors have a downward effect on the 2026 year-end inflation forecast. As these upward and downward effects offset each other, the forecast range for end-2026 inflation has been maintained.

Medium-term forecasts are based on an outlook in which the tight monetary policy stance will be maintained until price stability is achieved, and the coordination among economic policies will continue. The convergence of inflation expectations to interim targets in the short term and to the 5% target in the

medium term is critical for ensuring a permanent decline in inflation. Inflation expectations have increased due to the higher-than-expected monthly inflation reading in September. Taking into account the risks to pricing behavior posed by this development, the MPC kept the rate cut limited in October. The forecasts are based on a framework where monetary policy is determined prudently with a focus on the inflation outlook, considering interim targets. The tight monetary policy stance will continue to support the disinflation process through demand, exchange rate, and expectation channels. On the back of macroprudential policies that support the monetary transmission mechanism, credit growth is expected to remain consistent with the projected disinflation path. Lastly, in the forecast period, the continuation of the coordination between the monetary policy and other economic policies will contribute to disinflation through demand, cost, and expectation channels.

1.1 Monetary Policy Decisions

***The CBRT cut the policy rate by a total of 350 basis points in September and October*.** The CBRT lowered the policy rate from 43% to 40.5% in September, assessing that the underlying trend of inflation slowed in August, and demand conditions were at disinflationary levels. At the October meeting, the CBRT noted that the underlying trend of inflation increased in September, demand conditions remained at disinflationary levels, and the disinflation process had slowed. The CBRT stressed the heightened risks to the disinflation process stemming from inflation expectations and pricing behavior posed by recent price developments, notably in food. In response to these developments, the CBRT made a modest cut in October, reducing the policy rate to 39.5%.

***The CBRT reiterated that steps to be taken regarding the policy rate would be determined by taking into account realized and expected inflation as well as its underlying trend in a way to ensure the tightness required by the projected disinflation path in line with the interim targets*.** The CBRT stated that policy rate decisions would be reviewed prudently on a meeting-by-meeting basis with a focus on the inflation outlook, and that the monetary policy stance would be tightened in case of a significant deviation in the inflation outlook from the interim targets. The CBRT indicated that the tight monetary policy stance, which would be maintained until price stability was achieved, would strengthen the disinflation process through demand, exchange rate, and expectation channels.

A set of changes was made to regulations on loans to strengthen monetary transmission. With effect from August 16, 2025, the CBRT extended the calculation period for loan growth rates from four to eight weeks, thereby providing flexibility in the management of loan growth limits. Effective as of October 1, 2025, the monthly maximum contractual interest rates applied to cash withdrawal or usage transactions in Turkish lira made through credit cards and overdraft accounts have been reduced by 25 basis points. Furthermore, effective as of November 1, 2025, the maximum merchant fee that banks may charge for goods and services purchased with cards at member merchants using POS terminals has been differentiated for credit cards and debit cards and reduced to 1.04 percent for debit card transactions.

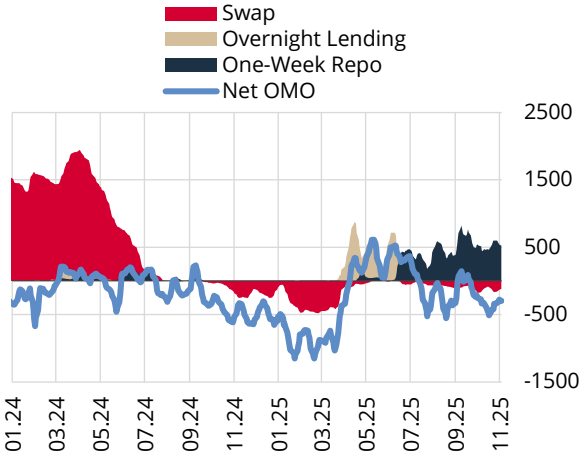
KKM account openings and renewals were terminated, and some revisions were made to macroprudential measures. On August 23, 2025, the CBRT terminated the opening and renewal of KKM accounts. Accordingly, the total target for the transition of KKM accounts to Turkish lira and renewals was abolished. Furthermore, the Turkish lira deposit share growth targets were revised downward with the amendment made on October 17, 2025.

During the current reporting period, excess liquidity in the system fluctuated, and a temporary liquidity deficit emerged in the market for a short period. Excess liquidity in the system declined by early September, reflecting an increase in the Ministry of Treasury and Finance's Turkish lira account balance at the CBRT and in banks' demand for free reserves. These factors caused the excess liquidity of TRY 691 billion in the system on August 14 to fall, resulting in a liquidity deficit of TRY 159 billion on September 3. As of mid-September, excess liquidity re-emerged in the market following a payment-driven decline in the Ministry of Treasury and Finance's account balance. Excess liquidity followed a volatile trajectory in the subsequent period due to the net effect of various factors (Chart 1.1.1).

During the current reporting period, excess liquidity in the market was mainly withdrawn via overnight sterilization operations. The CBRT carried out sterilization primarily through overnight deposit buying auctions at the policy rate. During this period, one-week reverse swap auctions against gold were also held for sterilization purposes. A limited portion of excess liquidity was withdrawn through overnight quotations at the CBRT overnight borrowing rate.

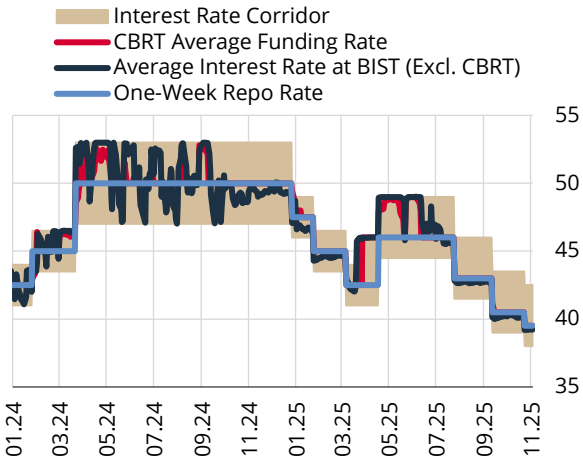
Throughout the reporting period, the CBRT provided funding via one-week repo auctions, with its weighted average funding rate being equal to the policy rate. As the CBRT conducted all its funding and a significant portion of its sterilization operations at the policy rate, overnight interest rates hovered around the CBRT policy rate (Chart 1.1.2).

Chart 1.1.1: CBRT OMO and Swap Transactions (One-Week Moving Average, TRY Billion)



Source: CBRT.

Chart 1.1.2: CBRT Interest Rates and Short-Term Interest Rates (%)



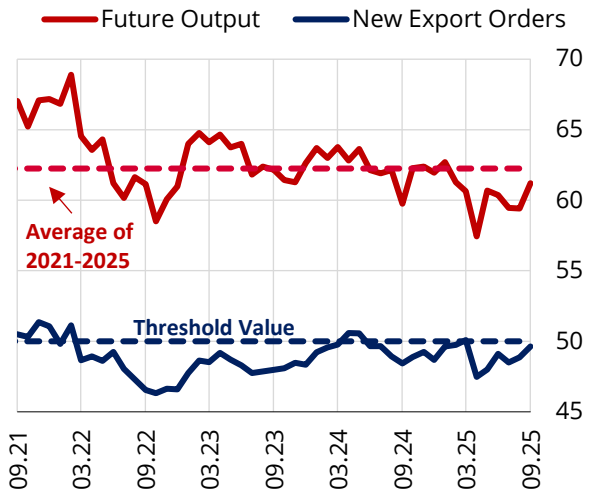
Source: BIST, CBRT.

2. Economic Outlook

2.1 Global Economy

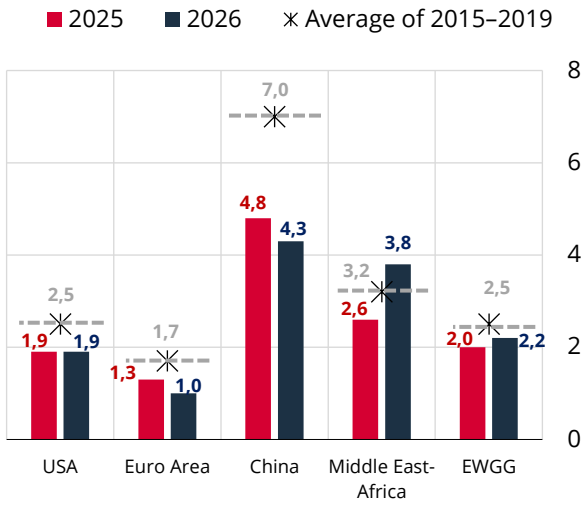
While the uncertainty surrounding global trade policies are still in play, the global growth outlook remains sluggish. Bilateral agreements have helped keep tariff rates at more reasonable levels. However, due to the impact of high sectoral tariffs, protectionist tendencies in global trade have increased significantly compared to the period prior to the tariff measures. On the other hand, numerous investigations conducted by the US administration across various sectors, the ongoing US–China negotiation process, and ongoing legal proceedings in the US have caused trade policy uncertainty to remain high. PMI indicators reflecting the effects of tariff measures declined to their lowest levels in April but have somewhat recovered since then (Chart 2.1.1). Similarly, global growth remained relatively strong in the first half of the year despite high uncertainty, and growth forecasts for 2025 have recently been revised slightly upward in many countries. However, these developments appear to reflect temporary factors, such as bringing forward of investment and trade to avoid the impact of rising tariffs and inventory management. Accordingly, the adverse effects of protectionist measures are expected to continue in 2026. Based on a combined analysis of 2025 and 2026, forecasts indicate that economic growth in major economies will remain sluggish in 2026. Türkiye's external demand is expected to remain weak in 2026, albeit closer to its historical average compared to 2025, due to a partial improvement in the outlook for the Middle East and Africa region (Chart 2.1.2).

Chart 2.1.1: Global PMI Indices (Level)



Source: S&P Global.

Chart 2.1.2: Growth Forecasts* (%)



Source: Consensus Economics, S&P Global.

* The Middle East and Africa Region and EWGG (Export-Weighted Global Growth) index is calculated by weighting the growth forecasts of Türkiye's trading partners by their respective shares in exports.

There has been a notable divergence between energy and non-energy commodity prices. Despite the sharp increase in US natural gas prices, the energy commodity index declined by 10.2% year-on-year. Crude oil prices declined by 4.4% during the current reporting period, reaching a 14.4% annual decline. OPEC+ members' decisions to further increase output and the persistent weakness in the global demand outlook are putting pressure on crude oil prices. European natural gas prices have also declined significantly in the recent period, in contrast to those in the US. Meanwhile, non-energy commodity prices rose by 6.5% in the current reporting period, resulting in an annual increase of 14%. This increase is largely attributable to the impact of precious and industrial metal prices. Central banks' sustained demand for gold to diversify their international reserves, the search for safe financial assets, and expectations of further rate cuts by major central banks led precious metal prices to rise by 18.7% compared to the previous reporting period. Industrial commodity prices also continued to increase by 9.7% in this period due to tariffs and supply problems (Table 2.1.2).

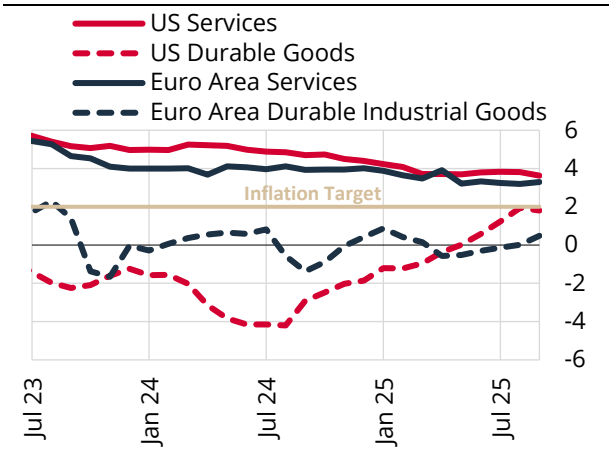
Table 2.1.2: Commodity Prices (%)

	July 2025	August 2025	September 2025	October 2025	Annual	Compared to the Previous Reporting Period*
Headline Commodity Index	-0.6	-1.8	2.0	-0.4	1.0	4.1
Energy	0.0	-4.6	0.9	-3.5	-10.2	1.8
Agricultural Commodity	-4.5	0.7	1.9	-1.2	-3.0	3.5
Industrial Metal	1.7	-0.5	2.6	5.4	6.6	9.7
Precious Metal	0.7	1.0	8.7	9.9	50.2	18.7
Excl. Energy	-1.2	1.2	3.1	2.6	14.0	6.5
Brent Oil	-0.7	-3.9	-0.4	-4.9	-14.6	-4.4
Natural Gas (USA)	-9.6	-12.7	4.2	11.4	30.1	45.2
Natural Gas (Europe)	-7.1	-3.8	-0.9	-1.3	-20.9	-4.4
Coal	5.2	0.8	-6.8	-0.1	-28.2	-6.1
Aluminum	3.3	-0.3	2.1	5.1	7.1	10.0
Copper	11.2	-18.0	3.4	9.8	14.4	13.6
Iron	2.8	4.0	3.4	0.0	-0.4	3.8
Wheat	-0.4	-5.8	1.0	-0.6	-12.7	6.1
Soy	-3.8	-0.6	1.4	1.5	3.2	9.0
Rice	-7.0	-1.9	-6.5	-7.8	-29.7	-19.7
Corn	-5.5	-5.8	7.6	2.3	1.5	15.1
Cotton	1.2	-0.9	-1.6	-1.4	-11.0	-1.0
Sugar	0.9	0.2	-3.7	-1.5	-30.4	-13.0

Source: Bloomberg.
* Percentage change in prices between October 31, 2025 and August 14, 2025. Red and green colorings indicate increases and decreases in prices, respectively.

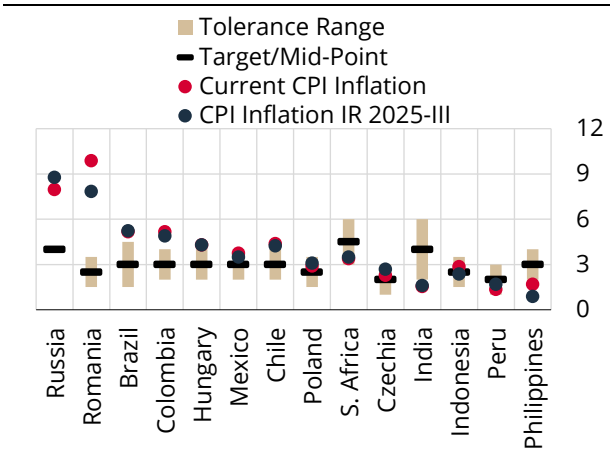
Despite cross-country variations, the global disinflation process lost momentum overall, while tariff measures have kept inflationary risks in place. In the US and the euro area, while services inflation has remained flat above target, goods inflation has displayed an uptrend, due partly to the impact of tariff measures (Chart 2.1.3). Standing at 2.2% in the euro area and 3% in the US, headline inflation has remained above the 2% target in many advanced economies as well. Increased protectionist tendencies in global trade and fluctuations in energy prices affect the inflation outlook differently across emerging market economies, with significant cross-country variations in terms of both the direction of inflation and its position relative to the target (Chart 2.1.4).

Chart 2.1.3: Goods and Services Inflation in the US and the Euro Area (Annual, %)



Source: Eurostat, St. Louis Fed.

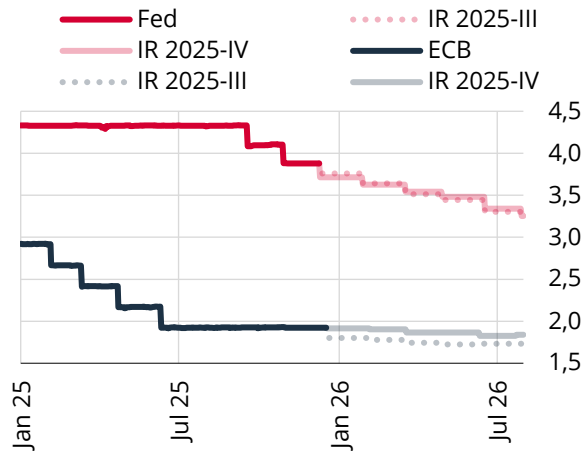
Chart 2.1.4: Consumer Inflation in Emerging Economies (Annual, %)



Source: Bloomberg, Relevant central banks.

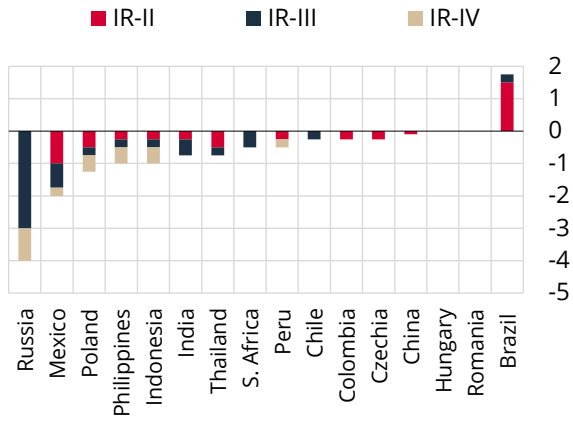
Central banks continue to cut rates in view of the current level of interest rates, country-specific factors, inflation rigidity, and risks arising from tariff hikes, yet the pace of rate cuts has slowed somewhat. The Fed delivered rate cuts of 25 basis points each at its September and October meetings. Market pricing suggests further rate cuts by the Fed through December and 2026, but expectations regarding the number and pace of rate cuts vary. On the other hand, the ECB, which paused rate cuts at its July meeting, is expected to keep its policy rate constant until the end of the year, depending on the inflation outlook. Market pricing has remained largely unchanged for the Fed compared to the previous reporting period, while implying more limited rate cuts for the ECB (Chart 2.1.5). However, the policy trade-off is stronger in the US, and uncertainty about the future path of interest rates is also higher. Meanwhile, in the reporting period, the Reserve Bank of New Zealand cut rates by 75 basis points, the Bank of Canada by 50 basis points, and the Norges Bank and the Riksbank by 25 basis points each. In this period, interest rate cuts also continued in emerging market economies (Chart 2.1.6). The Bank of Russia cut rates by 100 basis points, Banco Central de Chile, Bank Indonesia, and National Bank of Poland by 50 basis points each, and the Central Reserve Bank of Peru and Bank of Mexico by 25 basis points each. People's Bank of China, on the other hand, paused its monetary easing measures. As in previous reporting periods, the policy rates implied by futures indicate that emerging market central banks will continue to set policy rates above inflation expectations, maintaining monetary tightness.

Chart 2.1.5: Policy Rates and Market-Implied Policy Paths (Effective, %)



Source: Bloomberg.

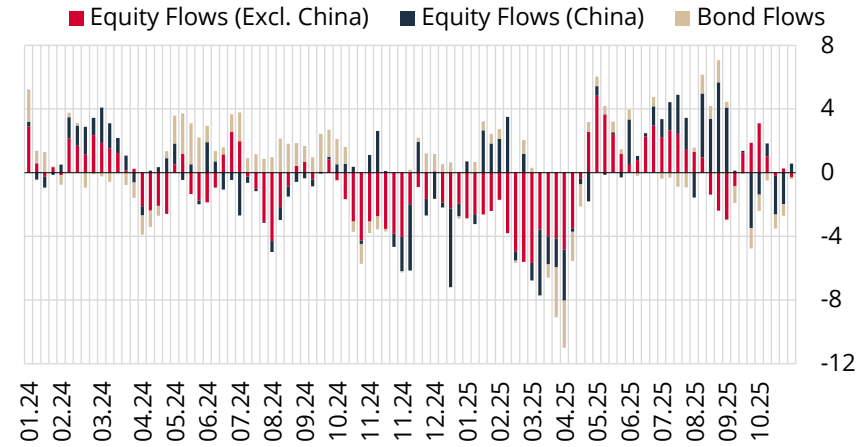
Chart 2.1.6: Policy Rate Changes in Emerging Economies (% Point)



Source: Bloomberg.

Changes in risk appetite due to global uncertainties have caused volatile portfolio flows to emerging economies. In addition to ongoing trade tensions and geopolitical developments in the current reporting period, the US government shutdown caused fluctuations in risk appetite. During this period, inflows and outflows to and from emerging economies' equity and bond markets also fluctuated (Chart 2.1.7). On a cumulative basis, between August 14 and October 31, 2025, emerging economies' equity and bond markets excluding China recorded outflows of USD 500 million and USD 3.1 billion, respectively. During the same period, China's equity markets received an inflow of USD 5.5 billion. Ongoing uncertainties regarding global economic and trade policies, along with recent geopolitical risks, continue to pose significant risk factors for portfolio movements toward emerging market economies.

Chart 2.1.7: Weekly Portfolio Flows to Emerging Economies
(Four-Week Moving Average, USD Billion)

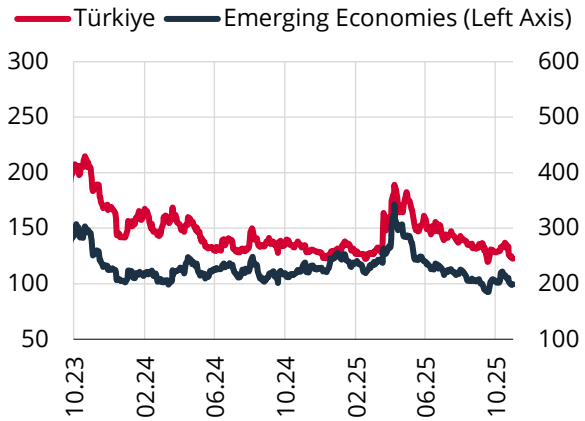


Source: IIF.

2.2 Financial Conditions

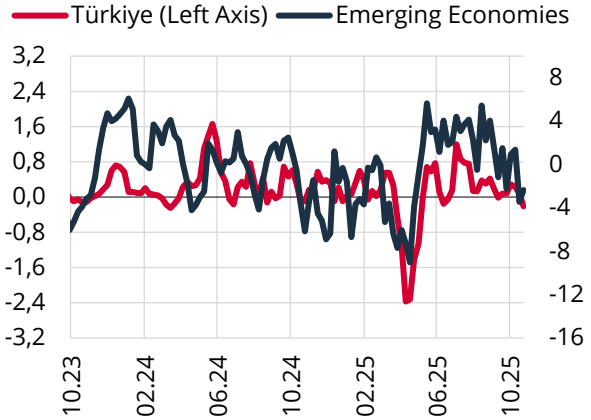
Compared to the previous reporting period, global risk appetite remained weak due to persistent uncertainties regarding trade agreements and particularly the increased global volatility since October, while inflows to TRY-denominated assets decelerated. In the reporting period, domestic uncertainties and increased global volatility led to fluctuating interest in TRY-denominated assets. Against this backdrop, Türkiye's CDS premium followed a similar course to that of emerging economies' risk premiums, decreasing to 245 basis points as of October 31, 2025 (Chart 2.2.1). Amid the volatile global risk appetite, flows into assets lost pace during the current reporting period. In light of these developments, a total of USD 1.2 billion in portfolio inflows was recorded, with USD 1.6 billion inflows into the Turkish Government Domestic Debt Securities (GDDS) market and USD 0.5 billion net outflows 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.

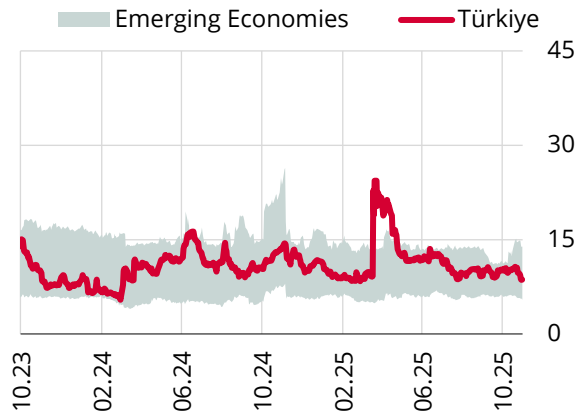
Chart 2.2.2: Portfolio Flows to Türkiye* and Emerging Economies (Four-Week Average, USD Billion)



Source: CBRT, IIF.
* Data for Türkiye covers portfolio flows to equity and GDDS markets. Repo is excluded from the GDDS data.

The implied volatility of the Turkish lira remained flat. In the current reporting period, exchange rate volatility followed a volatile and a flat course depending on the flow of news. Accordingly, the implied exchange rate volatility of the Turkish lira stands at 8.7% for 1 month and at 19.5% for 12 months (Charts 2.2.3 and 2.2.4). While volatility over 1 month is close to the emerging economies' average, the relatively high level of volatility over 12 months suggests that the exchange rate risk perception for the long term persists.

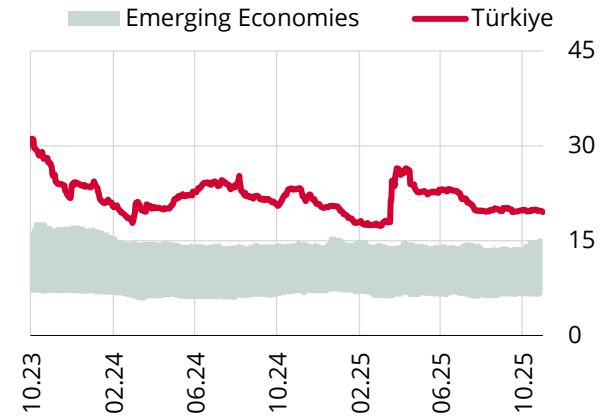
Chart 2.2.3: Implied Volatility of FX Options*
(Against USD, One-Month Maturity, %)



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, %)

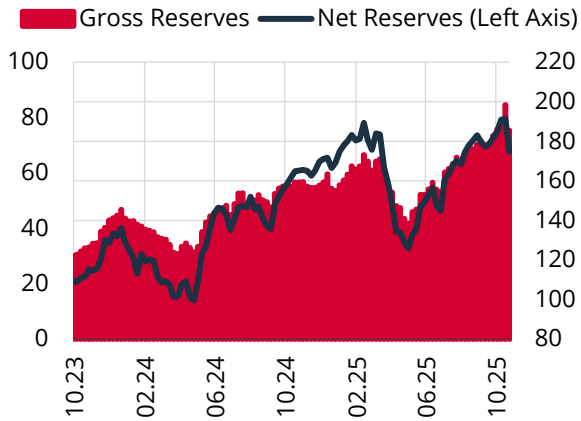


Source: Bloomberg.

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

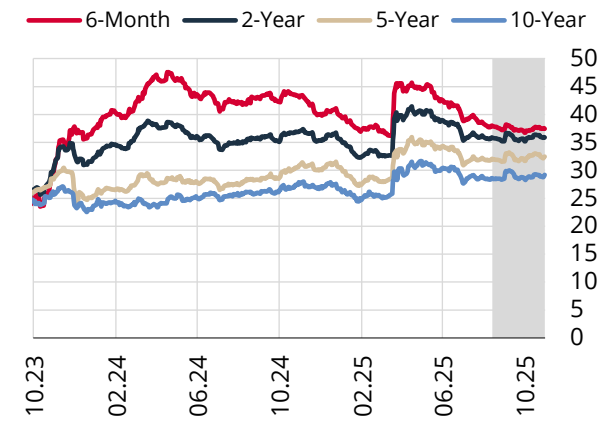
Backed also by higher gold prices, the strong recovery trend in CBRT reserves continues. In the current reporting period, the CBRT's gross international reserves increased by USD 16.5 billion to USD 185.5 billion (Chart 2.2.5). Gold prices, which assumed an evident uptrend as of September in particular, contributed to the CBRT's reserve outlook. CBRT reserves are expected to continue increasing as the tight monetary stance is maintained. However, any volatility in the risk appetite may lead to fluctuations in reserves.

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



Source: CBRT.

