# 3. Medium-Term Projections

## 3.1 Current State, Short-Term Outlook and Assumptions

### Changes in Key Forecast Variables

***Economic activity remained strong in the third quarter of 2021 in tandem with the effects of pandemic-led normalization steps on domestic demand.*** Exceeding past projections as well, aggregate demand conditions are considered to have remained above their trends in this period. On the other hand, the rebound in sectors that were more severely affected by pandemic measures facilitated the establishment of a more balanced growth composition. Thanks to domestic and external demand, leading indicators suggest that economic activity remained strong in the fourth quarter of the year. In this context, the output gap forecast was revised upwards for the third and fourth quarters of the year (Table 3.1.1).

***In the fourth quarter of 2021, consumer inflation and the B index reached 36.08% and 34.89%, respectively, well above the forecast range of the October Inflation Report.*** The deviation from forecasts was driven by exchange rate developments. Sharp depreciations in the Turkish lira accompanied by high levels of exchange rate volatility impacted the pricing behavior and weighed on the exchange rate pass-through. On the other hand, the brisk course of aggregate demand conditions, high levels of international import prices, global supply problems and the rise in inflation expectations had an adverse effect on consumer inflation through the demand, cost and expectation channels.

**Table 3.1.1: Development of Main Forecast Variables***

| | 2021-III | 2021-IV |
|---|---|---|
| Output Gap<br>(%) | 3.4<br>(2.5) | 2.9<br>(2.1) |
| Consumer Inflation<br>(Quarter-End, Annual % Change) | 19.6<br>(19.6) | 36.1<br>(18.4) |
| B** Index Inflation<br>(Quarter-End, Annual % Change) | 18.6<br>(18.6) | 34.9<br>(17.3) |

* Numbers in parentheses denote the values from the October Inflation Report.
** B index is the CPI excluding unprocessed food, alcohol, tobacco, energy and gold.

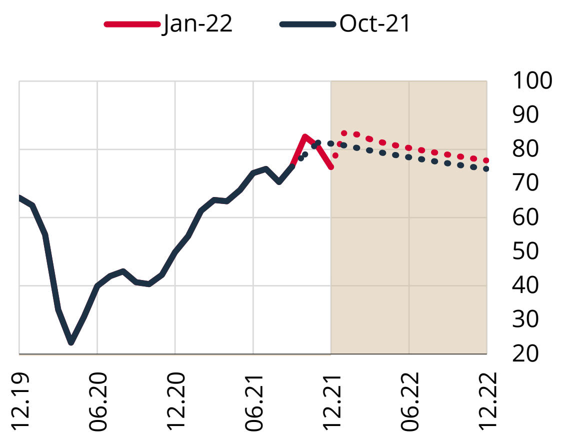
### Assumptions on Exogenous Variables

***On account of increased uncertainties surrounding global economic activity due to the omicron variant, the external demand outlook has been revised slightly downwards compared to the previous reporting period.*** The omicron variant, which has recently spread rapidly with growing effects, has caused an unprecedented increase in the number of cases globally, and particularly in Europe and North America. However, because of the reduced risk of hospitalization caused by the new variant and the increase in vaccination rates, countries have not resorted to lockdown measures that would impede economic activity despite the increase in the number of cases. Therefore, although the increased number of cases affect growth prospects negatively by keeping the future risks to production activities alive, this effect is judged to remain quite limited. Parallel to these developments, the Export-Weighted Global Growth Index, which reflects the external demand outlook of Turkey, was slightly revised downwards.

***Due to the rise in global inflation, it is assumed that financial conditions in 2022 will be tighter than projected in the previous Report.*** Global inflation climbed to historic highs due to the imbalances between supply and demand, bottlenecks in production, and the rise in international commodity prices. It is considered that the increase in inflation, which was expected to be temporary by global central banks, will be more permanent than initially anticipated, as supply constraints and disruption in supply chains persist. On the other hand, monetary policy communication of central banks in advanced economies varied with their diverse outlook for economic activity, labor market and inflation expectations, while they still continue their supportive monetary stances and asset purchase programs.