Chart 2.2.6: GDDS Yields (%)

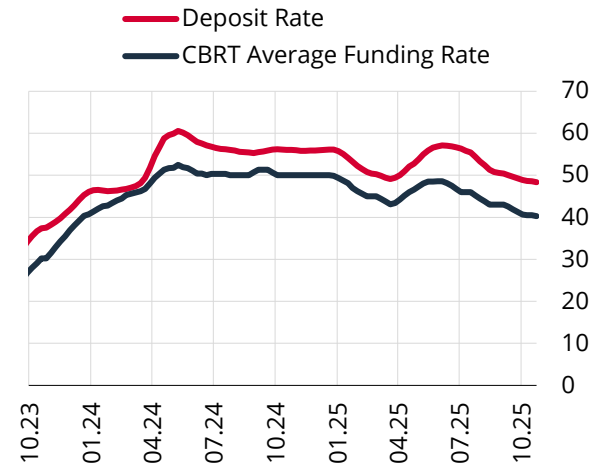


Source: Bloomberg.

GDDS yields increased following the heightened domestic uncertainties and higher-than-expected inflation reading in September. GDDS yields, which had declined across all maturities before September, rose across all maturities, more significantly in longer maturities, due to the deterioration in domestic risk perception as well as the higher-than-expected inflation reading in September (Chart 2.2.6). At the MPC meeting on September 11, 2025, the policy rate was reduced, and it was stated that the size of the policy rate steps would be reviewed prudently on a meeting-by-meeting basis with a focus on the inflation outlook. Meanwhile, the rigidity in long-term yields persists. With the improvement in risk perception towards Turkish lira assets due to domestic and global developments, GDDS yields are expected to become more aligned with the inflation and monetary policy outlook.

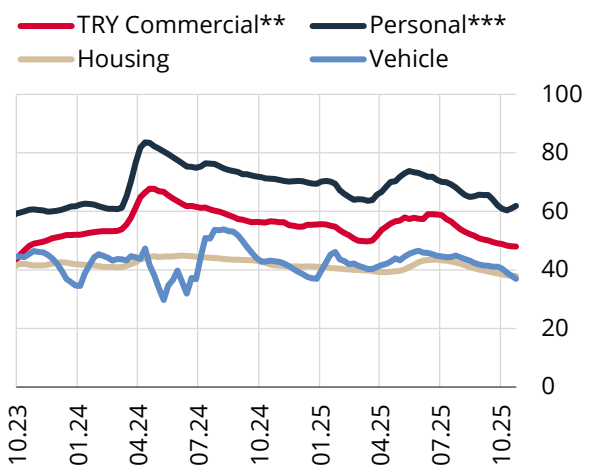
Financial conditions remained tight during the current reporting period, despite some easing. The 250 and 100 basis points of cuts at the September 11 and October 23 MPC meetings, respectively, were reflected in deposit and loan rates. As of October 24, deposit rates stood at 48.1% after a more limited decline compared to loan rates (Chart 2.2.7). As of the same date, TRY commercial loan rates were 48%, while personal loan rates were 61.9%. Housing loan rates were recorded at 38% during the same week, while vehicle loan rates stood at 36.9% (Chart 2.2.8). Although financial conditions eased somewhat amid rate cuts, the monetary policy remained tight in line with the disinflation process. That said, the CBRT will support the monetary transmission mechanism via additional macroprudential measures in case of unanticipated developments in credit and deposit markets.

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



Source: CBRT.
* Deposit rate is compound interest rate, while CBRT weighted average funding rate is simple interest rate.

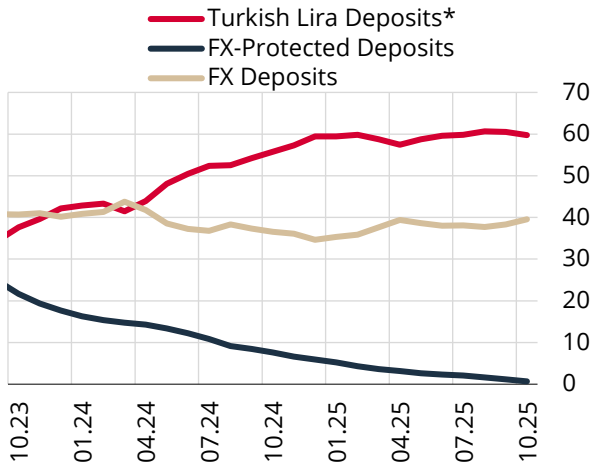
Chart 2.2.8: Loan Rates*
(Flow, Four-Week Moving Average, %)



Source: CBRT.
* Loan rates are compound interest rates.
** Excluding overdraft accounts and credit cards.
*** Excluding overdraft accounts.

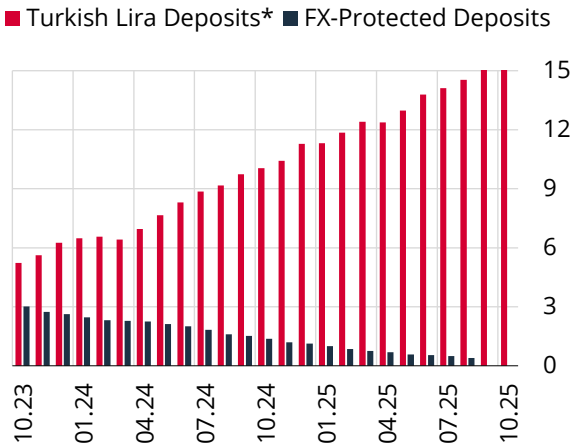
While the Turkish lira share in banks' deposit composition remained close to its historical average, the share of FX-protected deposits declined significantly. In line with the decline in the KKM balance, the opening and renewal of KKM accounts were terminated on August 23, 2025. In the current reporting period, the practice of charging commission based on the transition of KKM accounts to Turkish lira was terminated, and also the commission rates were revised under the practice of charging commission based on the Turkish lira share. In addition, Turkish lira share growth targets for real persons were reduced. Owing to the monetary tightening process and the decisions to phase out KKM accounts, the weight of Turkish lira remains high in the composition of deposits. In the current reporting period, the share of Turkish lira deposits in total deposits hovered within a range of 59%–61%, whereas the share of KKM accounts dropped below 1% at TRY 171 billion as of October 24 (Charts 2.2.9 and 2.2.10). Meanwhile, the share of precious metal accounts in real persons' deposits exceeded 10% amid the rise in gold prices. To avoid a possible adverse effect of the recent volatility in FX and gold prices on banks' Turkish lira shares, the exchange rates used in Turkish lira share calculations were revised to be three-month average exchange rate/gold price instead of the rate in the previous calculation period.

Chart 2.2.9: Deposit Composition (% Share)



Source: CBRT.
* Turkish lira deposits exclude KKM and FX-protected deposit accounts converted from FX.

Chart 2.2.10: TRY Deposit Composition (TRY Trillion)

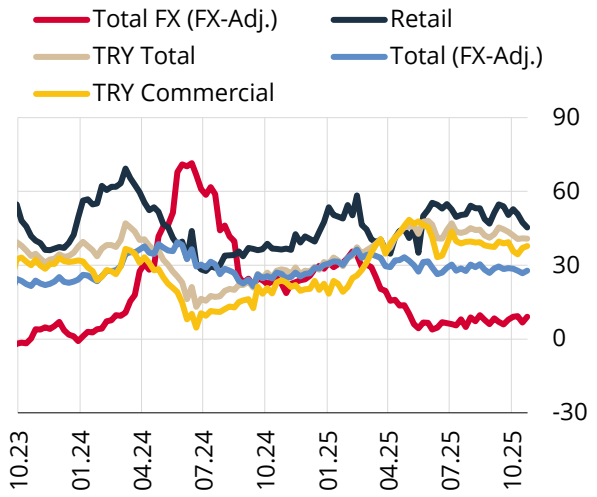


Source: CBRT.
* Turkish lira deposits exclude KKM and FX-protected deposit accounts converted from FX.

The stable course in loans continues. Despite lower loan rates, the FX-adjusted 13-week annualized growth rate of total loans recorded a decline in the current reporting period. In the previous periods, loans extended via the Credit Guarantee Fund were exempted from the TRY loan growth practice. In the current reporting period, the guarantee limit was raised to TRY 45 billion on September 18, 2025 and the additional increase of TRY 20 billion made in the guarantee limit under this credit program was exempted from the loan growth practice. As of October 24, the 13-week annualized FX commercial loan growth adjusted for exchange rate stood at 9.1%, while TRY commercial loan growth decreased to 37.8%. The FX-adjusted 13-week annualized growth rate of total loans also fell slightly to 27.7% in the same week (Chart 2.2.11).

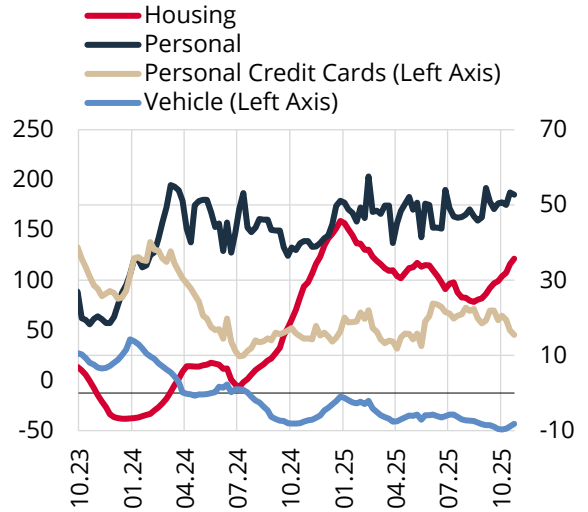
During the current reporting period, retail loan growth declined due to personal credit card usage. The 13-week annualized growth rate of retail loans was 45.4% as of October 24. Meanwhile, the 13-week annualized personal credit card growth followed a volatile course and dropped from 72.7% in the previous reporting period to 45.3% in the same week. During the current reporting period, the growth rates of personal and housing loans rose from 47.5% and 25.3% in the previous reporting period to 52.7% and 35.7% as of October 24, respectively. The relevant growth rate for vehicle loans remained negative (Chart 2.2.12). In this period, the calculation frequency of loan growth rates for loans extended as of August 16, 2025 was changed from four weeks to eight weeks, thereby introducing some flexibility in the management of loan growth limits.

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



Source: CBRT.

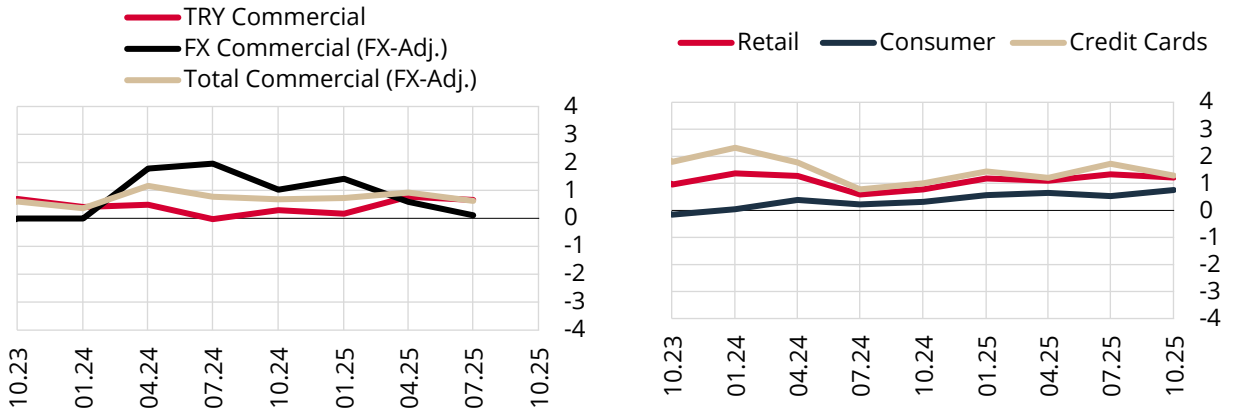
Chart 2.2.12: Retail Loan Growth (13-Week Annualized, %)



Source: CBRT.

Real loan utilization is closer to long-term averages in commercial loans, while it is slightly above long-term averages in retail loans due to personal credit cards. The FX-adjusted standardized real change in total commercial loans did not diverge from that in the previous reporting period. The standardized real changes in retail loans remained above long-term averages despite having decreased compared to the previous reporting period due to personal credit cards (Chart 2.2.13).

Chart 2.2.13: Loan Change* (13-Week Average, Real, Standardized Value)



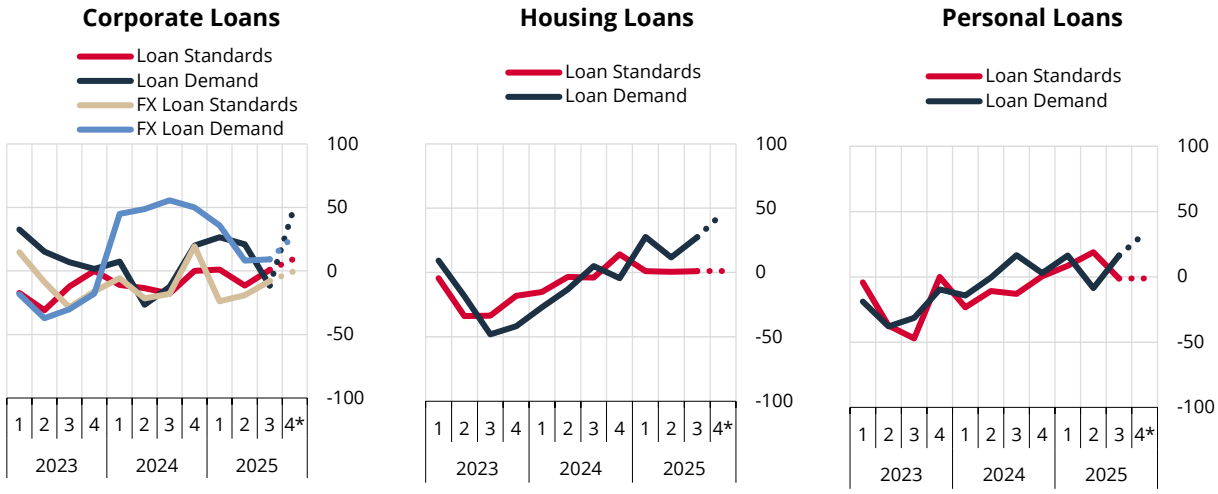
Source: CBRT.

* Series are deflated by the CPI. The mean and standard deviations of the series are calculated based on the 2006–2019 period. The 13-week average is taken after weekly real changes in loan stock balances are standardized. Consumer loans are composed of housing, vehicle and personal loans, while retail loans are the sum of consumer loans and personal credit cards.

According to the Bank Loans Tendency Survey (BLTS), banks expect commercial loan demand to increase and commercial loan standards to ease in the final quarter of 2025. In the third quarter of the year, business loan standards eased somewhat, and demand was weak. Meanwhile, participants noted that FX commercial loan standards remained tight in the third quarter due in part to loan growth limits, but this tightness was expected to be neutralized in the fourth quarter. They also reported that the demand for FX loans was expected to increase somewhat in the last quarter (Chart 2.2.14).

In the third quarter of the year, standards applied to housing loans remained at the same level as in the previous quarter, while demand for housing loans increased significantly. As for personal loans, loan standards tightened in the third quarter, while loan demand increased. Banks expect loan standards to remain unchanged for both housing loans and personal loans but demand to increase markedly in the fourth quarter of the year (Chart 2.2.14).

Chart 2.2.14: Loan Standards and Loan Demand



Source: BLTS, CBRT.

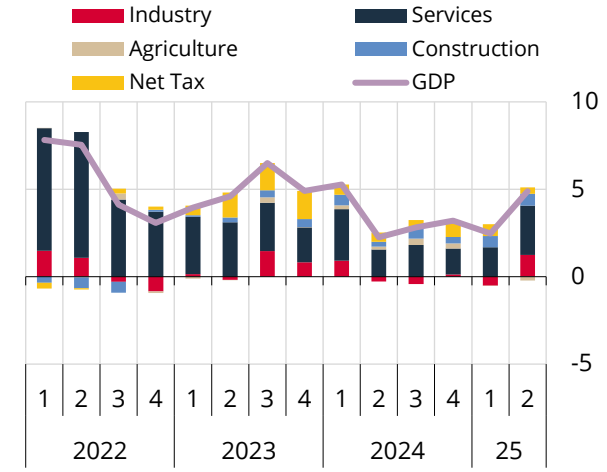
* Denotes banks' expectations. Loan Standards and Loan Demand indices are calculated as follows: Banks are asked how their loan standards (loan demand) have changed in the past three months. Net trends, which are calculated using the percentages of responses, show the direction of change in loan standards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

2.3 Economic Activity

Supply and Demand Developments

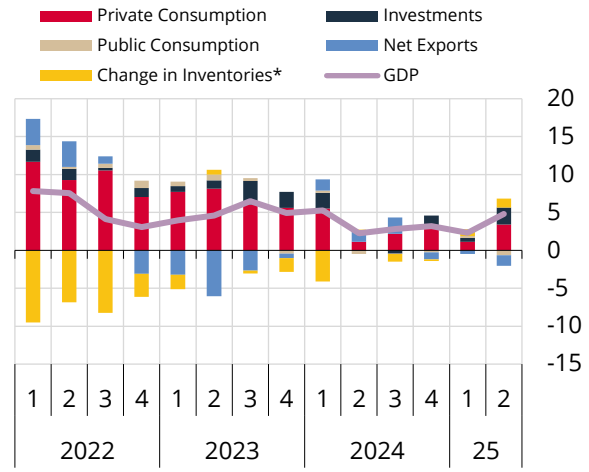
In the second quarter of 2025, GDP grew by 4.8% on an annual basis and by 1.6% on a quarterly basis, exceeding growth forecasts. Simultaneously with the issue of the second quarter data, TURKSTAT made a major revision to its national income statistics (Zoom-in 2.1). The components that were most significantly affected by the revision were the agriculture sector on the production side, and private consumption expenditures and inventory items on the expenditure side. Moreover, a number of updates have been made, such as the more effective and comprehensive use of administrative records, the improvement of calculation methods in general, and the review of models for adjusting for seasonal and calendar effects. The post-revision data revealed that, in the second quarter, the services sector was the main driver of annual growth using the production method, while the contribution of the industrial sector turned positive (Chart 2.3.1). The construction sector also supported growth. All sectors except the agricultural sector made positive contributions to the quarterly growth, with the services sector adding the most. Based on the expenditures method, annual growth in private consumption and total investments accelerated and the highest contribution to annual growth came from final domestic demand (Chart 2.3.2). On a quarterly basis, the contraction in private consumption observed in the first quarter continued in the second quarter as well. Following a decline in the first quarter, total investments increased driven by construction, and machinery and equipment investments. Due to the negative contribution of total consumption, final domestic demand limited growth on a quarterly basis (Box 2.1). Meanwhile, as a result of global trade uncertainties and the limited recovery in global growth, exports declined, while net exports had a decreasing impact on growth due to imports pulled forward. Therefore, although growth in the second quarter exceeded forecasts, final domestic demand is assessed to have remained weak.

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)



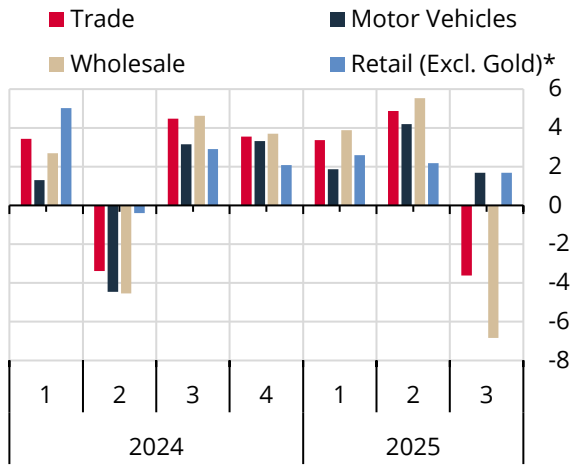
Source: CBRT, TURKSTAT.

* Includes changes in inventories and statistical discrepancy due to chain-linking.

Leading indicators suggest that demand conditions are at a disinflationary level. In August, the retail sales volume index increased both on a monthly and quarterly basis. Excluding gold, the increases were at lower rates (Chart 2.3.3). However, both indices are below their trend (Chart 2.3.4). The increased adoption of e-invoicing by firms over the last few years has had an upward effect on retail sales. When this effect is excluded, retail sales are more moderate (Box 2.2). As of August, the trade sales volume index declined by 1.4% on a monthly basis and by 3.6% on a quarterly basis in the third quarter, due to the decline in wholesale trade. White goods sales declined in the third quarter, remaining below their trend (Chart 2.3.5). Car sales, on the other hand, increased in the third quarter following a decline in the second quarter. Recently, increased product variety and consumer preference for electric vehicles, along with brand-based campaigns in the car market, have supported sales. Survey data for manufacturing companies indicated that the weak trend in registered domestic orders continued in the third quarter of the year. In October, a slight improvement was observed in registered domestic orders. Card spending increased in the third

quarter. Data for the first three weeks of October suggests a limited decline in card spending growth for the fourth quarter. Meanwhile, when the impact of the increase in card usage rates observed in the recent years is excluded, consumption expenditures are assessed to have been more moderate.[1] The fact that card spending hovers below its trend recently, is also consistent with this assessment (Chart 2.3.6, Box 2.3). Findings obtained from firm interviews on consumption expenditures also confirm the continued weak trend in domestic demand, despite limited quarterly growth (Box 2.4). In sum, recent data indicate that demand conditions are at a disinflationary level.

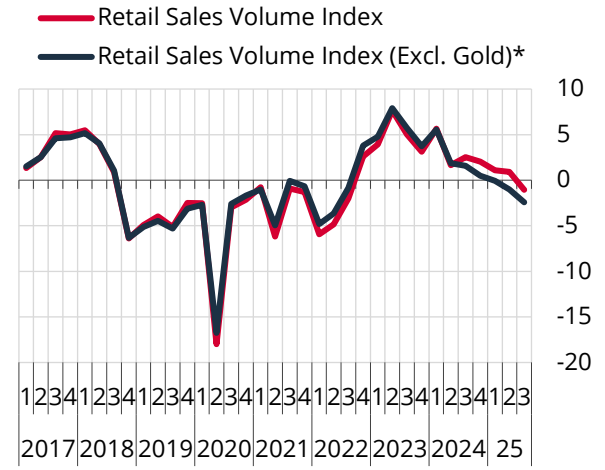
Chart 2.3.3: Sales Volume Indices (Seasonally and Calendar-Adjusted, Quarterly % Change)



Source: TURKSTAT.

* The retail sales volume index excluding gold is the retail sales volume excluding watches and jewelry items, published by TURKSTAT. Third quarter data is as of August.

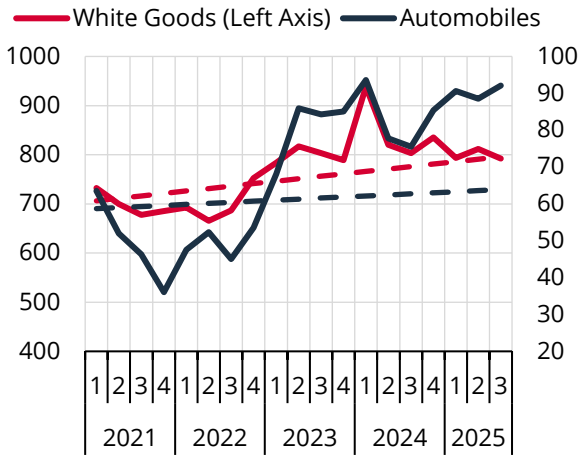
Chart 2.3.4: Retail Sales Volume Index (Deviation from HP Trend, %)



Source: CBRT, TURKSTAT.

* The retail sales volume index excluding gold is the retail sales volume excluding watches and jewelry items, published by TURKSTAT. Third quarter data is as of August.

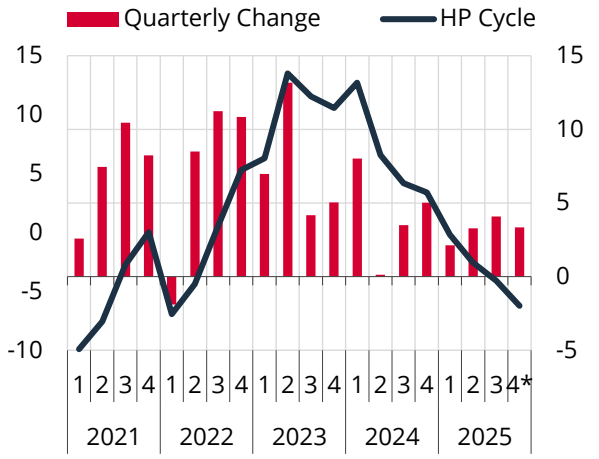
Chart 2.3.5: Sales of White Goods and Automobiles* (Thousand, Seasonally and Calendar Adjusted)



Source: CBRT, ODMD, TURKBESD.

* Dashed lines show the trend for the 2010–2018 period.

Chart 2.3.6: Card Spending** (Real, %)



Source: CBRT.

* As of October 19th.

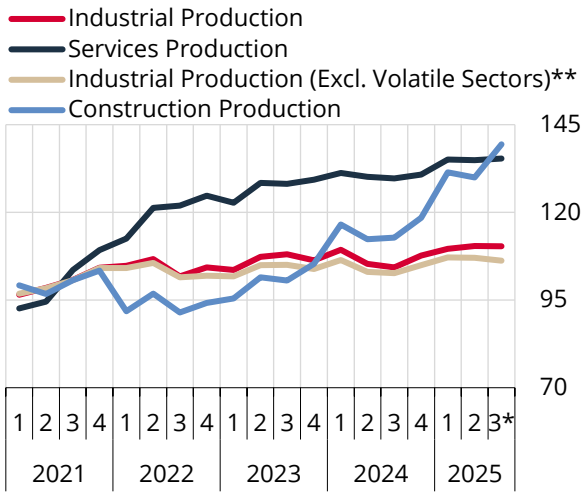
** Deflated by CPI.

Industrial and services production indices remained flat in the third quarter. In August, the industrial production index increased by 0.4% on a monthly basis, adjusted for seasonal and calendar effects, and by

[1] For further detail, you can refer to the blog post on "Card Usage Rate and Card Spending" published on the CBRT Blog on July 14, 2025.

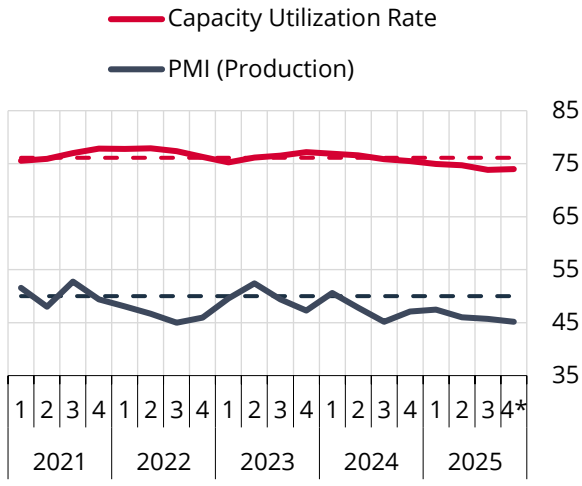
7.1% on an annual basis, adjusted for calendar effects. On a quarterly basis, industrial production remained flat in the third quarter as of August (Chart 2.3.7). When other transportation and similar sectors, which are typically volatile, were excluded to track the main trend, industrial production declined slightly on a quarterly basis. The services production index increased by 0.4% in August. On a quarterly basis, the nearly flat trend observed in the second quarter of the year continued in the third quarter. The construction production index lost momentum in the second quarter but picked up in the third quarter as of August. Survey indicators for the manufacturing industry point to a relatively weak activity in the manufacturing industry in the third quarter. During this period, survey indicators for current production and orders point to a decline compared to the previous quarter. The PMI production indicator remained below the threshold value in the third quarter as well (Chart 2.3.8). Survey data for October presented a mixed picture for manufacturing production activity. While the BTS implied a limited improvement in the current production level of firms, the PMI indicator continued to decline. Total orders, however, signaled a limited recovery in both surveys. The capacity utilization rate continued to decline in the third quarter, coming down to 73.8%, and posted a slight increase in October. To sum up, as of August, production indicators for the third quarter of the year point to a flat outlook for both industrial and services production. Survey-based indicators imply that activity in the manufacturing industry was relatively weak in the third quarter of the year. In October, however, there was a limited rise in total orders of manufacturing companies.

Chart 2.3.7: Industrial, Services and Construction Production Indices (Seasonally and Calendar Adjusted, 2021=100)



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

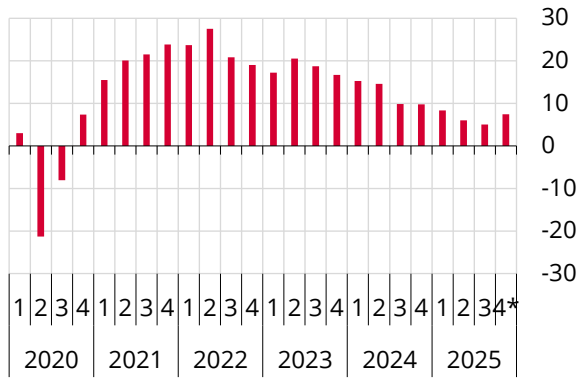
Chart 2.3.8: Capacity Utilization Rate and PMI** (Seasonally Adjusted, %)



Source: CBRT, S&P, TURKSTAT.
* As of October.
** Dashed lines show the average capacity utilization rate for the 2007–2024 period and the threshold value of 50 for the PMI.

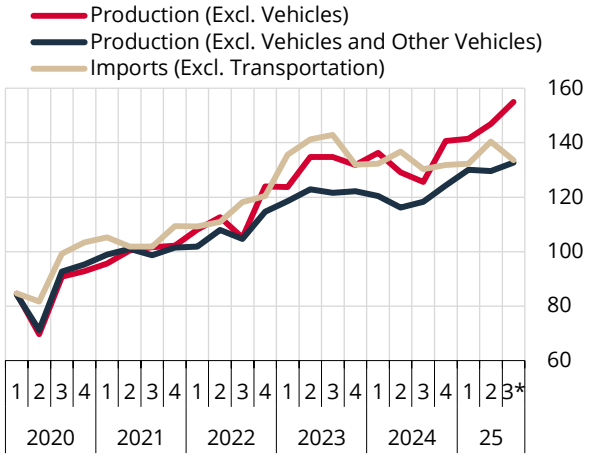
The decline in investment expectations of manufacturing companies was replaced by a limited improvement as of October. The decline in companies' investment tendency, which has been observed since the second half of 2023, continued in the third quarter of 2025 (Chart 2.3.9). The production of capital goods excluding vehicles and other transportation, which recorded a limited slowdown in the second quarter, increased in the third quarter. In contrast, imports of capital goods, excluding transport vehicles, declined on a quarterly basis (Chart 2.3.10). Meanwhile, the BTS for October points to an improvement in investment expectations for the second consecutive month.

Chart 2.3.9: BTS Expectations for Fixed Capital Investment Spending (Up-Down, Seasonally Adjusted, %)



Source: CBRT.
* As of October.

Chart 2.3.10: Production and Import Quantity Indices of Capital Goods Excluding Vehicles (Seasonally Adjusted, 2021=100)

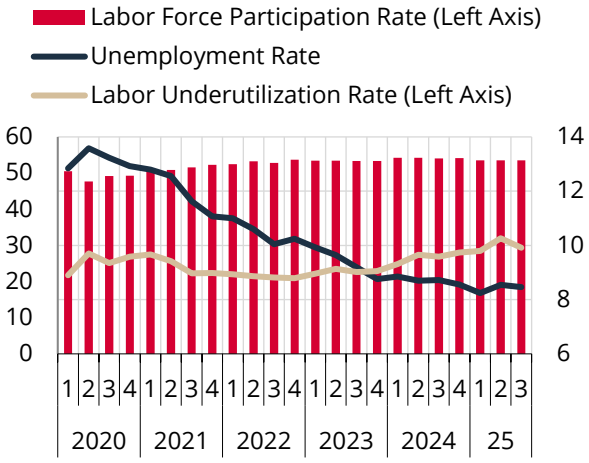


Source: CBRT, TURKSTAT.
* As of August.

Labor Market Developments

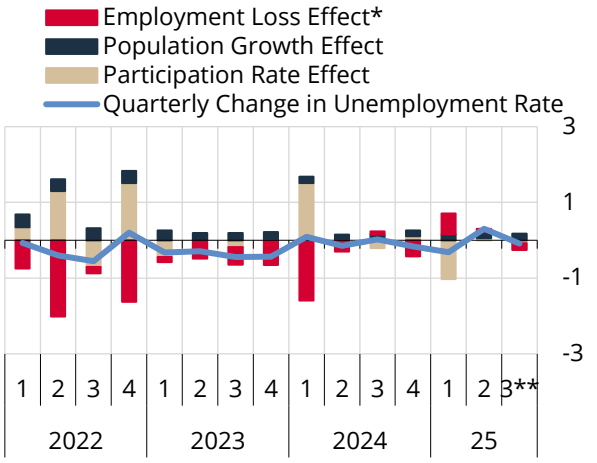
Employment increased in the third quarter of the year. According to the averages of seasonally adjusted monthly data, employment increased by 0.2% (65,000 people) in the third quarter (Chart 2.3.15). During this period, the seasonally adjusted unemployment rate dropped by 0.1 percentage points on a quarterly basis, while the labor force participation rate remained flat (Chart 2.3.11). On the unemployment rate, population growth had an upward effect of 0.18 percentage points, while the increase in employment had a downward effect of 0.18 percentage points. The labor force participation rate had a downward effect of 0.08 percentage points.

Chart 2.3.11: Total Unemployment Rate and Labor Force Participation Rate* (Seasonally Adjusted, %)



Source: TURKSTAT.
* The last quarter is the average of monthly data.

Chart 2.3.12: Contributions to Change in Total Unemployment Rate (Seasonally Adjusted, % Points)



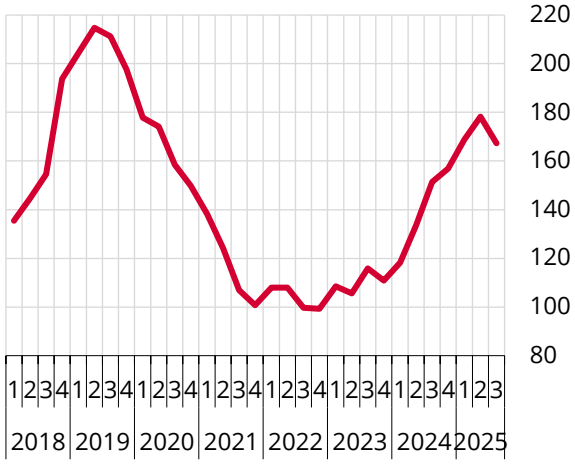
Source: CBRT, TURKSTAT.
* A negative value for the employment loss effect indicates an increase in employment.
** The last quarter is the average of monthly data.

The labor market is less tight than implied by the headline unemployment rate. In the third quarter, the labor underutilization rate, a complementary indicator of the labor market, remained high despite a quarterly decline. During this period, while the Composite Labor Market Indicator continued its weak trend, the total number of applications per job listing on the Kariyer.net jobs website declined slightly but remained at a high level (Charts 2.3.13 and 2.3.14). Thus, it is assessed that the labor market is not as tight as implied by the unemployment rate.

Chart 2.3.13: Composite Labor Market Conditions Index (Standardized Values)

Source: CBRT.

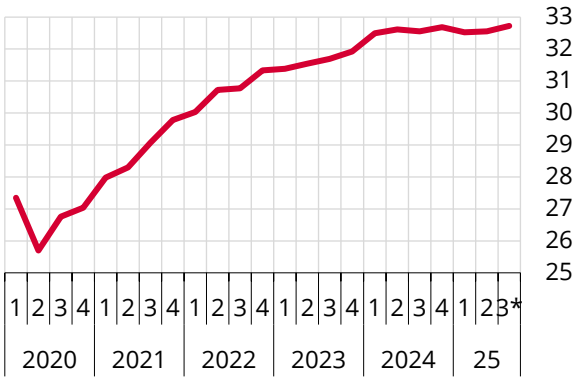
Chart 2.3.14: Total Applications per Job Listing on Kariyer.net (Seasonally Adjusted)



Source: CBRT, Kariyer.net.

Survey indicators show that manufacturing firms' employment expectations for the future still hover below the historical average. Survey data for manufacturing industry firms indicate that in the third quarter, firms' employment expectations declined compared to the previous quarter and remained below their historical averages (Chart 2.3.16). Meanwhile, there has been a slight improvement in employment expectations.

Chart 2.3.15: Total Employment** (Seasonally Adjusted, Million People)

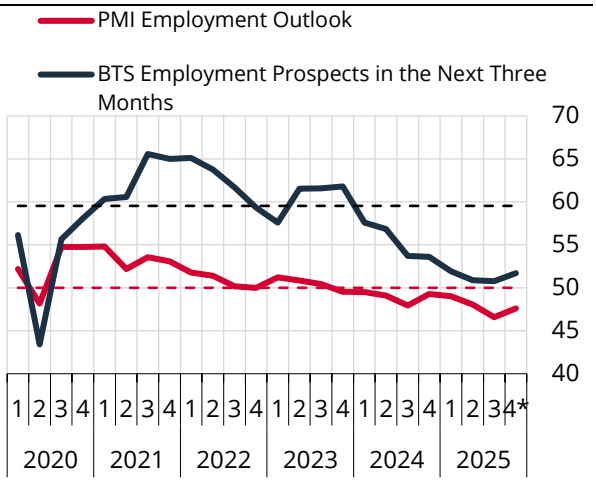


Source: TURKSTAT.

* As of August.

** The last quarter is the average of monthly data.

Chart 2.3.16: Employment Outlook and Expectation in the Industrial Sector** (Seasonally Adjusted, Up-Down)



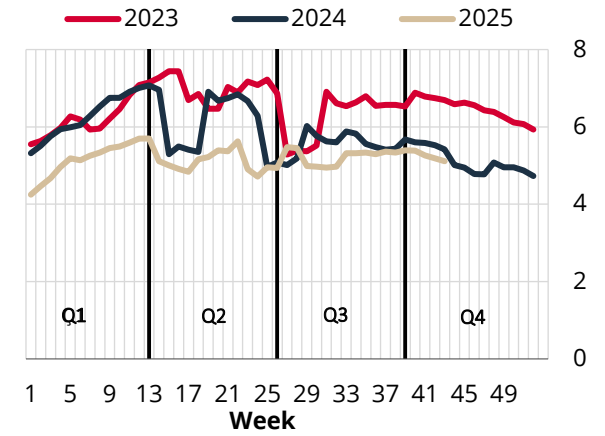
Source: CBRT, S&P Global.

* As of October.

** BTS indicator is adjusted where 50 denotes neutral level in line with the PMI. Dashed lines show the 2011–2019 average for BTS and the threshold value 50 for PMI.

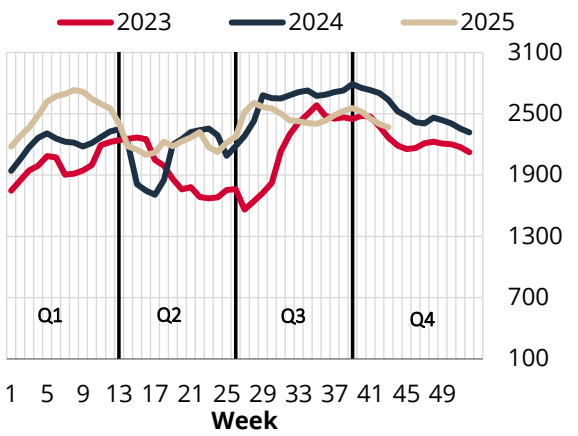
High-frequency data imply that labor demand has been weaker compared to the previous year, while labor supply, which remained strong in the first half of the year, weakened in the second half. According to data from Kariyer.net, new job postings continued to remain below last year's levels as of October (Chart 2.3.17). Total job applications remained below the previous year's level as of the fourth quarter (Chart 2.3.18).

Chart 2.3.17: New Job Postings* (Four-Week Average, Thousand)



Source: Kariyer.net.
* As of October 26, 2025. Vertical lines show the beginning of quarters.

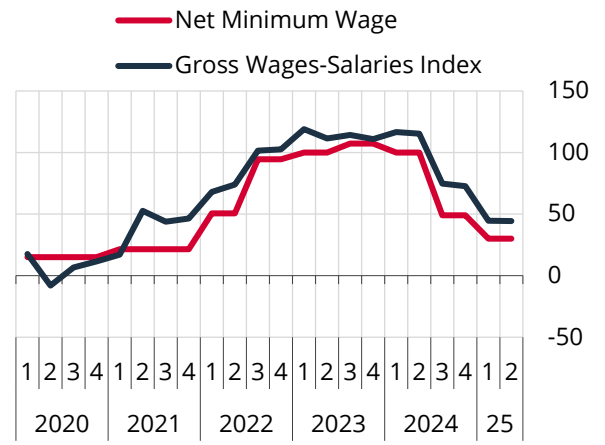
Chart 2.3.18: Total Job Applications* (Four-Week Average, Million)



Source: Kariyer.net.
* As of October 26, 2025. Vertical lines show the beginning of quarters.

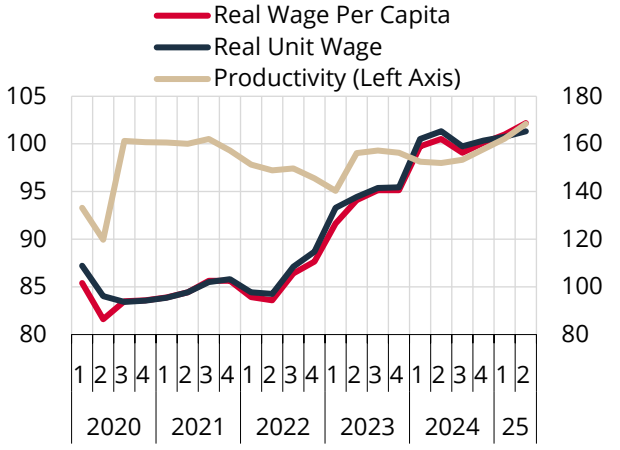
The annual rate of increase in non-farm nominal wages was 44.3% in the second quarter of the year (Chart 2.3.19). Partial labor productivity in the non-farm sector (non-farm value added/non-farm employment) increased in the second quarter. Real unit wages in the non-farm sector (real per capita wage/productivity) rose in the second quarter, with real per capita wages increasing faster than the growth in productivity in this period (Chart 2.3.18).

Chart 2.3.19: Net Minimum Wage and Non-Farm Wage Index (Nominal, Annual % Change)



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

Chart 2.3.20: Non-Farm Partial Labor Productivity*, Real Wage Per Capita, and Real Unit Wages** (Seasonally Adjusted, 2021=100)



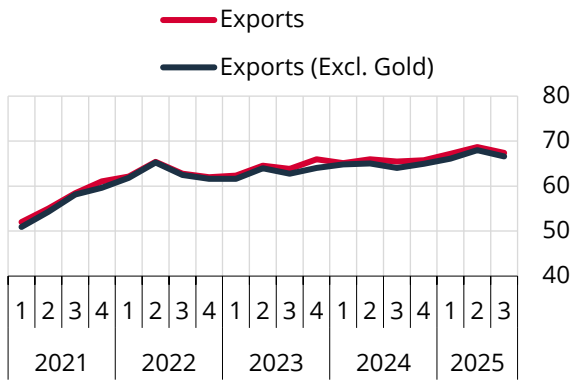
Source: CBRT, TURKSTAT.
* Non-farm value added/non-farm employment.
** Real per capita wage/productivity. Deflated by the CPI

Prospects for Foreign Trade and Balance of Payments

In the third quarter of 2025, the foreign trade deficit declined. After increasing in the second quarter in seasonally and calendar-adjusted terms, exports declined in the third quarter despite the trend in exchange rates favoring the euro (Chart 2.3.21). In this period, external demand remained moderate. Hence, the weakening outlook for exports can be perceived as a reflection of the correction process in the third quarter following the demand pulled forward on a global scale in the second quarter due to trade uncertainties. The decline in exports was widespread across sectors and regions. While the chemicals, pharmaceuticals, and fabricated metal products sectors contributed positively to exports, the majority of the remaining sectors contributed negatively. On the imports side, where pull-forward demand induced by trade uncertainties was more pronounced, the decline in the third quarter was higher than that in exports

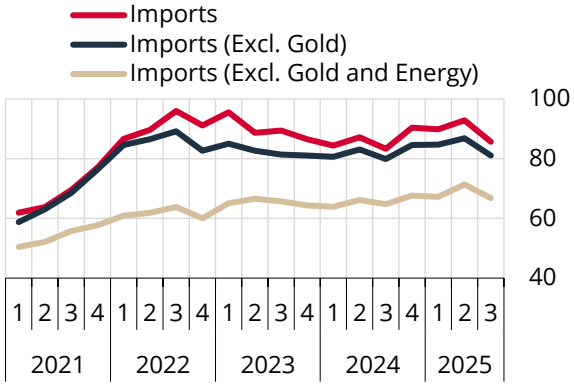
(Chart 2.3.22). During this period, the decrease in gold imports and the low level of energy prices also contributed to the decline in imports. Adjusted for seasonal and calendar effects, the decline observed in all sub-groups of imports offset the increases in the second quarter. Against this backdrop, the seasonally and calendar-adjusted trade deficit decreased in the third quarter, reflecting improvements in the trade balance excluding gold, the balance excluding energy, as well as the balance excluding gold and energy. Meanwhile, provisional foreign trade data for October point to an uptick in the foreign trade deficit, with a decline in exports and an increase in imports in seasonally and calendar-adjusted terms. During this period, gold imports, supported by the rise in global gold prices, also contributed to this increase. In fact, the increase in the foreign trade deficit was more limited when gold was excluded.

Chart 2.3.21: Exports (Seasonally and Calendar-Adjusted, USD Billion)



Source: CBRT, TURKSTAT.

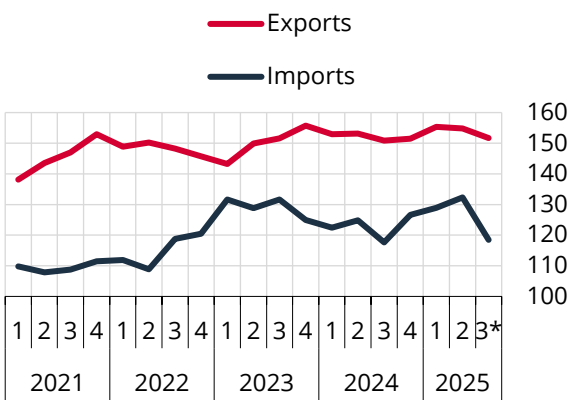
Chart 2.3.22: Imports (Seasonally and Calendar Adjusted, USD Billion)



Source: CBRT, TURKSTAT.

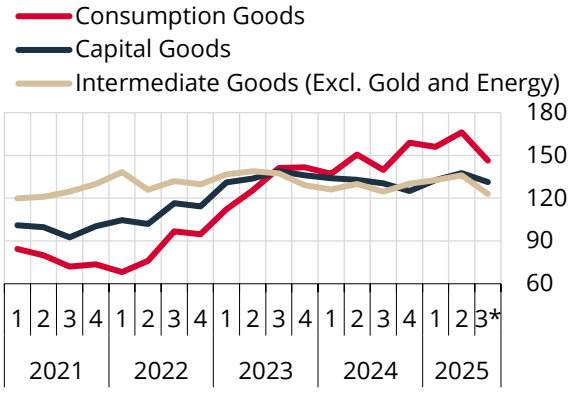
As a result of pulled-forward demand due to global trade uncertainties, the volume of imports, which had increased in the second quarter, declined in the third quarter, while the foreign trade balance continued to rise. As of August, seasonally and calendar-adjusted foreign trade volume indices for the third quarter point to a decline in exports and a significant drop in imports on a quarterly basis (Chart 2.3.23). While the decline in the import volume spread across all sub-groups, the correction in the third quarter was particularly pronounced in the import volume of consumer goods that had recorded the highest increase in the second quarter due to the effect of pulled-forward demand (Chart 2.3.24). On the other hand, the improvement in terms of trade continued in the third quarter (Chart 2.3.25). While import prices remained flat during this period, export prices continued to rise. The increase in the exchange rates was the main driver of the improvement in the terms of trade, as the share of euro-denominated trade in exports was higher than that in imports. In addition, energy prices, which remain low due to the negative impact of uncertainty over protectionist measures in global trade on the global growth outlook, also supported the improvement in the terms of trade. Therefore, developments in foreign trade unit value indices positively affected the foreign trade balance during the reporting period.

Chart 2.3.23: Foreign Trade Quantity Indices (Seasonally Adjusted, 2015=100)



Source: TURKSTAT.
* As of August.

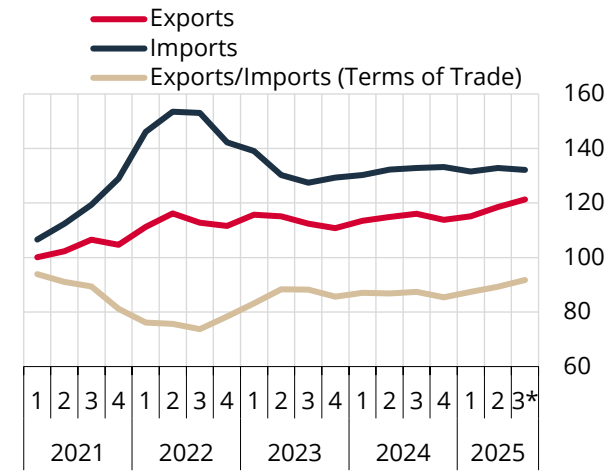
Chart 2.3.24: Import Quantity Indices by Goods Groups (Seasonally Adjusted, 2015=100)



Source: CBRT, TURKSTAT.
* As of August.

The services balance surplus remained flat in the third quarter. Net travel revenues, which are the main driver of the services balance, increased slightly in August compared to the previous quarter on a seasonally and calendar-adjusted basis, while net transportation revenues remained at their current level (Chart 2.3.26). Leading indicators suggest that the positive trend in net travel revenues would continue in September. In the third quarter, both the increase in the number of visitors compared to the same period of the previous year and the increase in average spending contributed to the rise in tourism revenues.

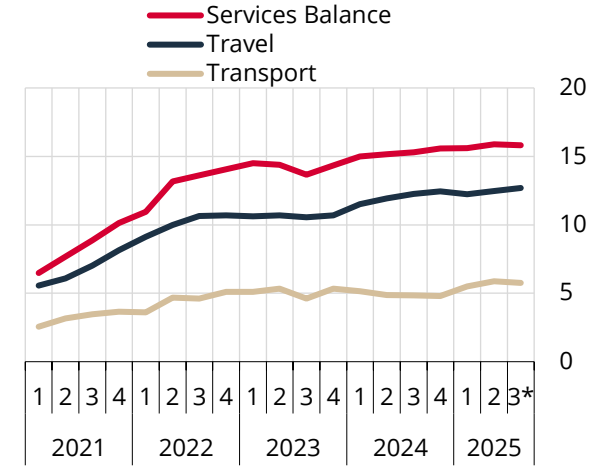
Chart 2.3.25: Foreign Trade Unit Value Indices (2015=100)



Source: CBRT, TURKSTAT.

* As of August.

Chart 2.3.26: Services Balance (Seasonally and Calendar Adjusted, USD Billion)

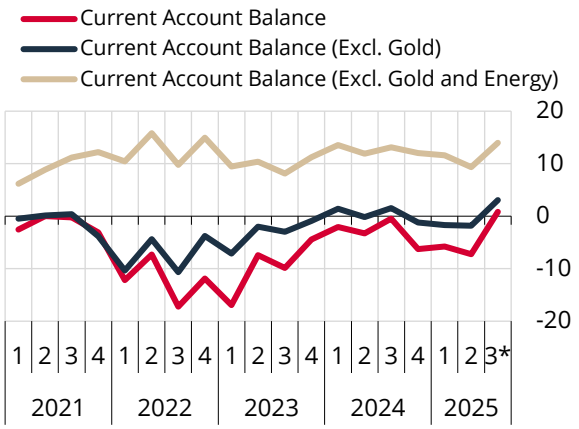


Source: CBRT.

* As of August.

The seasonally and calendar-adjusted current account balance improved in the third quarter. The decline in the current account deficit was driven by a decrease in the seasonally and calendar-adjusted trade deficit excluding gold and energy, as well as declines in the energy and gold trade deficits (Chart 2.3.27). The primary income balance improved partially compared to the previous quarter. The uncertainty in global trade policies persists, although it has declined compared to the previous reporting period. It appears that countries are still negotiating in order to gain an advantageous position in the global trade balance that will emerge in the coming period, with changes in reciprocal tariff rates, exemptions from customs duties on certain high-tech products, and decisions to increase protectionist measures in various strategic areas. During this period, there has been no change in Türkiye's relative position with a customs tariff rate of 15%. While developments in global trade policies are closely monitored for their impact on the global growth outlook, downward pressure on global demand is expected to continue into 2026. The low level of energy prices continues to support the reduction of energy imports. However, given that the current level is significantly below historical averages and that prices are sensitive to geopolitical developments, the positive contribution to the current account balance provided by this channel is not expected to increase. Meanwhile, the rise in global gold prices in September and October appears to have increased gold demand. Gold price developments and the trend in gold imports are important for the current account balance. While the continued tightness in financial conditions continues to limit domestic demand-driven pressures on imports, the real appreciation trend in the Turkish lira remains supportive for import demand. In this context, it is assessed that risks to the current account balance are balanced.

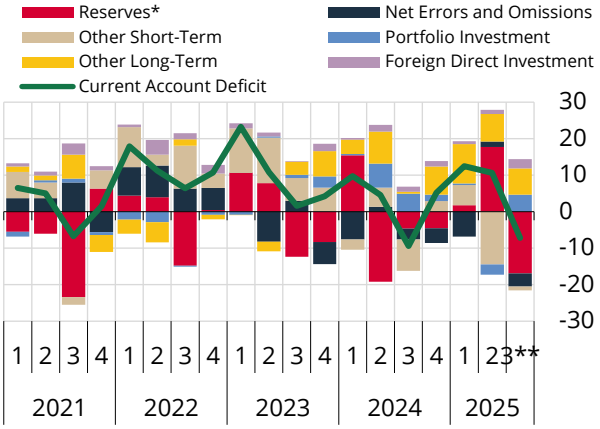
Chart 2.3.27: Current Account Balance
(Seasonally and Calendar Adjusted, USD Billion)



Source: CBRT.

* As of August.

Chart 2.3.28: Financing of the Current Account Deficit (USD Billion)



Source: CBRT.

* Denotes the CBRT reserves plus cash and deposits at banks abroad. A negative value indicates an increase in reserves.

** As of August.

In the third quarter, reserves displayed a strong recovery, supported by the current account surplus driven by seasonal effects and capital inflows. As of August, net capital inflows originating from direct investments, portfolio investments, and loans were observed in the third quarter (Chart 2.3.28). Deposits held abroad by domestic residents, however, decreased. The net error and omissions item posted a negative balance. Along with the increase in the current account balance, a surplus was recorded on the financing side. Thus, official reserves increased, offsetting a significant portion of the decline in the first half of the year.

Public Finance Developments

In the first nine months of 2025, the central government budget ran a deficit of TRY 1217.3 billion and a primary surplus of TRY 445.1 billion. In this period, the Treasury was a net user of both domestic and foreign borrowing to meet its financing needs. In September 2025, the ratio of central government debt stock to GDP is estimated to be 22.9%, while the ratios of domestic and external debt stocks to GDP are estimated to be 13.4% and 9.5%, respectively.

In the first nine months of 2025, revenues and expenditures were up by 48.0% and 42.8%, respectively, compared to the same period of the previous year. The ratio of primary expenditures covered by tax revenues was 90.6%. In the first nine months of the year, current transfers and personnel expenditures, which make up a substantial portion of primary expenditures, rose annually by 39.0% and 36.5%, respectively. Within the scope of duty losses, the amounts transferred to Elektrik Üretim A.Ş. and BOTAŞ, amounting to TRY 147.2 billion and TRY 134.5 billion, respectively, and the TRY 73.4 billion transferred to the Turkish State Railways within the scope of lending stand out among the transfers made to public enterprises during the period in question. On the other hand, income tax, which contributed the most to the recent rise in tax revenues, recorded a sharp annual increase of 91.6% in the first nine months of this year. This favorable performance is attributed to higher withholding tax rates on deposits as well as wage developments. The contribution of corporate tax to the budget of 2025, which had a realization/budget target ratio of 52.5%, remained below projections in the first nine months of the year. Meanwhile, the contribution of other tax items, primarily the value added tax on imports, to the increase in tax revenues was relatively limited. On the other hand, restructuring revenues of TRY 17.0 billion and privatization revenues of TRY 25.6 billion were recorded in the first nine months of the year.

As of September 2025, the 12-month cumulative budget deficit to GDP ratio is estimated to be 4.0%. The end-2025 target announced in the MTP is 3.6% (Zoom-in 2.2). The ratios of 12-month cumulative revenues, primary expenditures, and interest expenditures to GDP are estimated to be 20.5%, 20.9%, and 30.6%, respectively, as of September.

The Treasury cash balance ran a deficit of TRY 359.9 billion in September 2025. As a result, in the first nine months of the year, a cash deficit of TRY 1,638.0 billion has been recorded. The 12-month cumulative cash deficit to GDP ratio is estimated to be 3.9%, as of September.

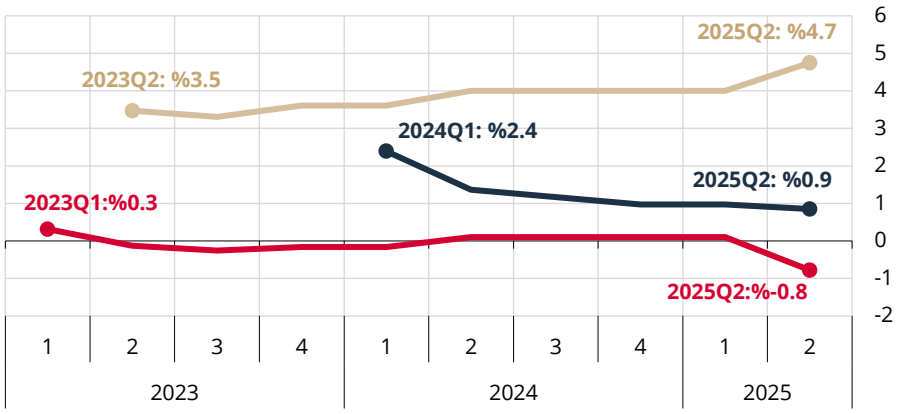
Zoom-in 2.1

Revisions to GDP

TURKSTAT has made a comprehensive revision to the second quarter GDP data for 2025. Following the revisions, the change in the level of the GDP series has been limited with a downward revision of 0.1 percentage points in annual growth for 2022 and 2023 and an upward revision of 0.1 percentage points for 2024. Partial differences are seen in the old and new series adjusted for seasonal and calendar effects. While the differences between the old and new levels of industrial, construction, and services value added are low, the new level of agricultural value added is above the old level, and the new level of net taxes and subsidies is below the old level. In terms of expenditures, the difference in levels between the old and new series is lower for total investments, exports, and imports, while the differences between the old and new series are greater for private consumption, public consumption, and inventories. With the revision, private consumption and public consumption have been revised downward. The new inventory series, on the other hand, indicates a less negative inventory level following the upward revision.

Significant backward revisions to quarterly GDP growth create retrospective uncertainties regarding assessments of the strength of economic activity. For example, when the first quarter data for 2024 was first released, it implied a growth rate of 2.4%, which was above potential. However, following revisions, the latest data shows that the first quarter data for 2024 has been revised as 0.9%, pointing to a milder growth outlook (Chart 1).

Chart 1: Quarterly GDP Growth Rates* (%)

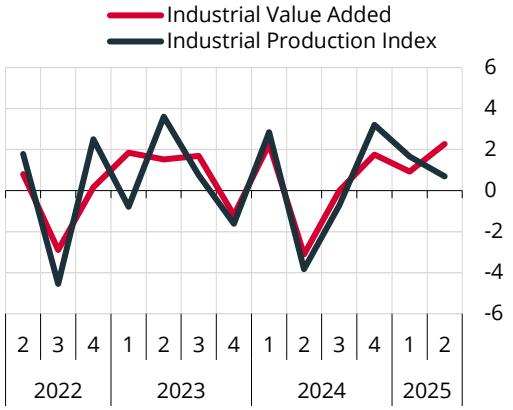


Source: TURKSTAT.
* The starting points of the lines show quarterly growth rates for the related quarter when the data was released, while the end points show quarterly growth rates based on the most recent data.

Short-term employment statistics and GDP sub-components are supposed to be closely related, yet the industrial sector stands out as the sector with the highest correlation between value added and production indicators. However, the divergence between the industrial production index and the quarterly growth rates of industrial value added stood as another subject worth noting following the revision. While the industrial production index pointed to a slowdown in quarterly growth in the second quarter, quarterly growth of the industrial value added accelerated according to the released GDP data (Chart 2).

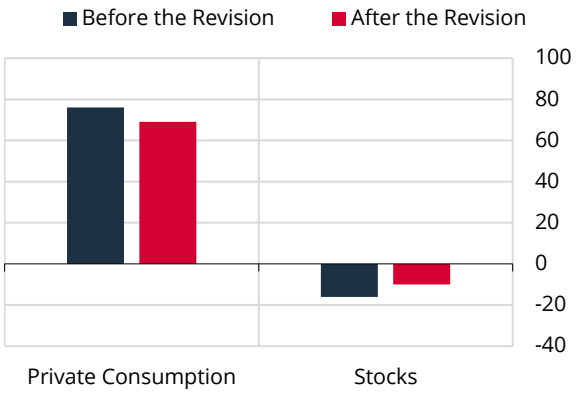
Finally, following the revision, the shares of GDP sub-components within the total exhibited differences between the old and new series. The shares of sub-components within the total on the production side indicated no significant changes. However, on the expenditure side, the share of private consumption expenditures within GDP is lower, and the share of inventories is measured as less negative in the new series compared to the old series. For example, the share of private consumption in 2024 was measured at 76% in the old series, whereas this ratio is 69% in the new series (Chart 3).

Chart 2: Industrial Value Added and Industrial Production (Quarterly % Value)



Source: TURKSTAT.

Chart 3: Shares in GDP (%, 2024)



Source: TURKSTAT.

Zoom-in 2.2

Fiscal Policy Stance under the MTP

The MTP covering the period 2026–2028 was published in the supplementary edition of the Official Gazette on September 7, 2025. The program states that the fiscal discipline principle will not be compromised, while the coordinated and targeted implementation of monetary, fiscal, and incomes policies will be maintained as part of the fight against inflation in the upcoming three-year period. In this context, it is stated that the incomes policy will be implemented in a manner sensitive to income distribution, taking into account price stability and expectations management; and administered prices will be determined in line with inflation targets.

The MTP is based on the framework that will improve indicators related to the budget balance and the primary budget balance (Table 1). The expenditure/GDP ratio is expected to exhibit a downward trend throughout the program period, falling below 24% by the end of 2028, which is projected to stem from primary expenditures (Table 1). The revenues to GDP ratio is expected to remain stable at around 21.0% throughout the program period, while tax revenues are also targeted to remain around 18%. The fact that fiscal adjustment will be achieved through the reduction of primary expenditures rather than tax increases is important in terms of the coordination of monetary and fiscal policies in the fight against inflation.

Table 1: Central Government Budget (GDP%)

	2024	2025 (RE)	2026 (P)	2027 (P)	2028 (P)
Expenditures	**24,2**	**23,6**	**24,5**	**24,0**	**23,8**
Primary Expenditures	21,3	20,3	21,0	20,6	20,5
Interest Expenditures	2,8	3,3	3,5	3,4	3,3
Revenues	**19,5**	**20,0**	**21,0**	**21,0**	**21,0**
General Budget Tax Revenues	16,4	17,3	17,8	17,9	18,0
Other Revenues	3,1	2,8	3,1	3,0	2,9
Budget Balance	**-4,7**	**-3,6**	**-3,5**	**-3,1**	**-2,8**
Earthquake Expenditures[1]	**1,7**	**0,8**	**0,8**	**0,4**	**0,3**
Budget Balance (Excluding Earthquake Expenditures)[1]	**-3,0**	**-2,8**	**-2,7**	**-2,7**	**-2,5**
Primary Balance	**-1,9**	**-0,3**	**0,0**	**0,3**	**0,5**
EU Defined General Debt Stock	**24,0**	**24,6**	**24,7**	**24,7**	**24,2**

Source: Authors' calculations, MTP (2026–2028).
RE: Realization estimate P: Program
[1] Calculated by authors based on the expenditure amounts in the MTP (2026–2028).

The estimated budget deficit/GDP ratio for 2025 was revised upwards by 0.5 points from the target set in the previous program to 3.6% (Chart 1). This revision stemmed from tax revenues, shaped by the projection that economic growth will undershoot the target (Chart 2).

The MTP is based on a framework entailing a gradual decline in budget deficit in the 2025–2028 period, and the achievement of a primary balance in 2026 and generation of a surplus subsequently. The ratio of the budget deficit to GDP was 5.1% and 4.7% in 2023 and 2024, respectively, due to high earthquake expenditures. Improving by 1.1 points, the central government budget deficit to GDP is projected to stand at 3.6% in 2025. This trend is expected to continue in the ensuing period, with the budget deficit/GDP ratio falling below 3% by the end of 2028 (Table 1). The EU-defined general government debt stock to GDP is targeted to be 24.2% by the end of 2028 (Table 1).

Chart 1: Central Government Budget Balance Projections (% GDP)

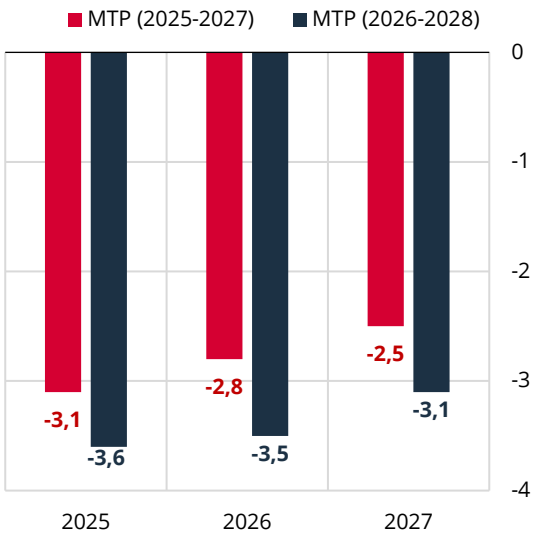
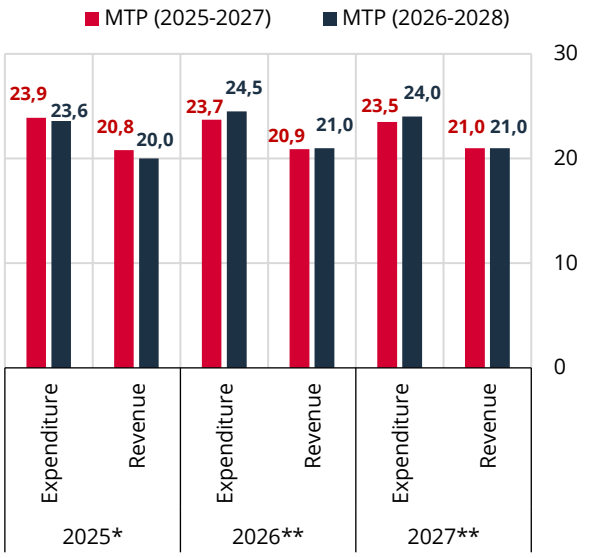


Chart 2: Central Government Expenditure and Revenue Projections (% GDP)



* MTP (2025–2027) values are projections, MTP (2026–2028) is realization estimate.
** Projections for MTP (2025–2027) and MTP (2026–2028).

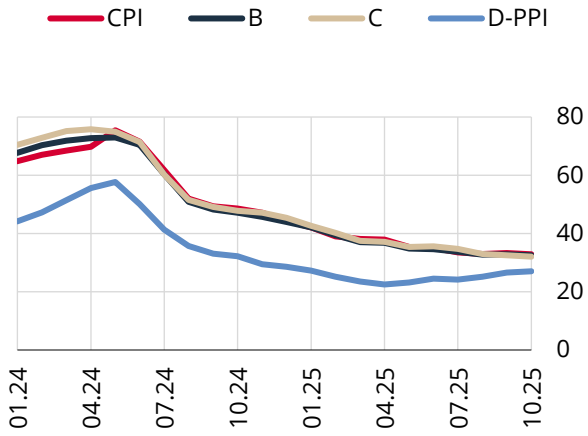
A further downward trend is expected in the ratio of earthquake expenditures to GDP during the program period. While the ratio of earthquake expenditures to GDP was 3.5% in the 2023 budget, it fell to 1.7% in 2024. This ratio is expected to be 0.8% in 2025 and 2026, and to continue to decline to 0.4% and 0.3% in 2027 and 2028, respectively. Against this background, the ratio of the budget deficit excluding earthquakes to GDP, which was 3.0% in 2024, is expected to fall below 3% in 2025 and recede to 2.5% in 2028 (Table 1).

The coordination of monetary and fiscal policies is crucial for the success of the disinflation process. The improvement in budget balances projected for the 2026–2028 period is planned to be achieved through a reduction in primary expenditures rather than an increase in tax revenues, which indicates that fiscal policy will be supportive of the fight against inflation.

2.4 Inflation

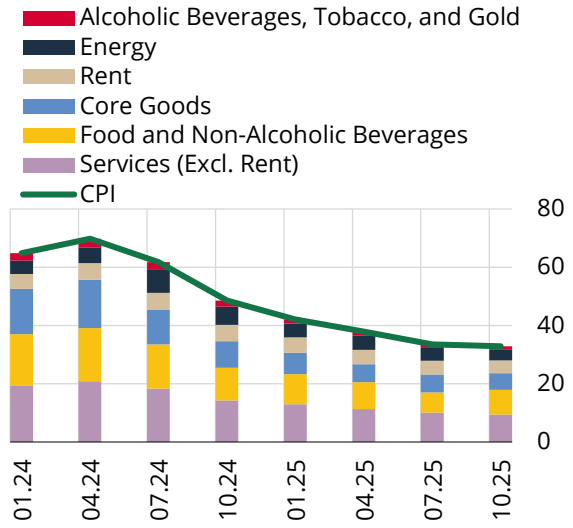
Consumer inflation fell to 32.9% in October and materialized above the upper band of the forecast range presented in the previous Report. The disinflation process that began in June 2024 continues, albeit at a slower pace (Chart 2.4.1). In the current reporting period, international energy prices declined, while non-energy commodity prices increased, with industrial and precious metals in the lead. The Global Supply Chain Pressure Index remained close to its historical average, while the global container index and the container index for China, both of which rose significantly in June, decreased in the following months. Despite this moderate course of global supply-side factors, domestic crop production estimates for 2025 were revised down due to supply-side factors such as drought and frost, highlighting the increasingly negative trend in the supply of agricultural and food products. In the current reporting period, the rate of increase in the currency basket was more limited than the previous reporting period. Data for the third quarter indicated that domestic demand remained weak, and that demand conditions were at a disinflationary level. Meanwhile, supply-side factors such as drought and frost had a noticeable impact on food prices in the current reporting period (Zoom-in 2.3). The rise in producer prices decelerated in October compared to the previous months, with annual inflation standing at 27.0%. Developments across sub-items over the last three months indicate that while food prices drove annual inflation upward, other main groups contributed to disinflation (Chart 2.4.2). Annual services inflation remained high, albeit with some decline. In the services sector, the back-to-school effect was particularly remarkable in the third quarter, with developments in items with strong time-dependent pricing and backward-indexation patterns standing out.

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.

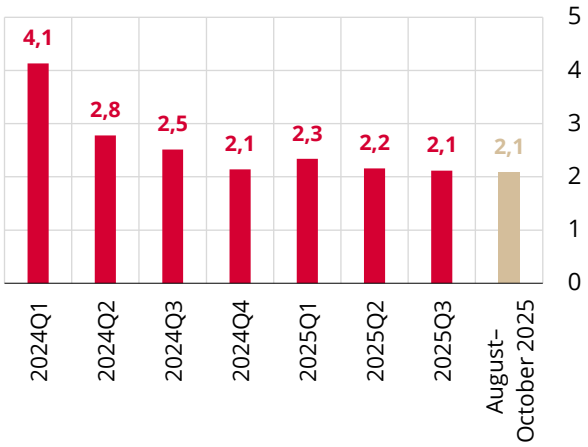
Chart 2.4.2: Contributions to Annual CPI (% Points)



Source: CBRT, TURKSTAT.

The underlying inflation indicators point to a slowdown in the disinflation process. The seasonally adjusted quarterly average of indicators tracked for the underlying inflation declined from 2.2% in the second quarter to 2.1% in the third quarter and remained flat at 2.1% in the last three months (Chart 2.4.3). The fact that the annualized trend of the last three-month average of the six indicators is around 28%, while the annualized main trend of the median inflation, which has relatively better forecasting performance, is around 27%, implies that the disinflation process is slowing down (Chart 2.4.4). On the other hand, the trend inflation indicator, which by design focuses on the longer term and excludes one-off effects, shows a limited downward trend (Chart 2.4.5).

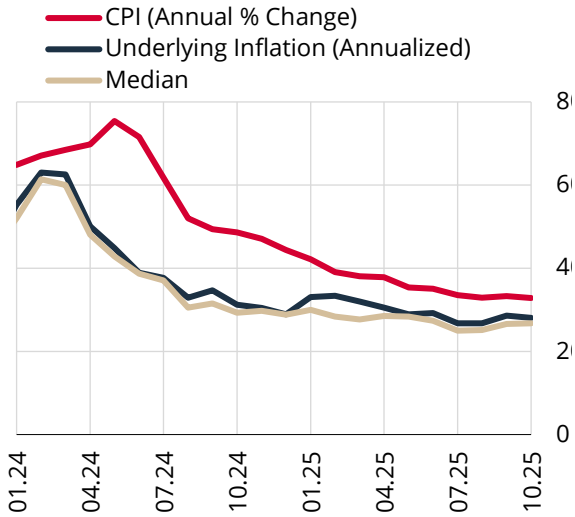
Chart 2.4.3: Indicators of Underlying Inflation* (Seasonally Adjusted, Monthly % Change, Quarterly Average)



Source: CBRT, TURKSTAT.

* Quarterly average of seasonally adjusted B and C indices, SATRIM, Median, exclusion of volatile items (VOLX) and dynamic factor (DFM) indicators.

Chart 2.4.4: CPI, Median and Underlying Inflation* (Annual % Change)

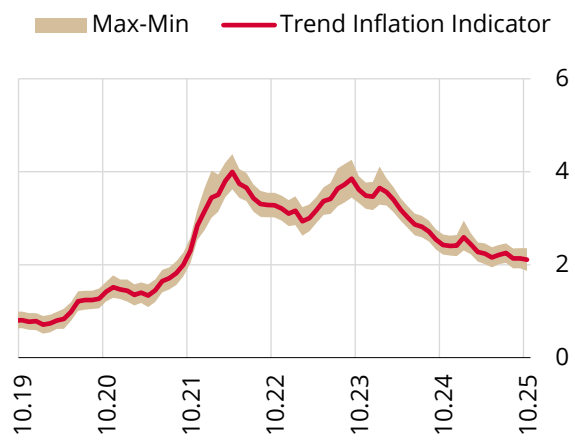


Source: CBRT, TURKSTAT.

* Annualized underlying inflation refers to the annualized value of the three-month average of six different indicators (seasonally adjusted B and C indices, SATRIM, Median, VOLX and DFM). The annualized value of the three-month average of the monthly value is used for the Median.

Price increases weakened in core goods among the groups comprising the B index but remained strong in services and rose in processed food in the current reporting period (Chart 2.4.6). Price increases in core goods continued to lag behind other groups. The rise in prices of durable goods slowed compared to the previous period, albeit to a limited extent. Price increases in the white goods sector were noteworthy in this period, followed by the automotive sector. Price increases in automobiles were partly driven by regulation of the special consumption tax (SCT). Meanwhile, the customs duty regulation, which will take effect at the end of November for automobiles, is expected to have a limited impact unless strategic pricing differences arise across brands. In this period, price increases in services remained strong, and the highest price hikes were continued to be seen in education and rent items with a strong backward-indexation tendency. Although, the weakening of monthly rent inflation has been a positive development in the current reporting period of high contract renewal rates, annual rent inflation remained more resilient than projections. The back-to-school effect had a noticeable impact on service inflation in September. Education services surged due to university fees, and school bus fares pushed up transport services, while school dormitory fees pushed up accommodation services prices in the restaurant-hotel group. Increases in daycare fees were reflected into the other services item. The back-to-school effect added around 0.7 points to consumer inflation in September. Prices in the unprocessed food group were mainly shaped by adverse weather conditions, and the group's inflation increased significantly amid the price hikes across the group with bread-cereals in the lead group (Zoom-in 2.3).

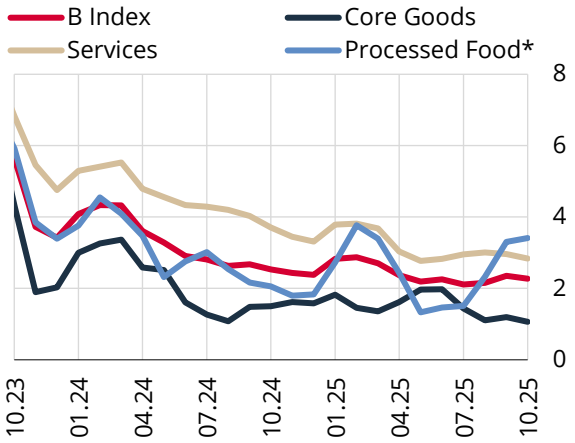
Chart 2.4.5: Multivariate Trend Inflation Indicator* (%)



Source: CBRT, TURKSTAT.

* Obtained by applying the Stock and Watson (2016) MUCSVO model to monthly price changes of processed food and seasonally adjusted core goods and services.

Chart 2.4.6: B Index and Subgroups
(Seasonally Adjusted, Monthly % Change, Three-Month Average)



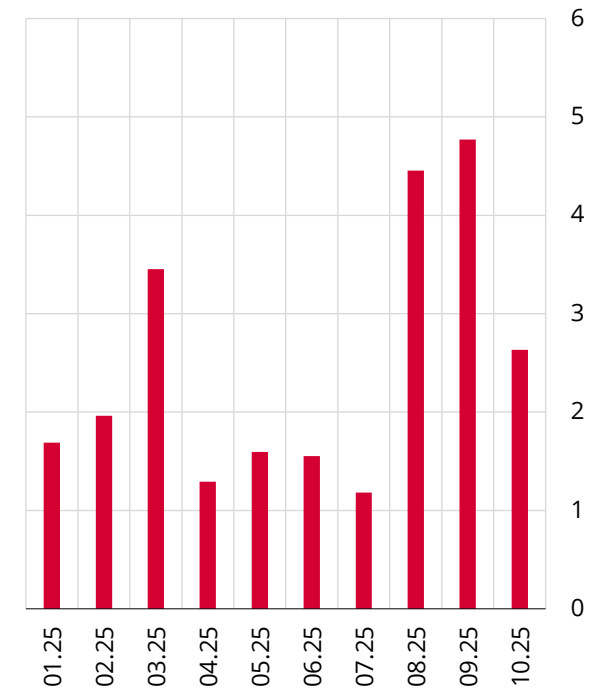
Source: CBRT, TURKSTAT.

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

Domestic energy inflation followed a relatively moderate course in the current reporting period. Driven mainly by municipal water, bottled gas and solid fuel prices, energy prices rose by 3.2% over the last three months. Global energy commodity prices declined during the current reporting period. Amid geopolitical developments, the price of Brent crude oil, which rose in June to an average of USD 71, remained at these levels in July before gradually declining to an average of USD 65 in October and hovered around these levels in the first week of November. The increase in the currency basket over the last three months was limited compared to the previous three months, so domestic fuel prices remained relatively moderate during this period.

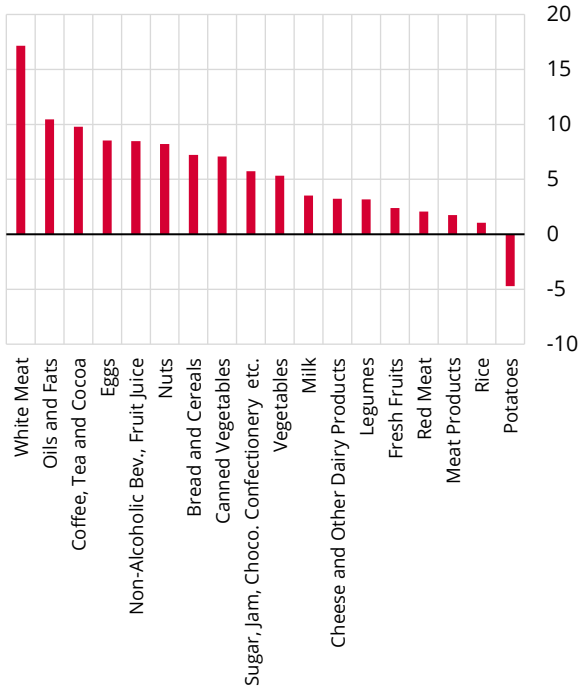
With the acceleration of prices in the food and non-alcoholic beverages group during the current reporting period, the contribution of this group to the disinflation process has reversed (Chart 2.4.7). The annual inflation rate for the food and non-alcoholic beverages group increased by 6.9 points in the current reporting period, reaching 34.9% as of October. During this period, the lingering supportive trend in the unprocessed food group reversed, while price increases in processed food also grew stronger. Thus, annual inflation in unprocessed and processed food stood at 34.7% as of October. Seasonally adjusted data show that adverse weather conditions (frost, drought), purchasing prices of some agricultural goods, and supply setbacks have had a notable impact on food prices, which had been modest in the past, and prices have surged over the last three months (Chart 2.4.7). This acceleration in food prices is one of the main factors preventing a more positive trend in consumer inflation. In the third quarter, prices increased across the group (excluding potatoes) above their historical averages (Chart 2.4.8). In the white meat group, which stands out, chicken meat prices were affected by low supply as well as seasonal demand increases. Along with increasing seasonal demand due to export developments and the back-to-school effect, although limited, the effects of regional bird flu cases that emerged in the fall put pressure on egg prices. Domestic crop shortfalls due to drought, rising global prices, and the effects of raw milk price increases had an impact on the prices of fats and oils. The impact of rising tea prices has been prominent in the coffee-tea-cocoa group and the non-alcoholic beverages group. During this period, nut prices rose further above their historical averages due to frost, drought, and excessive heat. Wheat prices, affected by the decline in harvest and purchase prices, put pressure on bread and cereal products. Fruit prices, which were significantly affected by frost, hovered above their trend for three quarters (Chart 2.4.8). The second crop production estimates announced by TURKSTAT indicate an increase in current yield losses for fruits, cereals, some oilseeds and legumes, and nuts, due to both the agricultural frost event and rising temperatures (Zoom-in 2.3). In sum, adverse weather conditions and supply-side factors added to upside pressures on food prices.

Chart 2.4.7: Food Prices (Seasonally Adjusted, Monthly % Change)



Source: TURKSTAT.

Chart 2.4.8: Food Prices by Sub-Items* (2025Q3 % Deviation of Change from Historical Average, Ranked)



Source: CBRT, TURKSTAT.

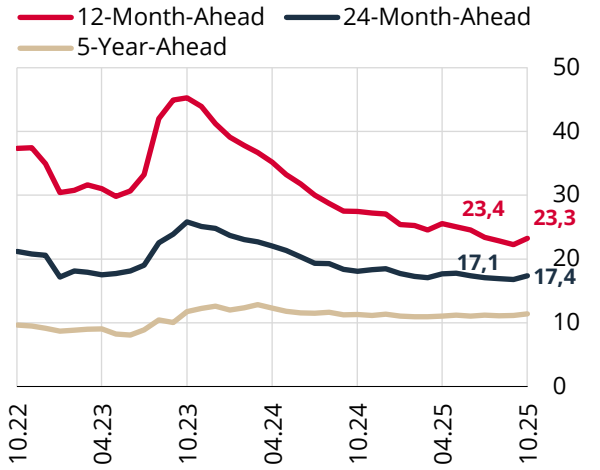
* Based on food subitems, the difference between the quarterly percentage change in 2025Q3 and the historical average (third quarter average of the 2012–2021 period).

Prices of alcoholic beverages and tobacco products rose by 8.6% over the last three months. This rise was driven by the automatic lump-sum tax increase in the SCT rate for tobacco products in July and the subsequent price adjustments by producers that carried over into August. Tobacco products also saw a producer-led price increase of 2.7% in October. Accordingly, annual inflation in the alcoholic beverages and tobacco group reached 27.6% as of October.

Drivers of Inflation

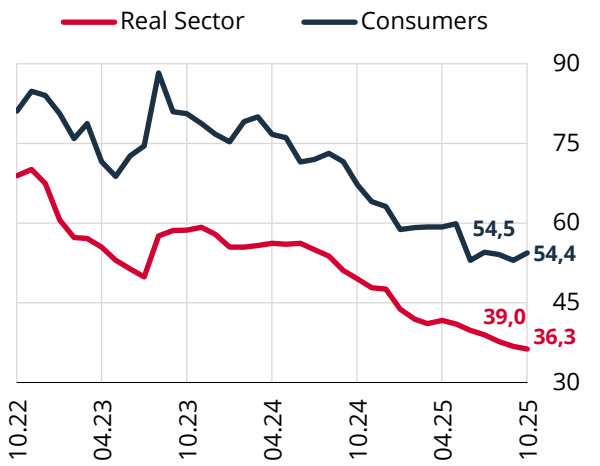
Inflation expectations' downward trend has halted. The October results of the Survey of Market Participants show a 0.1-point decline in the 12-month-ahead inflation expectations compared to the previous Inflation Report, while the 24-month-ahead expectations rose by 0.3 points. The five-year-ahead inflation expectations remained broadly unchanged (Chart 2.4.9). Meanwhile, inflation expectations for end-2025 and end-2026 rose to 31.8% and 22.1%, respectively, surpassing the interim targets outlined in the Inflation Report. While the real sector's 12-month-ahead inflation expectations continued to decline in the current reporting period, household expectations showed no significant change compared to the previous Inflation Report (Chart 2.4.10).

Chart 2.4.9: Consumer Inflation Expectations from the CBRT Survey of Market Participants* (%)



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

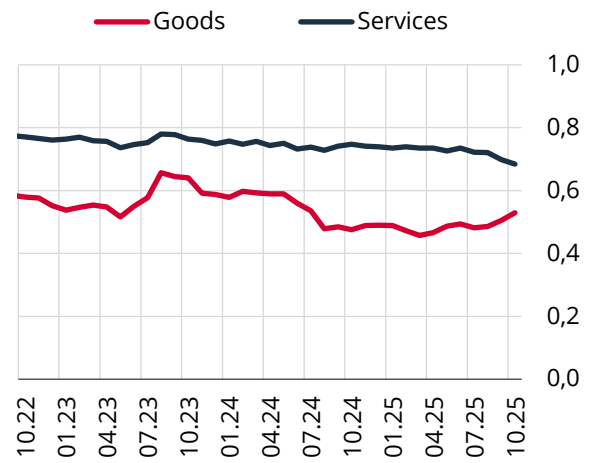
Chart 2.4.10: Consumer Inflation Expectations of the Real Sector and Consumers* (12-Month-Ahead, %)



Source: CBRT, TURKSTAT.
* Inflation expectations of the real sector are obtained from the BTS, and those of consumers are obtained from the Consumer Tendency Survey.

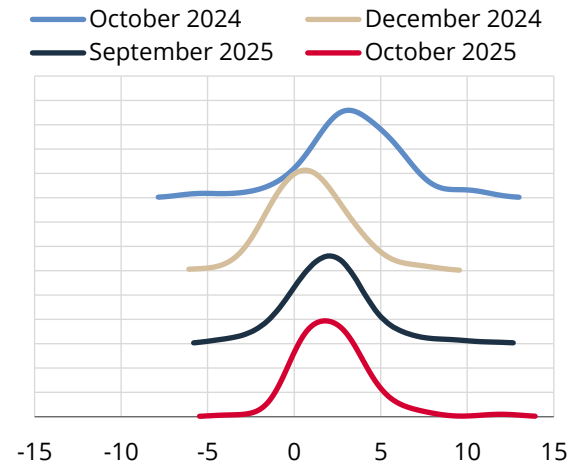
Recent price developments, notably in food, have heightened risks to the disinflation process through inflation expectations and pricing behavior. An analysis of seasonally adjusted data using three-month moving averages reveals a modest increase in the diffusion index for the goods sector, mainly driven by the food group. Meanwhile, the services sector maintained its high level despite experiencing a slight decline (Chart 2.4.11). Distributions of monthly price changes for items at the five-digit level were examined to provide insight into pricing behavior. Pricing behavior remained a risk factor in the disinflation process, as seen by the distribution for October 2025, which moved to the left while still displaying price increases that could be considered outliers (Chart 2.4.12).

Chart 2.4.11: Diffusion Indices* (Seasonally Adjusted, Three-Month Moving Average)



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.

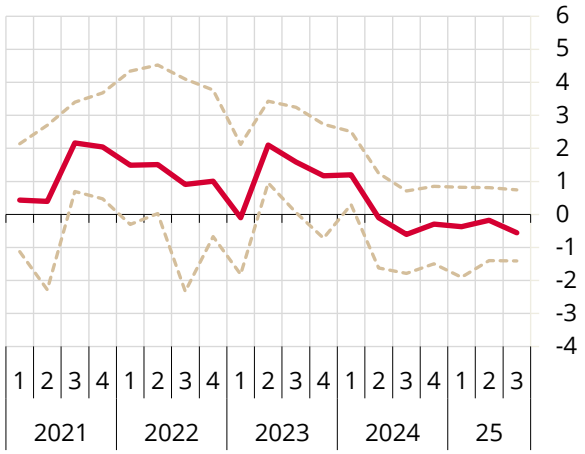
Chart 2.4.12: Distribution of CPI Monthly Inflation (Seasonally Adjusted, Five-Digit, CPI Excluding Fresh Fruits and Vegetables, Energy, Alcoholic Beverages and Tobacco)



Source: CBRT, TURKSTAT.

Recent data indicate that demand conditions are at disinflationary levels. Growth is assessed to have slowed somewhat in the third quarter of 2025 after exceeding potential in the second quarter. While industrial and services production remained nearly flat on a quarterly basis (Chart 2.3.7), the capacity utilization rate, a key leading indicator, continued to stay below its historical average (Chart 2.3.8). In the third quarter, the rise in retail sales volume (excluding gold) slowed from the previous quarter (Chart 2.3.3). In line with these developments, aggregate demand conditions are estimated to have weakened, with the output gap remaining in the disinflationary zone (Chart 2.4.13). Real credit use (adjusted for exchange rate effects) showed no significant change during the current reporting period (Chart 2.4.14).

Chart 2.4.13: Output Gap* (%)



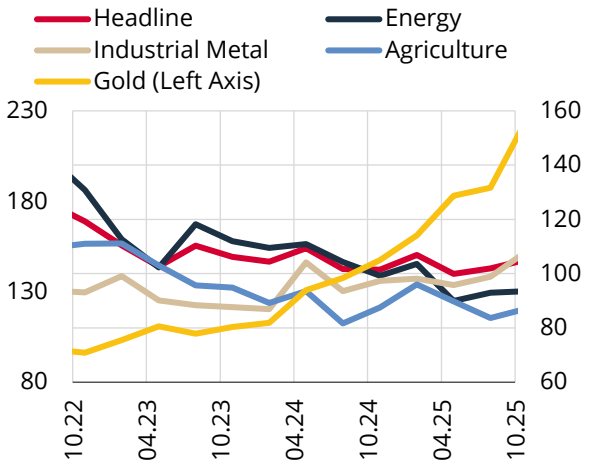
Source: CBRT.
* The average of output gap indicators calculated by using different methods is displayed with minimum and maximum values.

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

Source: CBRT.
* FX-adjusted weekly credit changes 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.

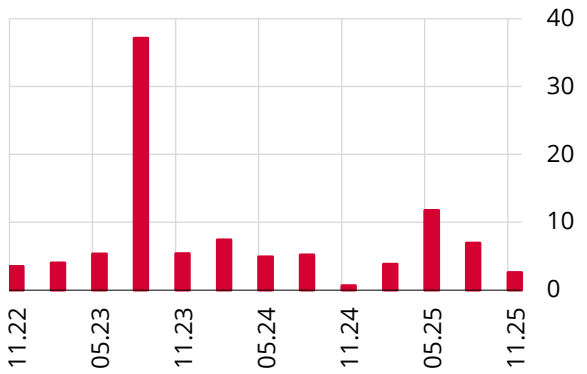
While commodity prices diverged across subitems, the uptrend in exchange rates waned. Global energy commodity prices decreased over the current reporting period, but industrial metal prices kept rising. The current reporting period also saw an acceleration of the gold price increase brought on by global uncertainty, which restrained decline of the headline index. Meanwhile, agricultural commodity prices increased (Chart 2.4.15). The Turkish lira remained stable over the last three months, with limited depreciation (Chart 2.4.16). Developments in the euro-dollar parity led to a more pronounced increase in the euro rate.

Chart 2.4.15: Commodity Price Indices (2021=100)



Source: Goldman Sachs.

Chart 2.4.16: Currency Basket* (Three-Month % Change)

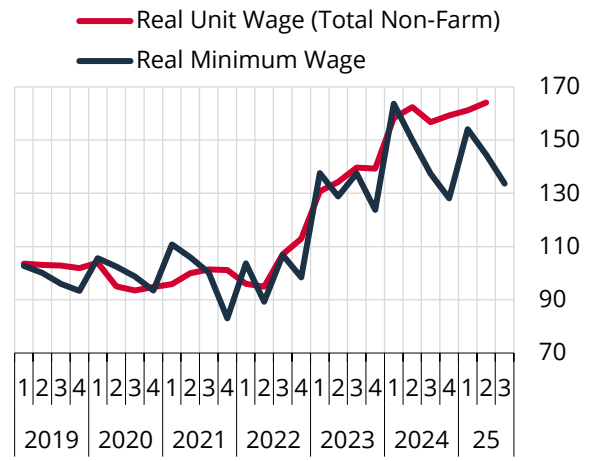


Source: CBRT.

* USD and euro have equal weights. November data is as of November 5, 2025. Percentage changes are calculated based on average values for respective months.

The underlying trend of producer inflation was up during the reporting period. In the second quarter of the year, real unit wage growth was comparable to that of the previous quarter (Chart 2.4.17). During this period, the Global Supply Chain Pressure Index stayed close to its historical average. Both container rates and transport costs decreased compared to the previous reporting period. Meanwhile, oil commodity prices fell, but non-energy items saw price increases. The increase in the exchange rate has been more moderate. As a result, there was no significant external price pressure during this period, with the exception of industrial and precious metals. On the other hand, three-month moving averages show that underlying manufacturing inflation rose over the current reporting period (Chart 2.4.18). Producer price increases accelerated over the last two months, driven by tobacco, food, electricity and natural gas production, and precious metals, pushing annual producer inflation to 27.0% as of October. However, the share of firms expecting price increases owing to cost pressures continues to decrease (Box 2.5).

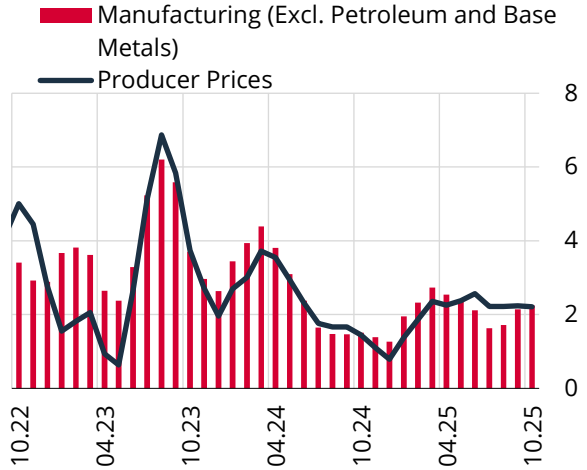
Chart 2.4.17: Real Unit Wage per Hour Worked* (Value Added, 2021=100, Seasonally Adjusted) **and Real Minimum Wage****
(2021=100)



Source: CBRT, TURKSTAT.

* Deflated by seasonally adjusted CPI. Real wage per hour worked/productivity.
** Net minimum wage is deflated by seasonally adjusted CPI.

Chart 2.4.18: Manufacturing (Excluding Petroleum and Base Metals) and Headline Producer Prices (Monthly % Change, Three-Month Moving Average)



Source: CBRT, TURKSTAT.

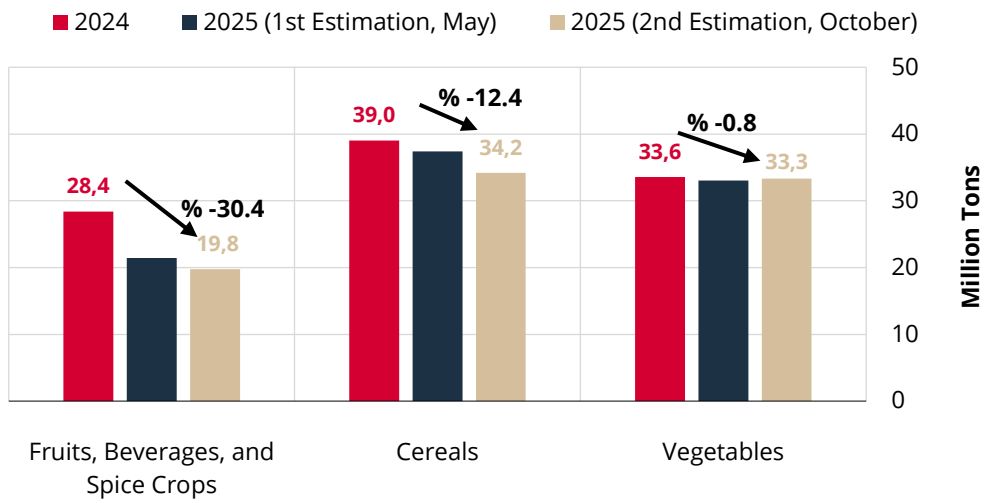
The impact of taxes and administered items on headline inflation was weaker than in the previous reporting period. As firms delayed a portion of the July SCT increase to August, prices of tobacco products kept rising this month. The impact of occurrences that adversely affect agricultural production, such as drought, on food prices has recently increased, driving food prices upward. Furthermore, the sharp increase in purchasing prices for certain agricultural items was reflected in food prices. Changes in the SCT rate for automobiles, electric ones in particular, have had a limited impact on their overall pricing. However, several brands have upped their prices as part of strategic interaction even while the relevant SCT rate remained unchanged. The customs tariff regulation for automobiles, which will go into effect at the end of November, is projected to lower prices of some brands while raising others, depending on their country of origin. However, the net effect is expected to be limited unless there are strategic price adjustments across brands. It is worth noting that firms may engage in strategic interactions following such regulations.

Zoom-in 2.3

Crop Production Estimates and Food Price Outlook for 2025

In 2025, Türkiye faced the consequences of adverse weather conditions. Three distinct frost disasters occurred between February and April, and year-round temperature increases and low precipitation levels have been noted, indicating a marked meteorological drought. Precipitation below the historical average poses a risk to crop production. The Turkish State Meteorological Service's (TSMS) Areal Cumulative Precipitation Report shows that precipitation between October 1, 2024 and September 30, 2025 was 26% below normal and 29% below the previous year, hitting its lowest level in 52 years. The TSMS's 12-month (October 2024–September 2025) drought maps, which use both the Standardized Precipitation Index[2] and the Percent of Normal Index, also highlighted the prevalence of areas experiencing moderate to severe drought in Türkiye. According to the TURKSTAT's First Estimates for Crop Production, which were released on May 23, 2025, adverse weather conditions will have the biggest impact on fruits that can only be harvested once a year. This is followed by the cereals group, with a small fall in production expected for the vegetables group. The second set of estimates, released five months later, on October 24, revealed a downward revision in fruit and cereal production quantities, indicating a more negative outlook than the first period and hence heightened risks to food inflation stemming from food supply. ***In fact, according to the second estimates in 2025, production quantities will drop by 30.4% for fruits and 12.4% for cereals in comparison to the previous year. Unlike fruits, vegetables can be harvested more than once a year; therefore, production losses are expected to be limited*** (Chart 1).

Chart 1: Crop Production Quantities and Estimates (Millions of Tons)

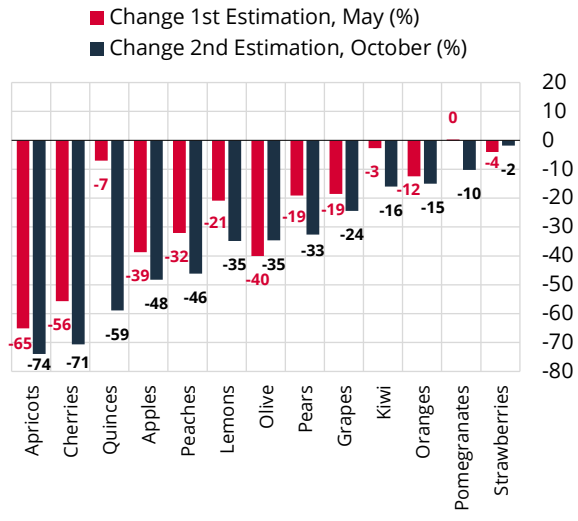


Source: TURKSTAT.

[2] For detailed information, see https://mgm.gov.tr/veridegerlendirme/kuraklik-analizi.aspx?d=aylik&k=spi#sfB and https://mgm.gov.tr/veridegerlendirme/kuraklik-analizi.aspx?d=aylik&k=pni#sfB.

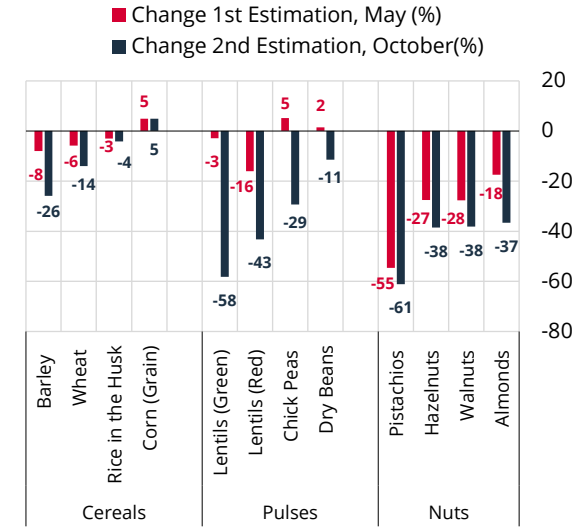
The early-year frost has had a negative impact on fruit production in particular. In the fruits group, certain crops such as apricots and cherries are projected to experience production losses of more than 70% (Chart 2). This is followed by quinces, apples, and peaches, with significant production loss projections. While olive production has been revised slightly upward, the loss in lemons is notable among citrus fruits. Nuts are another group expected to suffer similar high yield losses. Pistachios are projected to experience the sharpest decline in production (61%), while hazelnut, walnut, and almond production is expected to fall by 37%–38%. It should be noted that the effect of production-related declines in fruits on consumer prices varies depending on the product's consumption period. In the cereals group, the sharpest downward revisions are seen in barley and wheat, with production expected to fall by 26% and 14%, respectively, in 2025 (Chart 3). In contrast, corn production is estimated to rise. In the pulses group, production is anticipated to decrease across all items, especially red and green lentils.

Chart 2: Production of Selected Fruits
(Annual % Change)



Source: TURKSTAT.

Chart 3: Production of Selected Cereals, Pulses, and Nuts (%)



Source: TURKSTAT.

Frost and drought reduce agricultural production, leading to higher food inflation. Furthermore, rises in some agricultural purchase prices, other partially supply-side problems affecting the white and red meat industries, and seasonal spikes in demand may impact food inflation. The effects of rising risks on consumer prices can be monitored via heat maps[3] (Tables 4 and 5). As a result of adverse weather conditions, fresh fruit and vegetable prices in the unprocessed food group saw a significant monthly increase in March, with fruit prices continuing to climb in the following months. The drought also curtailed the expected price corrections in summer. Rising fruit prices also have cost-side effects on the prices of fruit juices. In addition to the drought-related production decline, global prices also had an impact on sunflower. Low yields in Russia and Ukraine drove up global sunflower-seed oil prices. Alongside the reflections of these developments, the rise in raw milk prices during the same period was passed on to domestic butter prices, pushing up prices in the fats and oils group of the CPI (Table 4). Raw milk price developments also affected the cheese and other dairy products group. Cereal prices, particularly wheat, put pressure on the prices of the bread and cereals group of the CPI due to announced purchase prices and low production. In the drought-affected pulses group, prices have risen in line with seasonal increases in consumption. Reduced production of nuts due to frost, drought, and extreme temperatures affected nut prices, while tea prices went up in the months following the release of fresh tea purchase prices. Chicken meat and egg prices, on the other hand, were influenced by periodically low supply and accompanying seasonal spikes in demand (Tables 4 and 5).

[3] The color coding on the heat maps is based on non-seasonally adjusted data. A three-color scale (red-yellow-green) has been used. Darker shades of red indicate strengthening of monthly inflation in sub-items, while darker shades of green indicate a weakening/decreasing of monthly inflation.

In sum, frost and drought have negatively affected agricultural production, putting upward pressure on food prices, while other supply-side constraints have also heightened risks to the food outlook. Climate change is expected to remain a risk factor for food supply and prices in the coming period.

Table 4: Processed Food Heat Map (Monthly % Change)

	Processed Food	Bread and Cereals	Meat Products	Milk	Cheese and Other Dairy Products	Fats and Oils	Canned Processed Vegetable Products	Sugar, Jam, Honey, Chocolate and, Confectionery	Coffee, Tea, Cocoa	Mineral Water, Non-Alcoholic Beverages, Fruit Juices
Jan 25	4.9	8.1	1.5	3.6	6.2	1.8	1.0	2.8	6.8	2.0
Feb 25	4.7	5.0	3.7	9.1	7.9	2.6	4.3	4.7	-1.6	4.4
Mar 25	0.6	0.2	2.9	0.0	0.3	0.2	-2.3	1.1	2.6	2.0
Apr 25	2.0	2.6	0.6	-1.2	0.9	2.6	3.6	3.2	0.2	1.7
May 25	1.4	1.2	7.8	-0.4	-0.9	0.9	1.6	1.3	2.5	3.5
Jun 25	1.0	1.5	-1.4	-1.7	-0.7	1.0	1.7	2.6	0.8	2.0
Jul 25	2.2	1.4	4.1	3.0	1.7	1.8	3.9	2.1	3.9	2.9
Aug 25	3.8	5.8	-1.7	1.8	3.6	2.3	2.0	3.3	5.3	4.6
Sep 25	3.9	3.0	2.1	3.3	2.8	9.1	4.7	3.2	5.1	3.3
Oct 25	2.5	2.8	2.5	2.5	2.6	2.2	2.4	1.8	2.8	3.0

Source: CBRT, TURKSTAT.

Table 5: Unprocessed Food Heat Map (Monthly % Change)

	Unprocessed Food	Rice	Red Meat	White Meat	Eggs	Fresh Fruits	Nuts	Vegetables	Potatoes	Pulses
Jan 25	2.7	1.3	3.3	-0.6	4.5	5.7	2.3	1.9	-0.1	0.8
Feb 25	1.4	4.2	5.1	2.1	1.5	8.3	1.0	-7.7	1.9	2.2
Mar 25	10.2	0.9	6.2	4.4	8.6	11.2	2.2	19.9	42.1	-1.3
Apr 25	2.0	1.7	5.9	1.2	7.2	19.8	3.1	-17.3	15.6	2.8
May 25	-3.0	4.5	0.5	-4.4	-18.8	8.3	5.5	-18.6	1.9	3.0
Jun 25	-1.7	0.7	0.5	-2.1	-13.8	-0.3	3.3	-4.2	-14.5	0.9
Jul 25	-2.4	2.4	0.3	-4.2	3.3	-8.8	1.8	1.1	-15.9	1.3
Aug 25	2.0	0.9	1.8	2.2	4.9	4.2	2.3	-0.3	-10.4	3.5
Sep 25	5.5	-0.9	2.1	13.6	19.8	-1.1	6.8	11.9	4.4	0.3
Oct 25	4.5	6.9	1.9	5.6	6.5	-1.2	5.6	13.8	-1.9	6.3

Source: CBRT, TURKSTAT.

Box 2.1

Recent Developments in Final Domestic Demand

Monitoring final domestic demand, which is an indicator of demand conditions, in a timely manner is crucial for assessing inflationary pressures. As GDP figures are released approximately two months after the end of the reference quarter, it becomes difficult to track final domestic demand promptly. Therefore, various data sources—primarily short-term business statistics—are utilized to monitor final domestic demand. However, these indicators may sometimes convey differing signals across periods, and final domestic demand may diverge from what short-term indicators imply. This box introduces a composite index derived from a broad dataset that can serve as an indicator of final domestic demand.

Data and Methodology

To closely monitor the course of final domestic demand, a comprehensive set of indicators was established, consisting of two main blocks. The first block includes the industrial production index, turnover indices, retail sales volume index, other components of the trade sales volume index, card expenditures, import quantity indices, and automobile and white-goods sales. The scope was further expanded by incorporating the subcomponents of these indicators, resulting in an economic activity block that covers a total of 127 different time series.

In addition, to mitigate the impact of potential divergences stemming from deflation processes, a price block was formed, consisting of the basket exchange rate, CPI, and the import unit value index.

When constructing the composite index, the components of both data blocks were extracted, and regression models were estimated with final domestic demand as the dependent variable. Several specification decisions were made during this modeling process: (i) whether to use Principal Component Analysis (PCA) or Partial Least Squares (PLS) for decomposing the data blocks; (ii) whether to select the top 20, 30, or 40 series in the first block based on their correlation with final domestic demand; (iii) whether to include only the first, the first two, or the first three components from the first block in the regression model; (iv) whether to include the first component derived from the price block; and (v) determining the starting points of the series included in the analysis.

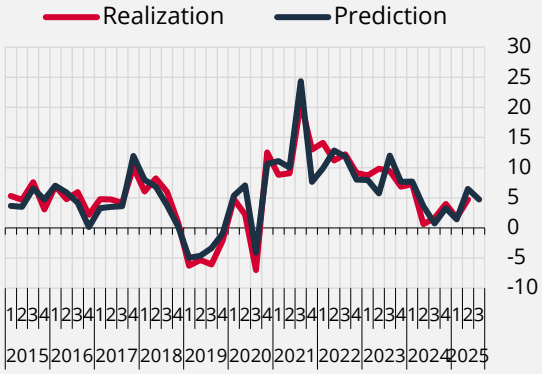
Considering all possible combinations of these choices, 108 candidate models were generated. The out-of-sample forecasting performances of these models were evaluated using a Leave-One-Out[1] (LOO) cross-validation strategy, and the composite index was obtained as the average of the forecasts from the 10 models with the lowest root mean squared error.

The modeling algorithm described above was applied separately for both annual and quarterly changes in final domestic demand. The estimation results indicate that PCA-based models perform better in predicting the course of final domestic demand than those based on the PLS method. Moreover, the second and third components derived from the first block contribute only marginally to forecasting performance, and most of the best-performing models include only the first component.

Models targeting annual growth rates as the dependent variable were found to have higher predictive power than those focusing on quarterly changes (Charts 1 and 2). This difference has become more evident recently, with annual models reflecting the general trend of final domestic demand more consistently. Nonetheless, some divergences between actual and predicted values were also observed periodically in annual models.

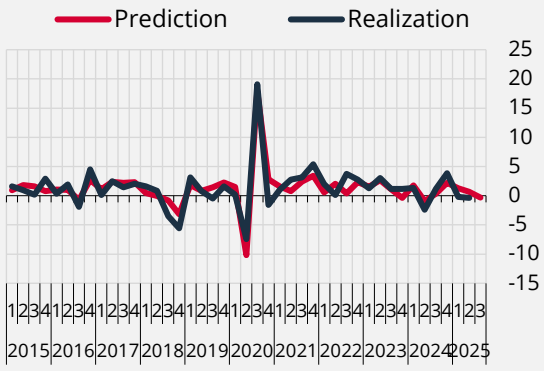
Finally, models incorporating the price block displayed better forecasting performance. These findings suggest that some of the discrepancies between leading indicators of final domestic demand and its actual realizations may stem from the deflators used in the real-term adjustment process. For the third quarter of 2025, the index points to a slowdown in final domestic demand on both annual and quarterly bases. This trajectory supports the assessment that demand conditions are at a disinflationary level.

Chart 1: Realized vs Predicted Final Domestic Demand (Annual % Change)



Source: Authors' calculations, TURKSTAT.

Chart 2: Realized vs Predicted Final Domestic Demand (Quarterly % Change)

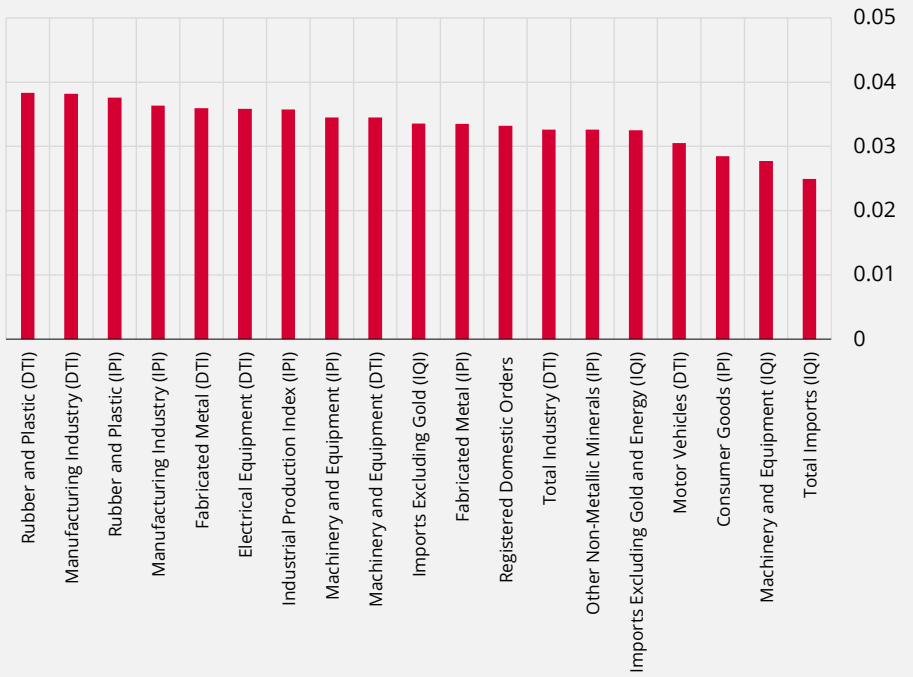


Source: Authors' calculations, TURKSTAT.

The contributions of the series used in constructing the composite final domestic demand index provide valuable insights into which indicators carry higher informational value for monitoring demand conditions. As shown in Chart 3, the industrial production index, deflated domestic turnover indices, and import quantity indices make the largest contributions. In addition, sectors linked to construction activity are also significant.

However, the contributions of individual indicators are generally close to each other, implying that a holistic approach is preferable when interpreting final domestic demand rather than relying on a single indicator or group of indicators. Furthermore, considering that the principal component derived from the price block improves forecast accuracy, it is understood that indicators solely related to economic activity may occasionally be insufficient for assessing demand conditions.

Chart 3: Contributions to Annual Change Forecasts of Final Domestic Demand*



Source: Authors' calculations.
* Turnover indices are deflated using the relevant PPI items. DTI, IPI, and IQI denote domestic turnover, industrial production index, and import quantity index, respectively.

[1] The LOO method re-estimates the model by sequentially excluding each period from the sample. This approach enables a systematic assessment of the model's out-of-sample forecasting performance over an extended time window.

The same analytical framework, taking final domestic demand as the target variable, was also applied with private consumption as the dependent variable—another key indicator for assessing demand-driven inflationary pressures. The results show that the industrial production index and deflated domestic turnover indices again play leading roles in explaining private consumption, while the retail sales volume index (excluding gold) and the services production index also contribute to forecasting performance. Furthermore, the subcomponents of industrial production and turnover indices related to consumer goods also play a role.

In sum, when examining the recent trajectory of final domestic demand, annual forecasts outperform quarterly forecasts, although some short-term deviations are also observed in annual predictions. Therefore, caution is warranted when drawing inferences about final domestic demand using short-term business statistics.

Moreover, the better performance of models including the price block indicates that discrepancies between leading indicators of final domestic demand and the deflators used in its real-term calculation may increase forecast errors. The industrial production index, deflated domestic turnover indices, and import quantity indices appear to possess the strongest signaling power regarding final domestic demand. Lastly, the latest short-term statistics for the third quarter suggest a slowdown in the growth of final domestic demand.

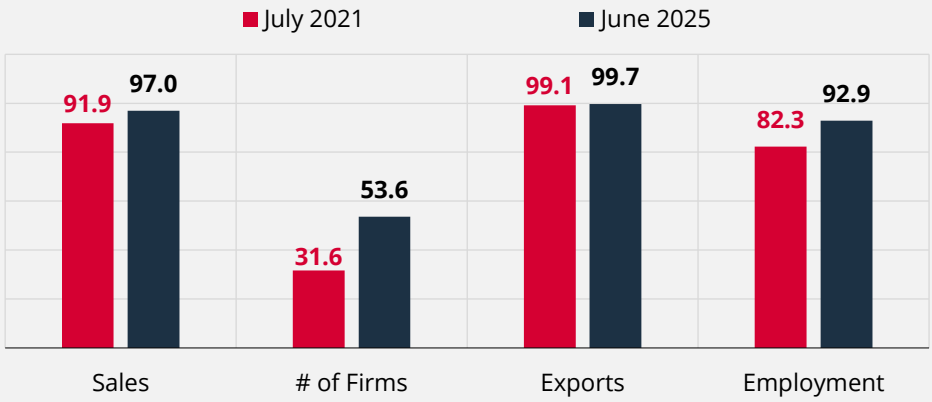
Box 2.2

Impact of the Transition to E-Invoicing on Firms' Registered Sales

In recent years, Türkiye's widespread adoption of e-invoicing has significantly reduced informality and improved tax compliance. The decrease in informality in the economy may have significant implications for various macroeconomic indicators. The transition to e-invoicing is expected to have a primary impact on firms' sales data. This box analyzes the effect of the transition to the e-invoicing system on firms' registered sales.

A series of regulatory measures has gradually expanded e-invoicing adoption.[1] The process, which started in 2013 for high-revenue firms, accelerated from 2020 onwards and began covering a broader base of firms. During the period from July 2021 to June 2025, the number of firms included in the e-invoicing system increased significantly, with 53.6% of firms transitioning to e-invoicing.[2] The share of these firms in total revenue reached 97%, their share in exports approximately 100%, and their share in employment approximately 93% (Chart 1).

Chart 1: Share of Firms Transitioning to E-Invoicing in the Economy (%)



Source: Authors' calculations, Revenue Administration.

For the empirical analysis, firm-level monthly revenue data provided by the Revenue Administration were used. Revenue data were first deflated using deflators announced by TURKSTAT for the sub-sectors in which the firms operate. In the second stage, the resulting real sales data were seasonally adjusted. In the adjustment process, seasonal factors announced by TURKSTAT for the sub-sectors in which the firms operate were used.

A difference-in-differences approach is used to estimate the effect of the transition to e-invoicing on reported sales. In this context, the following regression equation is estimated:

$$Y_{i,t} = \alpha_i + \lambda_t + \sum_{k=-6}^{10} \beta_k D_{i,t}^k + \varepsilon_{i,t}$$

where $Y_{i,t}$, represents the seasonally adjusted real sales of firm i in month t, α_i denotes firm fixed effects, and λ_t corresponds to time fixed effects. $D_{i,t}^k$ is a dummy variable that takes the value of one if the observation corresponds to k periods before or after the firm's transition to e-invoicing, and zero otherwise. For example, $D_{i,t}^2$=1 if the observation refers to the second month after the firm's adoption

[1] For details on e-invoicing regulations, see General Communiqué on Tax Procedure Law Serial No. 397 available at https://www.resmigazete.gov.tr/eskiler/2010/03/20100305-16.htm.

[2] The analysis is limited to firms that first adopted e-invoicing after July 2021, as our dataset does not include transition dates for earlier adopters.

of e-invoicing. The coefficients β_k capture the dynamic effects of adopting e-invoicing on firm revenues. The post-transition coefficients (*k>0*) indicate how much firms' real sales change after adopting e-invoicing, while the pre-transition coefficients (*k<0*) allow for a comparison of pre-trends between firms that adopted e-invoicing and those that had not yet done so.

Since the e-invoicing system was gradually expanded, firms were included in the system at different dates based on their size and sectors. Therefore, the standard difference-in-differences method is insufficient to measure the effect of the transition to e-invoicing. For this reason, the staggered difference-in-differences method developed by Callaway and Sant'Anna (2021) was used in the econometric analysis. This method compares firms that were included in the e-invoicing system in a given month with firms that had not yet been included in the system by that date but would be included in the future. This approach eliminates time trends specific to firms that will transition to e-invoicing and provides more reliable estimates. Firms that will never transition to e-invoicing are very small-scale and not comparable with firms transitioning to e-invoicing and therefore were not included in the analysis.

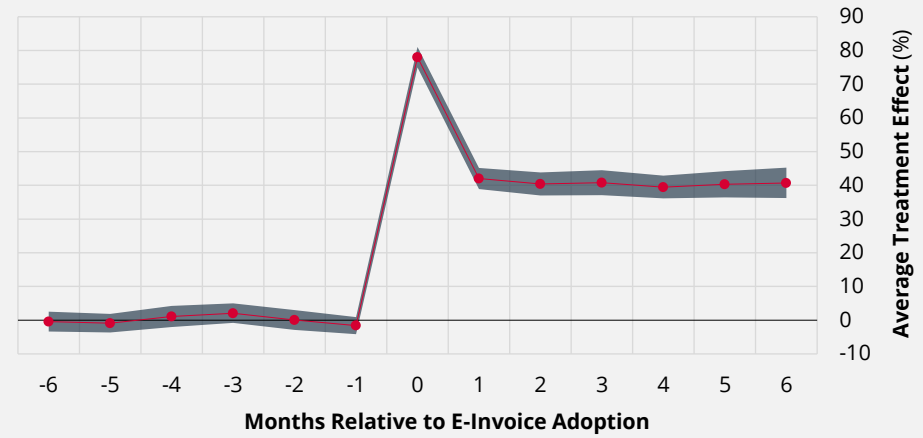
The average treatment effect on the treated (ATT) of the transition to e-invoicing on real sales is calculated as follows:

$$ATT_{g,t} = \left[Y_t - Y_{g-1} | G = g\right] - \left[Y_t - Y_{g-1} | D_t = 0, G > t\right]$$

where, Y_t denotes the natural logarithm of a firm's real revenue in month *t*; G indicates the adoption month; and D_t indicates whether the firm has adopted by month t. The first term $\left[Y_t - Y_{g-1} | G = g\right]$ represents the average change in log sales between month *t*, ($t \geq g$) and pre-adoption month ($g-1$) for firms that adopted in month g ($G = g$). The second term $\left[Y_t - Y_{g-1} | D_t = 0, G > t\right]$ measures the same change for firms that have not yet adopted by month *t* but will adopt later. This second term captures common factors affecting all firms, such as demand conditions. The difference between these terms isolates the causal effect of e-invoicing adoption. The Callaway and Sant'Anna (2021) estimator computes this effect separately for each adoption cohort and then aggregates across cohorts.

E-invoicing adoption caused a substantial and persistent increase in reported real sales (Chart 2). Relative to the month before adoption (t=-1), real sales surged by approximately 78% in the adoption month (t=0), 42% in the first post-adoption month (t=1), and 40% in the second month (t=2). While the effect gradually diminishes, it remains statistically significant through the sixth month. On the other hand, pre-adoption coefficients are statistically insignificant. This confirms that adopting and non-adopting firms exhibited parallel sales trends before treatment.

Chart 2: Impact of the Transition to E-Invoicing on Real Sales*
(All Sectors)

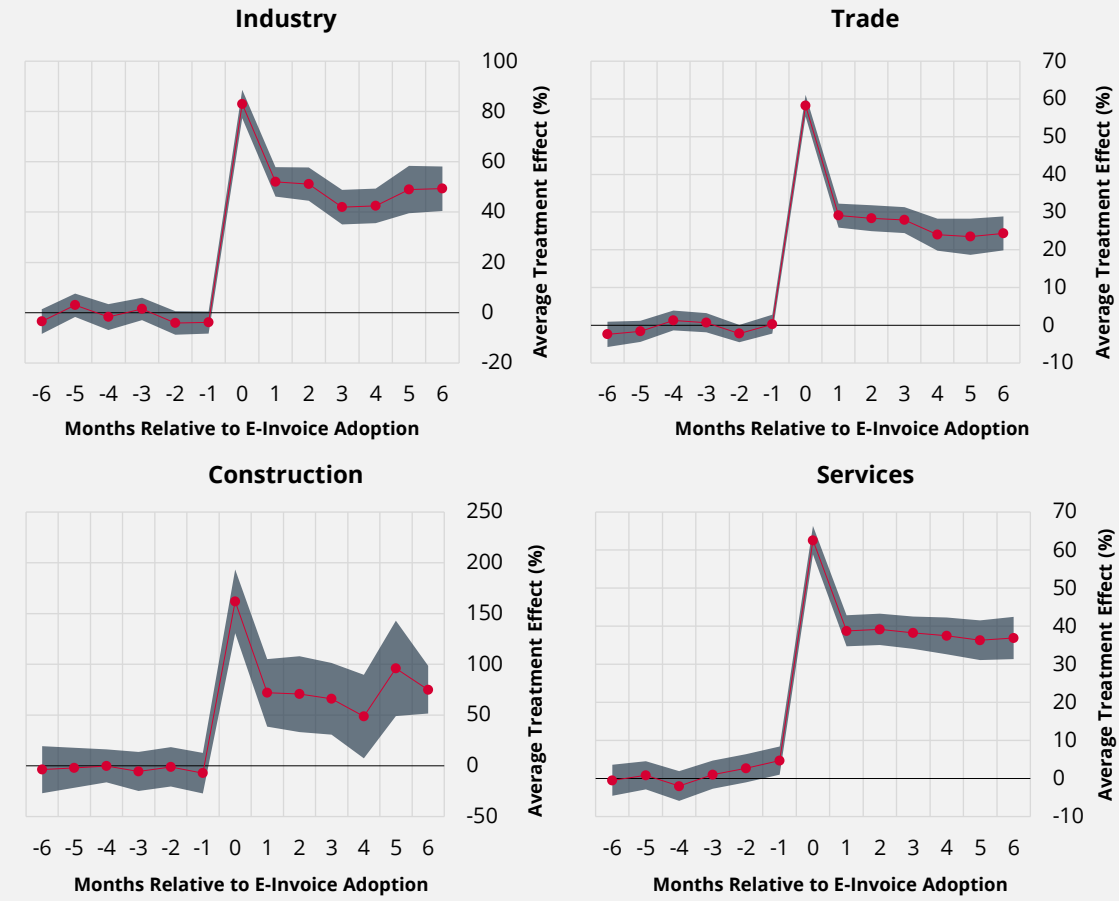


Source: Authors' calculations based on Revenue Administration data.

* The shaded area represents the 95% confidence interval.

The effect of the transition to e-invoicing is statistically significant across all sectors (Chart 3). In the construction sector, where the highest effect is observed, real sales increase by over 100% with the transition to e-invoicing. In the industry, services, and trade sectors, there is also an increase in the range of 60%–80% in the first month, and in the following months, a substantial part of the effect is maintained, continuing at a level of at least 20%.

Chart 3: Impact of the Transition to E-Invoicing on Real Sales*



Source: Authors' calculations based on Revenue Administration data.
* The lower and upper lines indicate the 95% confidence interval.

Our findings reveal a substantial increase in reported sales volumes following e-invoicing adoption. This estimate should be interpreted as a lower bound since our econometric approach only captures firms that reported some sales before adoption. E-invoicing may also induce firms that previously had no sales records to begin declaring sales, as improved record-tracking reduces compliance costs and increases detection risk. Consequently, the total impact of e-invoicing on registered sales is likely to exceed our estimates.

In sum, e-invoicing has reduced sales informality in Türkiye. It is critical that policymakers and analysts should account for this structural shift when interpreting various macroeconomic indicators, particularly sales volume indices.

References

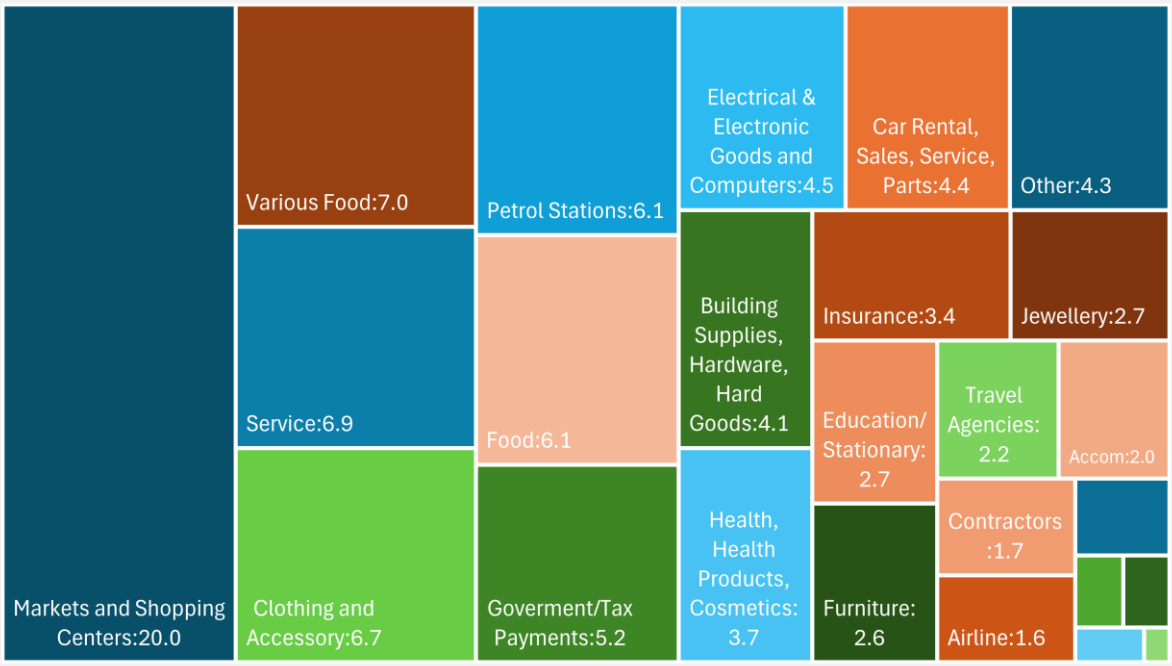
Callaway, B. & Sant'Anna, P.H.C. (2021). Difference-in-differences with multiple time periods. Journal of Econometrics, 225(2), 200–230.

Box 2.3

How Does the Recent Gold Price Surge Impact Card Spending?

Gold prices in international markets have exhibited a rapid increase since the last quarter of 2023. This increase in the value of gold, a traditional savings instrument in Türkiye, could have significant repercussions on household consumption through the balance sheet constraint channel. A relevant recent study indicates that the increase in global gold prices since the end of 2023 has had an upward impact on housing prices and automobile sales.[1] This box examines how the increase in the value of gold impacts credit and debit card spending, with respect to each card spending subcategory. The findings indicate that the increase in gold prices led to a particularly significant impact on durable and semi-durable goods and travel spending.

Chart 1: Card Spending by 25 Subcategories* (Total Transaction Flow in January–September 2025, %)



* Detailed breakdowns of the 25 spending categories are available under the CBRT Debit Card and Credit Card Sectoral Expenditure Statistics.

Wealth effect studies in the literature mainly focus on the consequences on economic activity of changes in housing values (Campbell and Coco, 2007; Mian et al., 2013; Mian and Sufi, 2014), stock values (Case et al., 2005) and more recently, cryptocurrency prices (Aiello et al., 2024). Furthermore, studies have shown that the wealth elasticity of consumption is higher for durable and semi-durable goods than for other consumption items (Luengo-Prado, 2006; Mian and Sufi, 2011).

This study uses a dataset that disaggregates card spending as a time series for 81 provinces and 25 distinct sub-expenditure groups based on the province where the POS transaction is conducted, and the sector group to which it belongs. Chart 1 shows the shares of these spending groups in total card volume for the period January–September 2025. The heterogeneity in the distribution of the gold ratio proxy, defined as the share of gold in savings deposits and used to measure provincial gold saving intensity, provides a natural experiment setup to analyze the impact of the 110% increase in gold prices in USD terms from the last quarter of 2023 to September 2025. We can verify that the distribution of the provincial gold deposit ratio to a large

[1] CBRT Blog, "Impact of Gold Price-Driven Wealth Growth on Housing and Automobile Markets", May 2025. https://tcmbblog.org/wps/wcm/connect/blog/en/main+menu/analyses/impact+of+gold+price-driven+wealth+growth+on+housing+and+automobile+markets

extent captures the distribution of both formal and physical gold savings, using our province-level estimated savings/GDP ratio and Google Trends search indicators.[2]

The difference-in-differences estimation model we used to test the statistical and economic significance of the variations in expenditure items based on the intensity of gold savings at the provincial level is provided below for each card-based expenditure category y_{it}:

$$\log(y_{it}) = GoldRatio_i^{Sep2023} \times Post_t + u_t + v_i + \varepsilon_{it}$$

The dependent variable $\log(y_{it})$ represents the logarithmic transformation of the nominal expenditure amount in the relevant subcategory for each month. $Post_t$ is a dummy variable that takes the value 1 for the period September 2023–September 2025 and 0 for the period January 2022–August 2023. The continuous treatment variable $GoldRatio_i^{Sep2023}$ takes into account the September 2023 values of the gold deposits/total deposits ratio.

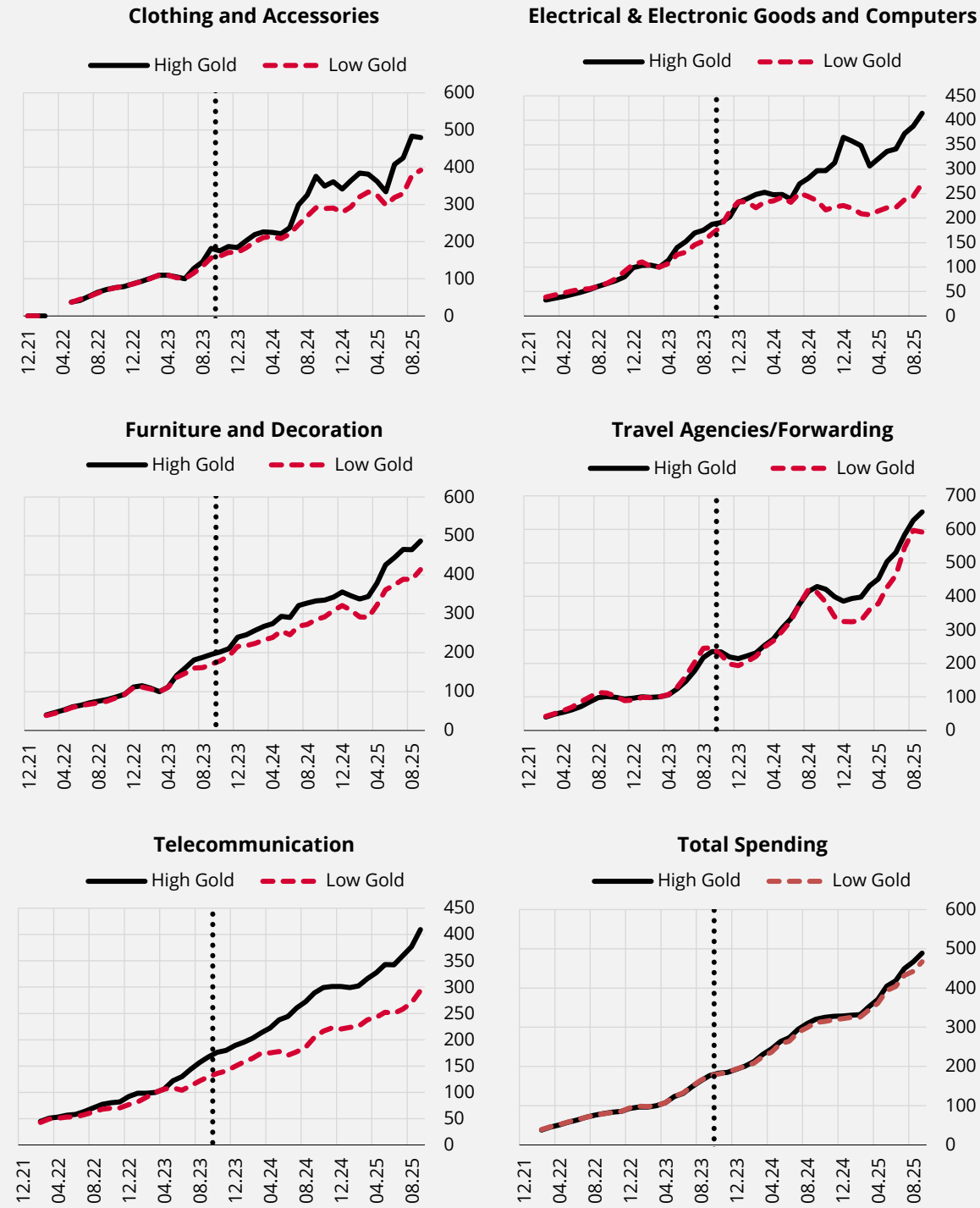
First, to examine the development of expenditure items before and after September 2023, when the gold price movement began, we index the volumes of the items to the March 2023 period and visualize the expenditure development of "High Gold" and "Low Gold" provinces based on the items (Chart 2). The charts show us that in the period after September 2023, expenditures related to durable goods consumption, such as Electrical & Electronic Goods and Computers, Furniture and Decoration, Telecommunication[3] and semi-durable goods consumption, such as Clothing and Accessories, positively diverged in the "High Gold" province group. No significant differentiation is observed among provinces in the aggregate card spending volume. This could be due to the nature of the data: in some spending groups (such as insurance, airlines, accommodation, taxes, and individual pension payments), the businesses in which POS transactions are carried out might be located in a province which is different from where the gold savers reside.

The difference-in-differences model tests the statistical and economic significance of the differences in expenditure items based on the intensity of province-level gold savings by controlling for province-specific fixed effects and time-varying macroeconomic factors. The estimation results presented in Table 1 indicate a significant gold-related wealth effect exist, particularly in the consumption of durable and semi-durable goods. Households direct their exogenously expanding budgets towards more durable consumption goods due to their high unit value, longer storage life, and deferability. The finding that durable goods consumption is more sensitive to wealth increases is consistent with the related literature on wealth effect.

[2] In our analysis of the share of gold accounts (gold ratio) within individual deposits, which we use to represent the preference for gold savings, we find that at the provincial level, the gold ratio is negatively correlated with the share of total financial system savings in GDP (even when controlling for socioeconomic variables). In other words, we find that provinces with a high share of gold in deposits have a lower deposit/GDP ratio, and consequently, savings outside the deposit system may be significantly higher in these provinces. Additionally, our analysis of internet search behavior at the provincial level using Google Trends data provides behavioral evidence that the gold ratio consistently represents the geographical distribution of gold savings trends both within and outside the financial system. Given the role of the under-the-mattress gold, it is estimated that the actual wealth effects driven by gold prices in the study may be higher than the findings mentioned.

[3] Businesses classified under the telecommunications category include companies that sell telephones, fax machines, messaging devices, mobile phones, and other telecommunications-related equipment.

Chart 2. Development of Selected Card Spending Categories in Provinces with High and Low Gold Ratios* (March 2023 = 100)



* Changes in nominal flow amounts in TRY equivalents are calculated based on three-month moving averages, with the March 2023 period set as 100. The solid line shows the average changes for "High Gold" provinces, which are above the median gold ratio value of 81 provinces as of September 2023, while the dotted line shows the average changes for "Low Gold" provinces, which have a gold ratio below the median value.

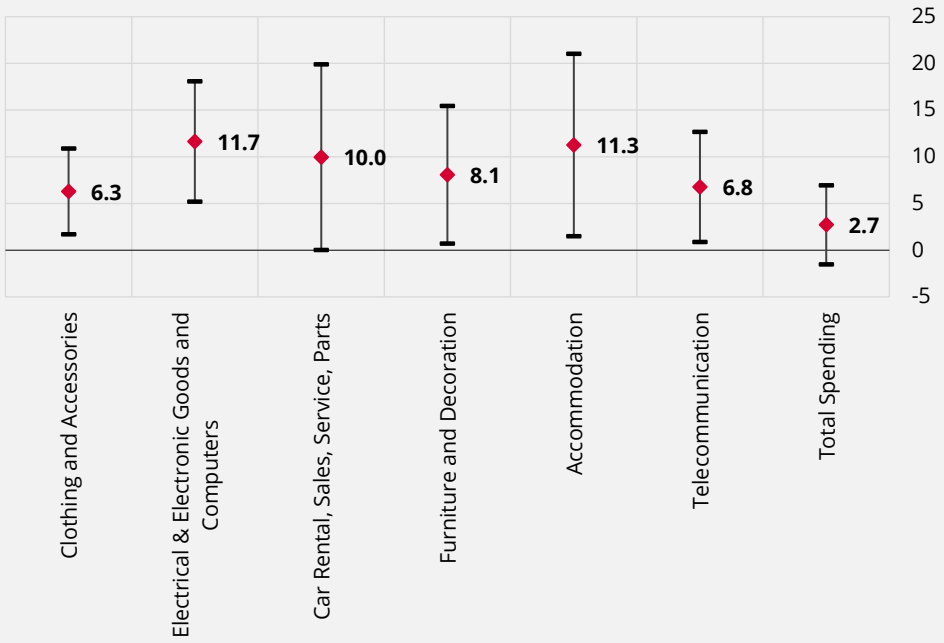
Table 1. Difference in Differences Estimates for Card Spending Subcategories

Category	Coefficient Estimate	Standard Deviation
Markets and Shopping Centers	0.0039	0.0024
Service	0.0028	0.0052
Various Food	0.0021	0.0024
Clothing and Accessories	**0.0067*** **	**0.0025**
Petrol Stations	0.0020	0.0031
Food	0.0037	0.0024
Government/Tax Payments	0.0050	0.0043
Electrical & Electronic Goods and Computers	**0.0124*** **	**0.0035**
Car Rental, Sales, Service, Parts	**0.0106***	**0.0054**
Other	0.0104	0.0087
Building Supplies, Hardware, Hard Goods	0.0086	0.0061
Health, Health Products, Cosmetics	**0.0068****	**0.0028**
Insurance	0.0045	0.0075
Jewelry	**0.0181*** **	**0.0068**
Furniture and Decoration	**0.0086****	**0.0040**
Education/Stationary	0.0018	0.0035
Travel Agencies/Forwarding	**0.0126***	**0.0068**
Accommodation	**0.0120****	**0.0053**
Contractor Services	0.0049	0.0085
Airlines	-0.0017	0.0191
Telecommunication	**0.0072****	**0.0032**
Private Pension	0.0777	0.0743
Direct Marketing	-0.0042	0.0159
Club/Association/Social Services	0.0006	0.0116
Casino	0.0026	0.0202
Total Spending	0.0029	0.0023

Note: For the difference-in-differences, monthly data covers the period January 2022-September 2025 and includes TRY equivalent amounts for 25 expenditure subcategories in 81 provinces. In the model incorporating province and month×year time fixed effects, standard errors are clustered by province. *, **, and *** indicate statistical significance at the 90%, 95%, and 99% levels, respectively.

The results for the economic magnitude of the effects on durable and semi-durable goods expenditure and their elasticities relative to the gold price are presented in Chart 3. We observe that the additional average increase due to gold prices in the durable and semi-durable expenditure groups during the two-year period (from September 2023 to September 2025) is between 6% and 12%. For example, for the spending on Electrical & Electronic Goods and Computers in a province with an average share of gold, we calculate an additional average increase of 12% as compared to the hypothetical scenario where gold prices were flat after September 2023. This indicates the existence of an economically significant effect.

Chart 3. Average Additional Impact on Selected Spending Subcategories Due to Gold Prices in the Period after September 2023* (%)



* Average additional effects due to gold prices are shown for the period from September 2023, when the increase in gold prices began, to September 2025. Elasticities are calculated by multiplying the difference-in-difference estimated coefficients by the average national gold ratio of 9.4 for the September 2023 period.

In conclusion, the analyses indicate that the rapid increase in global gold prices has played a role in the increase in spending on durable and semi-durable consumption goods through the household balance sheet channel. It is assessed that this effect from the wealth channel, where the valuation effect of gold has become prominent in the recent period, may be among the factors that lead domestic demand and the output gap to remain above forecasts.

References

Aiello, D., Baker, S. R., Balyuk, T., Di Maggio, M., Johnson, M. J. & Kotter, J. D. (2024). The effects of cryptocurrency wealth on household consumption and investment, NBER Working Paper No. 31445.

Campbell, J. Y. & Cocco, J. F. (2007). How do house prices affect consumption? Evidence from micro data. Journal of Monetary Economics, 54(3), 591–621.

Case, K., Quigley, J. & Shiller, R. (2005). Comparing wealth effects: The stock market versus the housing market. Advances in Macroeconomics, 5(1), 1–34.

CBRT (2025),Impact of gold price-driven wealth growth on housing and automobile markets, CBRT blog at https://tcmbblog.org/wps/wcm/connect/blog/en/main+menu/analyses/impact+of+gold+price-driven+wealth+growth+on+housing+and+automobile+markets.

Luengo-Prado, M.J. (2006). Durables, nondurables, down payments and consumption excesses, Journal of Monetary Economics, 53(7), 1509–1539.

Mian, A., & Rao, K. & Sufi, A. (2013). Household balance sheets, consumption, and the economic slump. The Quarterly Journal of Economics, 128(4), 1687–1726.

Mian, A. & Sufi, A. (2011). House prices, home equity-based borrowing, and the US household leverage crisis. American Economic Review, 101(5), 2132–2156.

Mian, A., & Sufi, A. (2014). What explains the 2007–2009 drop in employment? Econometrica, 82(6), 2197–2223.

Box 2.4

Findings from Interviews with Firms

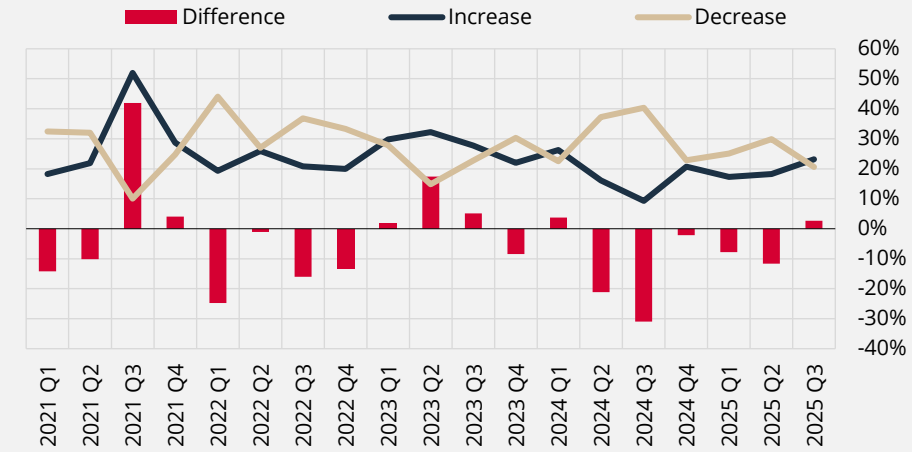
The CBRT holds face-to-face meetings with firms as part of the "**Economic Lens to the Real Sector (RESİM)"** study.[1] This box summarizes the findings from the interviews conducted in the July–September 2025 period and firm assessments regarding latest developments about collection and bankruptcy protection.

In the third quarter, while a slight increase in domestic sales supported demand, the emphasis on export risk persisted. Weakness in production and investment stance continued.

Domestic sales increased slightly in the third quarter.

Ongoing campaigns in the automotive, white goods, clothing and other sectors, competition pressures due to imported consumption goods, and modest loosening in financial conditions compared to the second quarter contributed to sales (Chart 1). However, continuing erosion of purchasing power curbed household spending throughout the quarter, and spending related to the back-to-school and work lagged behind firms' expectations. According to initial October interviews, firms' efforts to avoid financing costs and reduce stocks supported sales.

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



Source: CBRT RESİM.

* Demand perception shows the evaluation made in view of 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 business-to-business trade, while emphasis on tight financing conditions, collection risks, and uncertainty in the demand outlook continued, orders of the automotive, defense, housing, and related sectors increased slightly.

[1] The main purpose of this study is to obtain information on periodic production, domestic and international sales, investments, employment, credit conditions, 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, 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.

Exports rose modestly in the third quarter, while emphasis on downside risks increased.

Parity developments and the tendency toward producing higher value-added products in sectors such as textile, clothing, and automotive supported foreign sales. On the other hand, competition conditions and protectionist trade policies continued to keep risks to exports alive. Particularly, competitive pressure from Chinese products persisted in all exports markets, and firms not only had difficulty in reaching new customers but also lost some of their customers. October interviews indicated that current levels of exports would be maintained in the last quarter.

In the tourism sector, demand converged to the last year's level in the third quarter. Demand lagged behind both expectations and seasonal norms both in resort and city hotels in July, but August demand recovered in response to price cuts more significantly in resort hotels and more gradually in city hotels.

Production remained weak throughout the quarter.

The limited improvement in expectations regarding domestic demand supported production of firms operating mainly in the domestic market. The production of exporters, however, maintained the previous quarter's level. Tight financial conditions, cash flow disruptions, and competitive pressures suppressed production. However, interviews from October imply a limited increase in production.

The investment stance of firms continued to be weak.

Uncertainties in the demand outlook and tight financial conditions continued to suppress investment. Factors such as weak demand and idle capacity negatively impacted domestic investment in some sectors. A significant part of firms avoided risk amid rising production costs and declining profitability and focused on maintaining current production levels. Companies that differentiate positively from their sector, produce high value-added products, and possess stronger equity structures continued to invest. During this period, capacity-increasing investments remained limited, while investments in the form of automation and modernization deemed necessary to increase efficiency and competitiveness became prominent.

Decline in the prevalence of companies planning employment growth continued.

Weak investment stance, uncertainty in the demand outlook, contracting business volume, and high labor costs reduced the employment growth plans for the next six months. Automation and productivity-enhancing investments aimed at cutting costs also continued to weigh on employment growth plans.

While cost increases have slowed, the share of firms planning price increases remained close to the previous quarter.

References to cost increases stemming from input, supply, and financing decreased during this period, and the lack of an update to the minimum wage in July limited the increase in labor costs. Meanwhile, the emphasis on energy costs increased slightly.

Demand and competitive conditions continued to limit the full pass-through of cost increases into prices. Unreflected costs, profitability levels, and cost increase expectations caused the share of firms planning price increases to stay flat.

Financing needs decreased slightly in the third quarter.

The decline in working capital requirements was primarily driven by the decline in cost pressures. The weak investment stance also reduced the financing needs for investment purposes.

Credit conditions eased compared to the second quarter, primarily through the interest rate channel. While not as widespread as it was in credit conditions, there was also a limited easing in access to credit.

Business-to-business trade conditions challenged firms more in the first two months of the quarter, and the share of firms indicating additional difficulties declined slightly in September. The share of firms reporting difficulties in collecting receivables increased compared to the previous quarter, while monthly changes decreased throughout the quarter. However, in order to minimize collection problems, firms maintained their cautious approach in customer selection and continued to utilize instruments such as secure sales channels and receivables insurance.

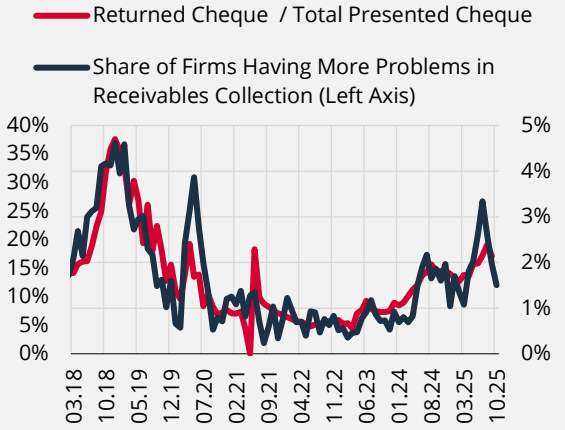
RESİM Focus: *Firm Assessments Regarding Collection and Bankruptcy Protection*

Firms also share their assessments regarding developments about collection and bankruptcy protection in RESİM interviews. In the interviews, firms state that applications for bankruptcy protection rise time to time, concentrate in some sectors and can cause collection losses when customers enter the bankruptcy process.

References to collection problems and bankruptcy protections began to decline after July.

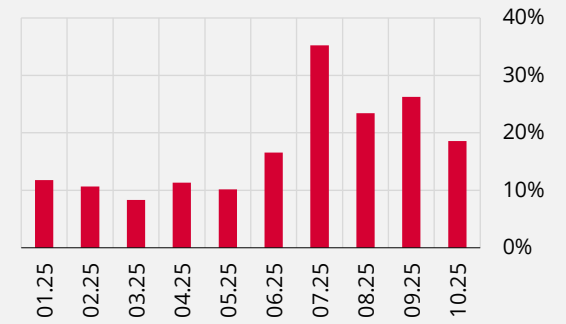
References to bankruptcy protections and collection problems in firm interviews peaked in July. Delays in receivables collection, rise in rates of returned cheque, and developments in bankruptcy protection increased the risk perception of firms in July. The number of firms stating that they have additional problems in receivables collection began to decrease in August, and the decline continued in September and October (Chart 2). Similarly, emphasis on risks regarding bankruptcy protection in the interviews fell to some extent in recent months (Chart 3).

Chart 2: Returned Cheque Rate and Share of Firms Experiencing Collection Problems



Source: CBRT electronic data dissemination system, CBRT RESİM.

Chart 3: Share of Firms Referencing Bankruptcy Protection



Source: CBRT RESİM.

In sum, the process of bankruptcy protection allows firms to delay payments to their suppliers, and therefore, their direct and indirect shares in the economy are important. The CBRT closely monitors firms applying for bankruptcy protection, their suppliers, and their shares in the economy with the perspective of economic outlook, price stability, and financial stability.

Box 2.5

Pricing Behavior and Expectations of the Real Sector

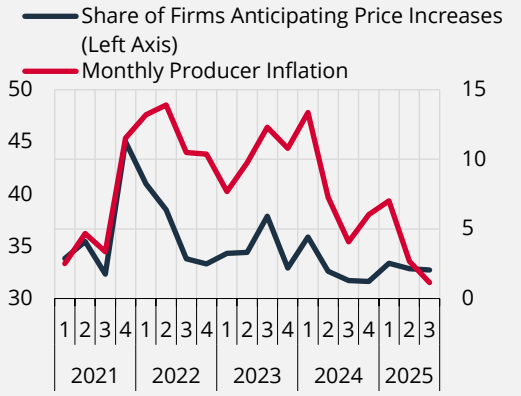
Pricing behavior, which reflects companies' decision-making processes regarding when and to what extent they will change their prices, plays an important role in inflation dynamics and monetary policy effectiveness. The interaction between pricing behavior and inflation expectations is one of the main factors shaping the pace and persistence of disinflation. In this context, closely monitoring companies' pricing behavior and expectations is of critical importance for central banks.

This box examines the recent pricing behavior and inflation expectations of real sector firms and assesses their alignment with the disinflation process that began in June 2024. To this end, indicators such as the ratio of firms forecasting increases in domestic sales prices, the frequency of price changes, and the duration of price stability are examined alongside the distribution of firms' annual PPI inflation expectations for the next 12-month period.

The analysis uses microdata from the Business Tendency Survey conducted monthly by the CBRT. The Business Tendency Survey provides qualitative information on the assessments of firms operating in the manufacturing industry regarding the recent past and current situation, as well as their expectations for the future. It also provides quantitative information on capacity utilization rates and inflation expectations. Owing to its comprehensive structure, it serves as a suitable, reliable, up-to-date, and timely data source for studies on pricing behavior.

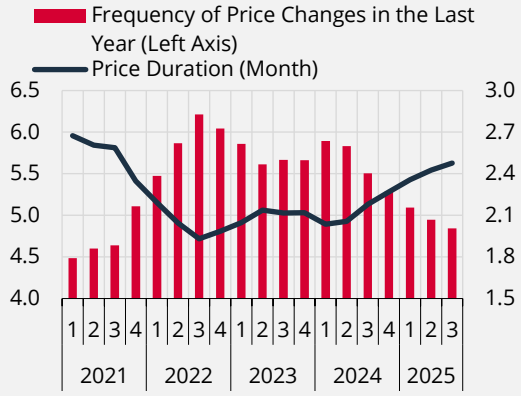
Firms' pricing decisions are shaped by cost and demand conditions as well as their inflation expectations. As the share of firms raising prices increases, inflation is more likely to accelerate. Indeed, the share of firms anticipating an increase in domestic market retail prices over the next three months moves in tandem with manufacturing PPI inflation (Chart 1).

Chart 1. Share of Firms Expecting Domestic Price Increases and Annual Producer Inflation (%)



Source: Author's calculations, CBRT, TURKSTAT.

Chart 2: Real Sector Price Change Frequency and Implied Price Duration

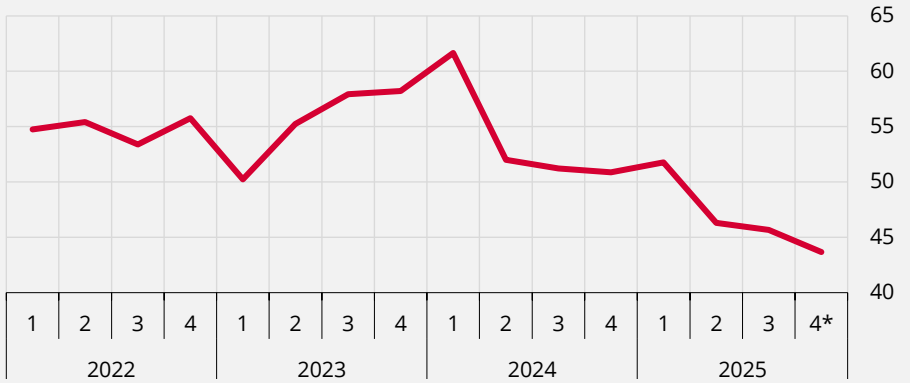


Source: Author's calculations, CBRT.

Between 2021 and 2024, the share of firms anticipating an increase in domestic sales prices moved broadly in line with producer inflation. However, in 2025, the proportion of firms anticipating an increase in sales prices decreased even for the months that had a relatively flat outlook for producer inflation. This divergence implies that the pricing behavior of real sector firms is becoming more aligned with the disinflation outlook and the guidance of monetary policy, rather than past trends.

Chart 2 shows real sector firms' price change frequency over the past year and corresponding implied price durations. During the 2021-2022 period, price change frequency increased under high inflation conditions, while price durations shortened significantly. The gradual downward trend in price change frequency observed from the second half of 2024 continued throughout 2025, with indicators converging towards historical averages. These findings indicate that pricing behavior in the manufacturing industry has become more balanced and aligned with the disinflation process. The share of firms anticipating price increases due to cost pressures also confirms the gradual improvement in pricing behavior (Chart 3).

Chart 3: The Share of Firms Anticipating Price Increases under Cost Pressure** (%)

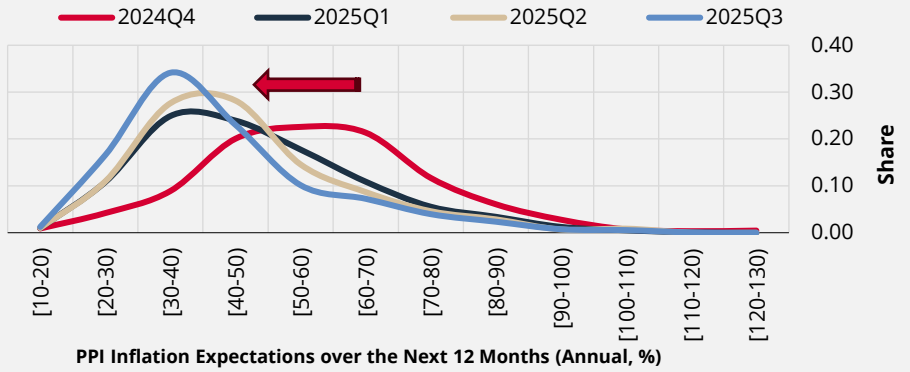


Source: Author's calculations, CBRT.
* As of October 2025.
** The share of firms anticipating price increases under the cost pressure refers to the share of firms that anticipate increases in domestic sales prices over the next three months, among those reporting that over the past three months costs have increased, but domestic demand has remained same.

Despite cost pressures, the recent decline in the share of firms anticipating price increases indicates greater caution regarding pass-through of cost increases (Chart 3). This signals a shift in real-sector pricing behavior, moving away from past inertia and aligning with the medium-term outlook for disinflation and monetary policy guidance.

Normalization and a cautious improvement in the real sector's pricing behavior are supported by an improvement in expectations (Chart 4). The steady leftward shift and narrowing of the distribution of inflation expectations for the next twelve months in 2025 indicates that divergence in real sector expectations has decreased and that inflation expectations have begun to anchor more firmly around the monetary policy target. These developments confirm that the observed improvement in the real sector's pricing behavior and expectations is laying a lasting foundation for the disinflation process.

Chart 4: Distribution of PPI Inflation Expectations over the Next 12 Months



Source: Author's calculations, CBRT.

In sum, real sector pricing dynamics have become more stable and predictable as of 2025. The decline in the share of firms anticipating price increases, even among those under cost pressure, the lengthening of price duration, and the improvement in inflation expectations indicate that the inertia effect in real sector pricing behavior has diminished. These developments imply that pricing behavior has become more consistent with the disinflation outlook. The observed improvement in pricing behavior supports the credibility of monetary policy and its effectiveness through expectations, thereby contributing to the sustainability of the disinflation process.

References

Atabek-Demirhan, A. (2025). Monitoring pricing behavior dynamics through the lens of Business Tendency Surveys. Central Bank Review (under the peer-review process).

3. Medium-Term Projections

3.1 Current State, Short-Term Outlook and Assumptions

Changes in Key Forecast Variables

In the second quarter of 2025, growth was above projections. Following the release of the second quarter data, TURKSTAT conducted a comprehensive revision of its national income statistics. According to the revised data, growth was above projections in the second quarter, while final domestic demand remained weak. Accordingly, the output gap forecast for the second quarter of 2025 was revised upward by -0.2 points. Indicators for the recent period suggest that the output gap hovered in negative territory in the third quarter. Card spending and the retail sales volume index remained below their historical trends. As of August, industrial production edged down on a quarterly basis, when the typically volatile sectors were excluded, while services production remained flat, and construction production index strengthened. Moreover, survey-based indicators such as Business Tendency Survey and PMI point to weak industrial production in the third quarter of the year. The labor market continues to be less tight than implied by the headline unemployment rates. The output gap forecasts for the third quarter were revised upwards, largely due to the revision made to the second quarter (Table 3.1.1). In the upcoming period, demand conditions are assessed to contribute further to the disinflation process on the back of continued tight financial conditions and the curbing effect of global developments.

Consumer inflation was 32.9% in October, above the upper bound of the forecast range presented in the previous Inflation Report. The disinflation process that started in June 2024 continues, albeit with a slowdown in the third quarter of 2025. During the current reporting period, price increases accelerated in the food and non-alcoholic beverages group, which was the primary factor limiting the decline in consumer inflation. During this period, the supportive trend that had been ongoing for some time in the unprocessed food group reversed, while price increases in processed foods also strengthened. In the services group, the back-to-school effect was particularly noticeable in the third quarter, and price adjustments stood out in items with time-dependent price-setting behavior and strong backward-indexation tendency. Core goods inflation has maintained its mild trend in the current reporting period as well. Despite rising in recent periods, producer inflation still hovers below annual consumer inflation.

The downward trend in annual core inflation indicators lost steam. The underlying inflation, which remained flat in August, rose temporarily in September but declined in October. However, the underlying trend indicators imply a slowdown in the disinflation process, following a relatively flat trajectory on a three-month average basis.

Table 3.1.1: Changes in Key Forecast Variables*

	2025-II	2025-III
Output Gap (%)	-0.2 (-1.1)	-0.6 (-2.0)
Consumer Inflation** (Annual % Change)	33.5 (33.5)	32.9 (30.0)
B Index Inflation** (Annual % Change)	33.8 (33.8)	32.5 (29.5)

* Figures in parentheses denote values presented in the previous Inflation Report.
** Denotes inflation in July for 2025-II and October for 2025-III.

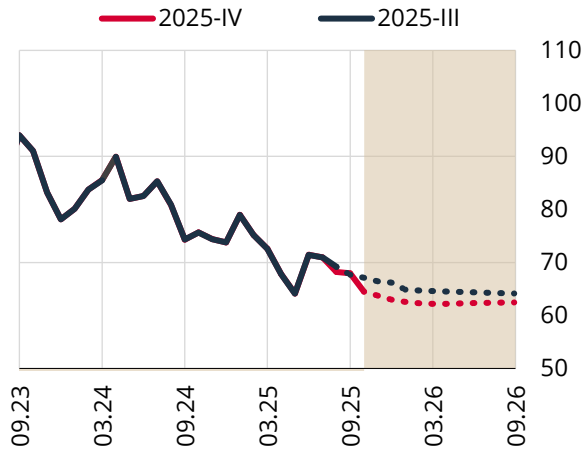
Assumptions for Exogenous Variables

Uncertainties surrounding global trade policies persist, and the outlook for global growth remains weak. Bilateral agreements have somewhat limited the increase in tariff rates; however, tariff rates remain higher than before, and protectionism in global trade has increased compared to the start of the year. Moreover, ongoing US–China negotiations and the current legal processes in the US lead to high levels of uncertainty in trade policies. The effects of protectionist measures are expected to continue with greater intensity in 2026. Accordingly, the assumption for the annual rate of increase in the global growth index based on Türkiye's export weights was maintained at 2.0% for 2025 and revised slightly downward to 2.2% for 2026 from the previous Inflation Report (Table 3.1.2).

Portfolio flows to emerging economies have been volatile due to global uncertainties. In addition to the current trade tensions and geopolitical developments, the government crisis in the US has led to fluctuations in the risk appetite. Although there have been some differences due to country-specific factors, central banks have continued to cut interest rates. In the current reporting period, rate cuts continued in advanced economies, while some central banks paused their rate cuts. Futures-implied policy rates indicate that, as in the previous reporting period, the central banks of emerging economies maintain monetary tightness and continue to set their policy rates above the inflation rates. Volatility indicators increased in this period compared to the previous reporting period, and there were fluctuations in the global risk appetite. These developments resulted in fluctuations in the inflows to and outflows from emerging economies' stock and bond markets. On the other hand, lingering uncertainties regarding the global economic and trade policies and the geopolitical risks that have persisted in recent times remain as important risk factors for portfolio inflows to emerging economies.

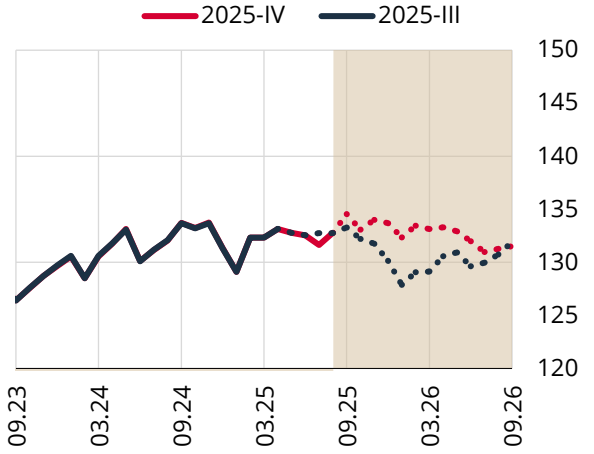
There has been a significant divergence among commodity price sub-items during the reporting period. Crude oil prices posted short-term increases during this period but declined due to weak global demand and increased oil supply. In parallel, the average oil price assumption for 2025 was established at USD 69.0, while the assumption for 2026 was set at USD 62.4 (Chart 3.1.1). Energy commodity prices, similar to oil prices, declined during the current reporting period but fluctuated throughout the period due to geopolitical developments. In contrast, non-energy commodity prices rose, led by precious and industrial metals. Central banks' reserve diversification strategies and growing safe-haven demand supported gold prices. Agricultural commodity prices, however, remained relatively flat, curbing the rise in the overall index. Against this backdrop, import price assumptions have been revised upwards, with a 0.8% increase for 2025 and a 0.6% decrease for 2026 (Chart 3.1.2 and Table 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 food price assumption for 2025 and 2026 has been revised upward. During the current reporting period, the supportive trend that had been ongoing for some time in the unprocessed food group has reversed, and price increases in processed foods have also strengthened. Adverse weather conditions (frost, drought), certain agricultural purchase prices, supply-side issues (such as foot-and-mouth disease), and the effects of seasonal demand increases have stood out, and price increases have gained momentum in the last three months. Accordingly, the food inflation assumption for 2025 was revised to 32.3%. The assumption for 2026 was revised to 18%, taking recent trends and the effects of supply conditions into account (Table 3.1.2).

Table 3.1.2: Revisions in Assumptions*

	2025	2026
Export-Weighted Global Growth Index (Annual Average % Change)	2.0 (2.0)	2.2 (2.3)
Oil Prices (Average, USD)	69.0 (69.8)	62.4 (64.4)
Import Prices (USD, Annual Average % Change)	0.8 (0.3)	-0.6 (-1.3)
Food Price Inflation (Year-End % Change)	32.3 (26.5)	18.0 (17.0)

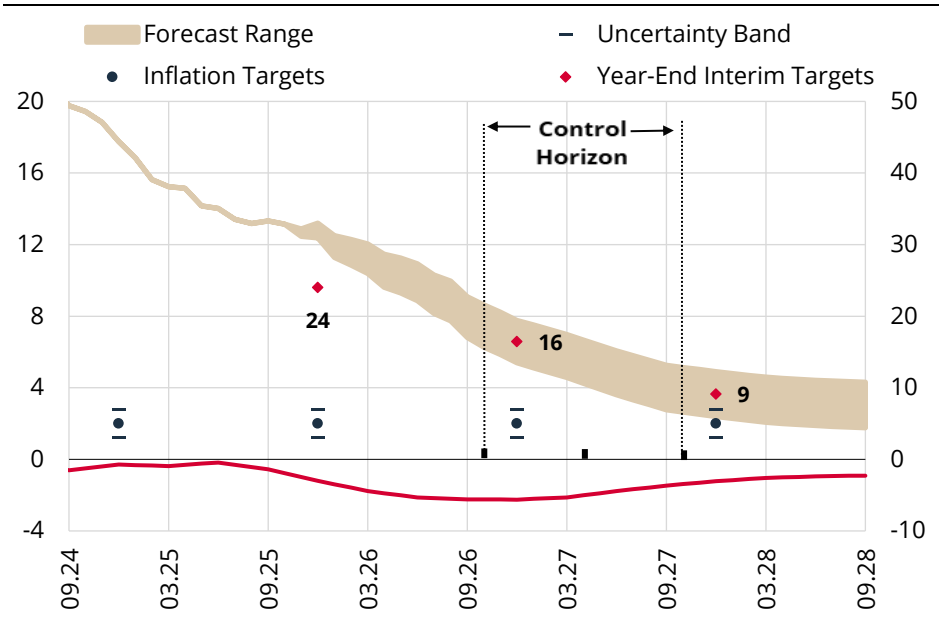
* Figures in parentheses denote values presented in the previous Inflation Report.

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. Accordingly, medium-term forecasts are based on the assumption that the coordination of fiscal policy will contribute significantly to the disinflation process, and that the government policies regarding administered prices, borrowing, tax, and income will be determined so as to support the disinflation process. Indeed, the MTP for the 2026–2028 period indicates that fiscal policy will be supportive of the disinflation process, as it builds on a framework in which the projected improvement in budget balances over the coming period will be achieved through a decrease in primary expenditures.

3.2 Medium-Term Outlook

With 70% probability, inflation is projected to be between 31% and 33% at end-2025 and between 13% and 19% at end-2026. It is projected that inflation will decline to single-digit levels by end-2027 before stabilizing at the medium-term inflation target of 5% (Chart 3.2.1). In its previous Inflation Report, the CBRT stated that it had revised its framework for medium-term forecast communication, introducing, alongside the forecast path, interim targets for 2025, 2026, and 2027 at 24%, 16%, and 9%, respectively. Taking into account inflation realizations, underlying trend and expectations, the CBRT will maintain the monetary tightness required for disinflation in line with these interim targets.

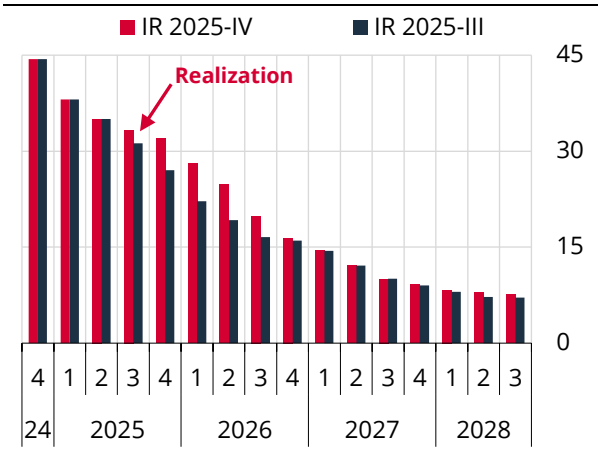
Chart 3.2.1: Inflation Forecasts* (%)



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

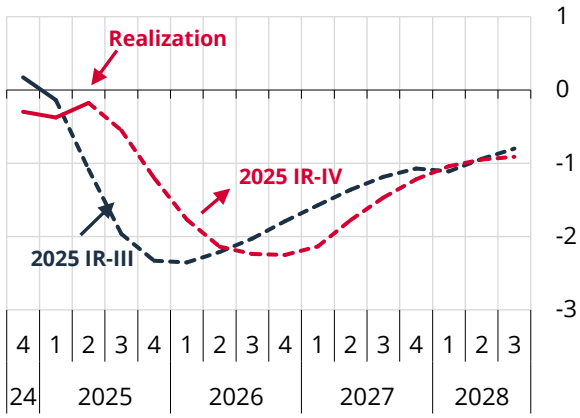
The inflation forecast range for 2025 has been revised upward, while the range for 2026 has been left unchanged based on an outlook in which the projected monetary policy path remains higher compared to the previous reporting period. The upward revision in the forecast range was primarily driven by the underlying trend exceeding expectations and the increase in the food price assumption. The food group has recently recorded significant price increases, curbing the pace of the decline in annual inflation. Meanwhile, items with strong backward-indexation patterns, led by rents and education services, cause inflation inertia to persist. Against this background, the decline in underlying inflation and expectations has been more limited than anticipated. Despite the decline in oil and energy price assumptions, the revision in the Turkish lira import price assumption due to higher non-energy commodity prices has exerted upward pressure on inflation forecasts. Additionally, the output gap has recently been above projected levels, which also had an upward impact on the forecasts (Charts 3.2.2 and 3.2.3). The revisions to food and import price assumptions for 2026 push the year-end inflation forecast upward. However, under an outlook in which the projected monetary policy path is higher than the previous reporting period, the impact of the monetary policy stance on demand conditions is becoming more pronounced, and inflation expectations are improving, which place downward pressure on the year-end inflation forecast. Since these upward and downward effects offset each other, the forecast range for end-2026 inflation has been kept unchanged.

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



Source: CBRT, TURKSTAT.

Chart 3.2.3: Output Gap Forecast (%)



Source: CBRT.

Forecasts rely on an outlook marked by weak global growth and a stable sovereign risk. Uncertainty surrounding the global growth and inflation outlook persists. Geopolitical risks and uncertainties in global trade policies keep downside risks to portfolio flows toward emerging economies alive. The tight monetary policy stance and the current level of the CBRT's international reserves will help contain the potential adverse effects of global financial market volatility on Türkiye's risk premium.

Medium-term forecasts are based on an outlook in which the tight monetary policy stance will be maintained decisively until price stability is achieved, and the coordination among economic policies will strengthen. The convergence of inflation expectations to targets is critical to ensuring the stabilization of inflation at low levels. Inflation expectations rose in September as monthly inflation came out above projections. Taking into account the risks resulting from this to pricing behavior, the CBRT delivered a limited rate cut in October. Throughout the forecast period, the continued and strengthened coordination of other economic policies with monetary policy will support the decline in inflation through demand, cost, and expectation channels.

The tight monetary policy stance, which will be maintained until price stability is achieved, will strengthen the disinflation process through demand, exchange rate, and expectation channels. It is estimated that the output gap declined in the third quarter of the year due to tight financial conditions and the weak course of external demand, thereby increasing its support to the disinflation process (Chart 3.2.3). In the recent period, the underlying trend of inflation has flattened. Under a tight monetary policy stance, these effects are projected to be temporary, and the underlying trend is projected to decline further in the period ahead. It is expected that the dampening impact of the tight monetary stance on domestic demand will become more evident over time, and inflation expectations will improve in line with the targets.

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 MPC. However, the inflation outlook may be subject to various risks associated with assumptions, leading to a divergence from the monetary policy stance projected in the baseline scenario. The risks that have the potential to change the inflation outlook are listed below and summarized in Table 3.3.1.

The uncertainties over global economic activity and inflation posed by protectionism in global trade policies are closely monitored. While there have been partial improvements in uncertainty indicators with bilateral trade agreements, protectionism in global trade remains high. This has led to continued risks for global growth and inflation. While the weak trend in global demand exerts downward pressure on commodity prices, tariff measures keep upside risks to global inflation alive through the cost channel. Accordingly, uncertainties surrounding the trajectory of protectionist trade policies continue to present an upside risk to domestic inflation forecasts through risk sentiment and cost channels, though to a lesser extent relative to the previous reporting period.

Both downside and upside risks to global commodity prices are still alive. Energy prices have significantly declined compared to the previous reporting period. The weak global demand and OPEC+ member countries' decision to continue to increase oil production put downward pressure on crude oil prices. On the non-energy commodities front, price increases continued, led by precious and industrial metals. This poses an upside risk to non-energy commodity prices. The downside and upside risks to global commodity prices also keep uncertainties surrounding the global inflation outlook alive.

The recent trend in food prices poses an upside risk to inflation forecasts. Supply-side factors had a noticeable impact on food prices in the third quarter of the year. Losses in yields have increased due to frost and rising temperatures. These developments have reversed the supportive trend that had been ongoing for some time in the unprocessed food group, while also strengthening price increases in processed foods. These factors have increased the upside risks to food prices in general. This outlook is reinforced by seasonal demand increases and the rise in certain agricultural purchase prices. Accordingly, should supply-side factors persist, the adverse trajectory in food prices may continue for a while longer.

Risks posed by recent price developments, particularly in food, to the disinflation process through inflation expectations and pricing behavior channels have become evident. Inflation expectations among consumers, firms, and market participants remain elevated, and this may delay the disinflation process through portfolio choices, consumption tendency, loan demand, and pricing behavior channels. During the current reporting period, the downward trend in inflation expectations has been interrupted. End-2025 and end-2026 inflation expectations hovering above the interim targets pose a risk to the inflation outlook. In addition, expectations tend to respond relatively weakly to positive data surprises and strongly to negative ones (Box 3.1). This asymmetry suggests that expectations have not yet been adequately anchored, posing a risk to the disinflation process.

The tendency for backward indexation in pricing behavior remains strong. Despite the decline in annual inflation and the improving trend in inflation expectations, the continuation of the backward-indexed pricing behavior, particularly in the services group, adds to the stickiness in inflation and constrains the effectiveness of monetary policy. While weakening contract renewal rates in the rent sub-group marks a positive development, annual rent inflation has proven more resilient than anticipated. As for education services, private university tuition fees updated as of September, school bus and dormitory fees, as well as increases in daycare services strengthened the inertia in services inflation. These developments curb the expected slowdown in the underlying trend of services inflation and increase risks to the disinflation process.

Maintaining coordination between monetary and fiscal policies during the disinflation process is of utmost importance. Fiscal, tax, spending, and incomes policies may affect inflation and expectations through the production cost and demand channels. Taking interim targets into account while setting the revaluation rate and the lump-sum SCT increase in early 2026, which are expected to have an impact on administered prices and tax items, will contribute to mitigating the backward-indexed pricing behavior. These adjustments may indirectly affect the disinflation path via expectations as well. Additionally, achieving the budget balance targets envisaged in the MTP by prioritizing expenditure reduction over tax rate increases will underpin macroeconomic rebalancing and the disinflation process. The budget and cash

deficit may affect public borrowing, loans to be utilized by public subsidiaries, liquidity, and money supply, and can impact the inflation outlook.

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

Risks	Evaluation of Risks Compared to the Baseline Scenario and Possible Effects on Inflation (↑ | ↔ | ↓)		Indicators Monitored
Global uncertainties and the course of commodity prices	• Protectionism in trade policies poses both upside and downside risks to inflation. • Weak global demand and OPEC+ member countries' decision to continue raising oil production had a downward effect on oil prices. • Ongoing price increases in precious and industrial metals pose an upside risk to non-energy commodity prices.	↔ ↓ ↑	• Global inflation and growth indicators and forecasts • Global economy and trade policies • Global uncertainty index • Global risk appetite indicators • Export-weighted global economic activity index • Crude oil prices and supply-demand balance • OPEC+ decisions • Indicators for domestic energy market • Administered prices • Import unit value index
Inflation expectations	• The asymmetric response of inflation expectations to data surprises and expectations remaining above interim targets keep upside risks alive. • The effects of recent price developments on the disinflation process through inflation expectations and pricing behavior are closely monitored.	↑ ↑	• Sectoral inflation expectations • Distribution of inflation expectations • Inflation uncertainty indicators • Alignment of inflation expectations with Inflation Report forecasts • Survey- and market pricing-based inflation and exchange rate expectations
Strong tendency for backward indexation in pricing behavior	• The ongoing stickiness in services inflation, in particular, may pose an upside risk to inflation. • Backward-indexation behavior, evident in the rent and education subgroups, heightens the risks.	↑ ↑	• Key inflation indicators • Inertia in services inflation • Rents • Prices of education services

Food prices	• The ongoing drought, driven by frost, extreme temperatures, and low precipitation, may adversely affect agricultural production, posing supply-driven upside risks to food prices.	↑	• Prices of fresh fruits and vegetables, and processed food, notably bread and cereals • International agricultural commodity prices • Meteorological and climate statistics such as temperature and precipitation
Risks to the effectiveness of the coordination between monetary and fiscal policies	• Any disruption to the coordination between monetary and fiscal policies may pose risks to inflation and the rebalancing process in domestic demand.	↑	• Adjustments in administered prices and taxes • Developments in tax revenues and public expenditure • MTP and fiscal policy measures • Budget and public debt stock indicators • Structural budget balance forecasts • Share of direct taxes in total taxes • Minimum wage and public wage increases

* 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 upside and downside, 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

Inflation Expectations, Forecast Errors, and Pessimistic Bias

How different economic agents form their inflation expectations is crucial for the effectiveness of monetary policy. In the theoretical literature based on the rational expectations theory, rational agents consider all available information when forming their expectations, and therefore, systematic forecast errors do not occur, meaning they are unpredictable. The empirical literature, however, shows that particularly the expectations of households and firms often systematically deviate from realized inflation and react slowly to new information. One way to explain these deviations is to use "information rigidity" mechanisms, which assume that economic agents face costs in collecting and processing macroeconomic signals (Mankiw and Reis, 2002; Sims, 2003). Such information frictions, which make the acquisition of information more difficult, can weaken the transmission channels of monetary policy and delay the re-anchoring of expectations after large shocks. This box presents micro-level analysis of the persistence of forecast errors using panel data from the Survey of Market Participants for the period of January 2009–October 2025. Additionally, the final section of the study examines the effects of forecast errors in different directions on expectation formation.

Recent survey-based studies provide insights into the existence of such rigidities. Coibion and Gorodnichenko (2015) show that household inflation expectations in the US are extremely volatile and backward-looking, and are more affected by salient price changes. D'Acunto et al. (2021) found that exposure to frequently purchased products with volatile prices (such as food and energy) leads to systematically high inflation expectations, especially in high-inflation environments. On the firm side, Coibion et al. (2018) show that US firms often lack access to accurate macroeconomic forecasts and rarely update their expectations, leading to persistent forecast errors.

Expectation formation under information rigidities can theoretically be analyzed through a Calvo-style information friction mechanism (Mankiw and Reis, 2002; Sims, 2003). Under Calvo-style information rigidity, in each period, a proportion of economic agents $\lambda \in (0.1]$ update their forecasts based on new information, while the remaining $(1-\lambda)$ proportion continue to use their forecasts from the previous period. In notation, F_t^h represents the forecast for the *h-period* ahead generated at time *t* for the variable *y*, and $F_t^{*,h} = E_t[y_{t+h}|\Omega_t]$ represents the rational (full information) forecast. In this framework, under Calvo information rigidity, F_t^h is formed according to equation (1):

$$F_t^h = (1-\lambda)F_{t-1}^h + \lambda F_t^{*,h} \qquad (1)$$

Under rational expectations, the realization for variable y can be defined as $y_{t+h} = F_t^{*,h} + \varepsilon_{t+h}$ where ε_{t+h} represents the shocks that are orthogonal to the information available at time *t*. Under the case where the forecast error is defined as $FE_t^h = y_{t+h} - F_t^h$, equation (1) transforms into equation (2):

$$FE_t^h = (1-\lambda)FE_{t-1}^h + u_t^h \quad \boldsymbol{E}[u_t^h FE_{t-1}^h] = 0 \qquad (2)$$

In Equation (2), u_t^h represents unforeseen information about the variable *y* and is orthogonal to FE_{t-1}^h. Equation (2) shows that the forecast error follows an AR(1) structure with an autoregressive coefficient. This suggests a systematic structure in forecast errors.

To assess the persistence of forecast errors in the analysis using SMP data, the empirical methodology of Coibion and Gorodnichenko (2015), which relates forecast errors to information rigidity, is followed. Participant-based survey data is used in the analyses. This allows us to investigate whether participants who made forecast errors in a given period tend to make systematic errors in subsequent periods—in a way that does not reject information rigidity. Forecast error is defined as the absolute value of the difference between the actual inflation rate for the relevant month and the inflation rate expected 12 months ago by participant *i* for that relevant month: $|FE_{it}| = |\pi_{t+12} - E_t[\pi_{it+12}]|$. Equation (3) is estimated to measure the persistence of these errors:

$$|FE_{it}| = \beta_0 + \beta_1|FE_{it-1}| + \alpha_i + \lambda_t + \varepsilon_{it} \qquad (3)$$

Here, the key explanatory variable is $|FE_{it-1}|$, which represents the lagged value of the participant-level forecast error. α_i are individual fixed effects capturing unobserved heterogeneity at the participant level. λ_t are time fixed effects controlling for macroeconomic shocks common to all participants.

The coefficient β_1 measures the degree of persistence in forecast errors and indicates whether participants systematically repeat forecast errors in successive periods. Therefore, the coefficient β_1 indicates the extent to which past forecast errors influence current forecast errors. A positive and statistically significant β_1 suggests that participants do not fully update their expectations based on new information, providing findings consistent with sticky information models (Mankiw and Reis, 2002) or rational inattention frameworks (Sims, 2003; Woodford, 2001). On the other hand, a coefficient estimate close to zero is consistent with rational expectations models, where forecast errors are orthogonal to past information.

Table 1: Persistency of Forecast Errors

	(1) All Sample	(2) 2009 Jan-2015 Dec	(3) 2016 Jan-2019 Dec	(4) 2020 Jan-2023 May	(5) 2023 June-2025 Oct
$\|FE_{it-1}\|$	0.637***	0.416***	0.570***	0.658***	0.513***
	(0.038)	(0.044)	(0.035)	(0.047)	(0.039)
R-Square	0.86	0.89	0.87	0.88	0.93
Sample Size	6,662	2,291	2,452	1,221	1,216

Note: This table shows the results from regressions estimating Equation (3). In all columns, the dependent variable is the absolute forecast error, which represents the absolute difference between the actual inflation rate and the participant's forecast made 12 months prior. The explanatory variable is the absolute forecast error for the same participant in the previous period. All regressions include participant and time fixed effects. Standard errors in parentheses are clustered at the market participant level. *p<0.05; **p<0.01; ***p<0.001.

Table 1 indicates information rigidity in forecast errors regarding 12-month ahead inflation. The β_1 coefficient for the entire sample is estimated as 0.637. This result indicates that corrections to previous forecast errors are slow and that there is a strong inertia in the updating of expectations. Analyses conducted for different periods indicate that the persistence of forecast errors is related to macroeconomic conditions. Accordingly, the persistence of forecast errors is at its lowest level (0.416) between 2009 and 2015, when inflation was relatively low. The β_1 coefficient increased to 0.570 in the 2016–2019 period and reached a peak of 0.658 in the period of high inflation and volatility between January 2020 and May 2023. Although it decreased with the disinflation process, the persistence of errors remains statistically significant at 0.513 in the period of June 2023 and October 2025. This is consistent with the gradual reanchoring behavior of expectations. Previous period's forecast errors, combined with participant and time fixed effects, have a high explanatory power for current forecast errors. This suggests that past forecast errors explain a significant portion of current forecast errors.[1] From the perspective of information rigidity and rational inattention frameworks, a volatile macroeconomic outlook reduces the signal-to-noise ratio, which makes infrequent information updates optimal and creates more persistent expectations. The observed decline of the persistence of errors during the current disinflationary period is consistent with improved information conditions and gradual reanchoring.

Pessimistic Bias in Inflation Expectations

Finally, the effects of market participants' forecast errors (the difference between current-month inflation realizations and inflation forecasts) on longer-term inflation expectations are analyzed in the study. In this context, the effects of higher or lower-than-expected current-month inflation on 12-month ahead inflation expectations are demonstrated using Equation (4):

[1] If rational expectations under full information were valid, the coefficient would be expected to be statistically insignificant and the explanatory power (R-square) of the model would be very low.

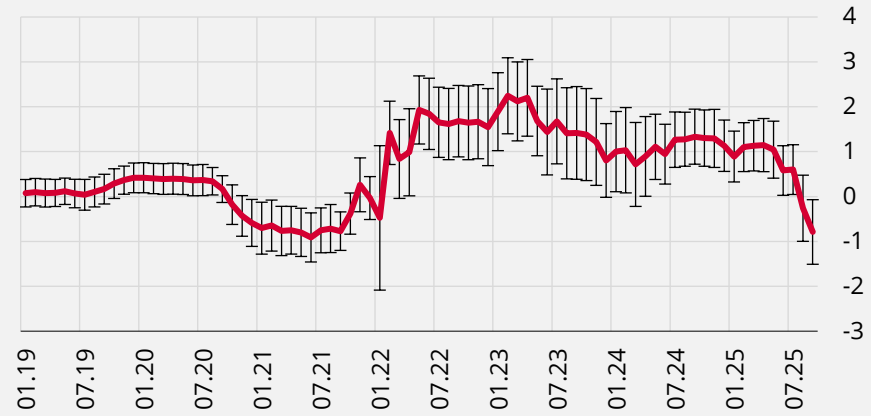
$$\Delta E_t[\pi_{it+12}] = \gamma_0 + \gamma_1 FE_{it-1}^{Nowcast} + \gamma_2 I_{way}^{+} + \gamma_3 FE_{it-1}^{Nowcast} \times I_{way}^{+} + \alpha_i + \lambda_t + \varepsilon_{it} \quad (4)$$

Here, $\Delta E_t[\pi_{it+12}]$ represents the revision made by participant *i* in his 12-month ahead inflation expectation between months *t−1* and *t*. $FE_{it-1}^{Nowcast}$ represents the difference between the inflation rate realized in month *t-1* and the nowcast (for that period) made by participant *i* at *t−1* (the nowcast error). In other words, the effects of the participant's monthly inflation forecast error in the previous month and the sign of the error on the update to the current month's 12-month ahead inflation expectation are examined. The variable . I_{way}^{+} is an indicator that is 1 when the forecast error is greater than 0 (when the actual figure exceeds the previous month's forecast) and 0 otherwise. α_i are participant fixed effects that capture the heterogeneity in the revisions depending on the participant. λ_t are month fixed effects that include common information and macro shocks (e.g., policy announcements, data releases, seasonality).

In Equation (4), the γ_1 coefficient shows the effect of a negative error in inflation forecasts on the revision of 12 month-ahead inflation expectations. The γ_2 coefficient represents the difference in the average expectation revision of those who made a positive forecast error compared to those who made a negative one. The response when inflation turns out to be higher than expected (positive forecast error) is $\gamma_1 + \gamma_2 + \gamma_3$. Therefore, γ_3 represents the additional response in expectations when inflation turns out to be higher than expected. A value of $\gamma_3 > 0$ and its being statistically significant indicate a pessimistic bias in inflation expectations, while the insignificance of the γ_3 coefficient indicates that participants reacted symmetrically to positive and negative inflation surprises.

Chart 1 shows the pessimistic bias coefficient estimates from Equation (4) using the 24-month rolling windows method. The statistical insignificance of the γ_3 coefficient before 2021 indicates that there is no significant difference between the responses to positive or negative forecast errors and that there is no pessimistic bias in expectations. By 2022, the relevant coefficient became positive and statistically significant, and the pessimistic bias strengthened. Starting in mid-2023, a downward trend in the coefficient is observed, due to the tightening of monetary policy. Over the following period, the pessimistic bias coefficient decreased, reaching statistically insignificant levels in the last three months. The results of the analysis reveal that the pessimistic bias observed in the past in market participants' reactions to upward inflation surprises when forming inflation expectations has weakened significantly.

Chart 1: Course of the Pessimistic Bias Coefficient



Source: Authors' calculations, CBRT.

Overall, the findings indicate that market participants in Türkiye have a significant information rigidity in their inflation expectations, and that this rigidity varies cyclically. It is assessed that high volatility and rising information costs during the 2021-2023 period may have strengthened the persistence of expectation errors and created a significant pessimistic bias in the face of higher-than-expected inflation surprises. While asymmetric reactions were observed in the formation of expectations in the 2018-2023 period, this gap has recently closed and the bias in expectations has decreased due to the effect of the tight monetary stance. The results reveal that expectations in Türkiye are shaped by

information rigidity, but the re-anchoring process has gradually strengthened thanks to reliable monetary policy implementation and strong communication.

References

Coibion, O., & Gorodnichenko, Y. (2015). Information rigidity and the expectations formation process: A simple framework and new facts. American Economic Review, 105(8), 2644–2678.

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

D'Acunto, F., Malmendier, U., Ospina, J., & Weber, M. (2021). Exposure to daily price changes and inflation expectations. Journal of Political Economy, 129(5), 1615–1639.

Mankiw, N. G., & Reis, R. (2002). Sticky information versus sticky prices: A proposal to replace the New Keynesian Phillips Curve. Quarterly Journal of Economics, 117(4), 1295–1328.

Sims, C. A. (2003). Implications of rational inattention. Journal of Monetary Economics, 50(3), 665–690.

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