***Assumptions regarding international crude oil prices and USD-denominated import prices have been revised upwards.*** Although international commodity prices remained high compared to the previous reporting period, they followed a volatile course amid uncertainties regarding the omicron variant. Crude oil prices declined amid concerns over the pandemic in December, but rose again in January owing to the expectation that the effects of the omicron variant on global energy demand would remain limited. Having receded after the hikes in the previous reporting period, natural gas prices still remain elevated. The futures price curves indicate that crude oil prices will remain slightly above the October Inflation Report projections in the upcoming period. Accordingly, assumptions for crude oil prices were revised to USD 80.4 for 2022, and USD 74.3 for 2023 on average (Table 3.1.2). Commodity price excluding energy remained on an upward trend due to the supply-demand mismatch, increases in transportation costs and agricultural drought. Assumptions regarding the general level of import prices were also revised upwards (Table 3.1.2).

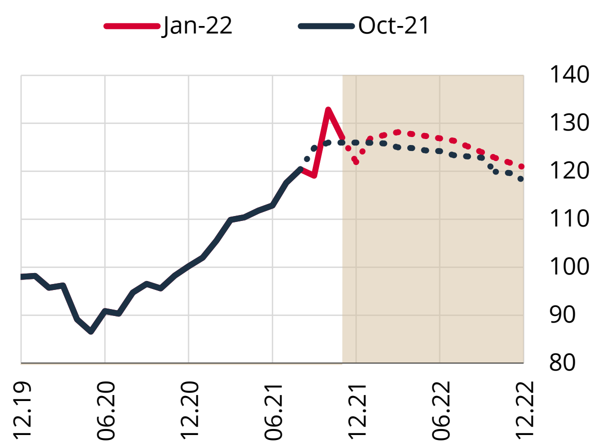
**Chart 3.1.1: Revisions to Oil Price Assumptions*** (USD/Bbl.)




Sources: Bloomberg, CBRT.

* Shaded area denotes the forecast period.

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




Sources: CBRT, TURKSTAT.

* Shaded area denotes the forecast period.

***Food prices were revised upwards for 2022 and 2023 mostly due to developments in exchange rates, cumulative effects of the persisting upsurge in international food prices as well agricultural drought.*** Annual inflation in food and nonalcoholic beverages rose from 28.8% to 43.8% in the last quarter of 2021, remaining above the October Inflation Report forecasts. The rise in food inflation, spreading through both processed and unprocessed items, was driven by sharp depreciations in the Turkish lira as well as supply constraints and agricultural drought. In the upcoming period, due to lagged effects of the depreciation in the exchange rate, supply constraints and rising transportation costs, food prices are assumed to remain high for some time and trend downwards toward the year end amid base effects before completing 2022 at 24.2% and 2023 at 10.0% (Table 3.1.2).

**Table 3.1.2: Revisions to Assumptions ***

| | 2021 | 2022 | 2023 |
|---|---|---|---|
| Export-Weighted Global Production Index (Annual Average (Annual Average % Change) | 4.8<br>(4.8) | 4.3<br>(4.5) | 3.0<br>(-) |
| Oil Prices (Average, USD) | 70.5<br>(70.8) | 80.4<br>(77.5) | 74.3<br>(-) |
| Import Prices (USD, Annual Average % Change) | 22.9<br>(23.1) | 8.2<br>(6.0) | -6.7<br>(-) |
| Food Price Inflation (Year-End % Change) | 43.8<br>(23.4) | 24.2<br>(13.9) | 10.0<br>(-) |

* Numbers in parentheses denote the values from the October Inflation Report.

***In the fourth quarter of the year, tax adjustments and administered prices had negative effects on inflation.*** SCT rates on fuel products, which were zeroed in the previous quarter, were increased to levels before the introduction of the sliding scale practice. In addition, rises in producer tariffs for electricity and natural gas prices affected consumer prices indirectly through the cost channel. In this period, the increase in the raw milk reference price was another factor that negatively affected the related food and food services. In early 2022, consumer tariffs for electricity and natural gas prices were raised, and the PPI increase was reflected in the SCT rates imposed on alcohol and tobacco products. What is more, in the upcoming period, hikes that may be seen in education activities, health services and pharmaceuticals, which exhibit an evident past-indexation behavior, may affect the inflation outlook adversely in the short term.

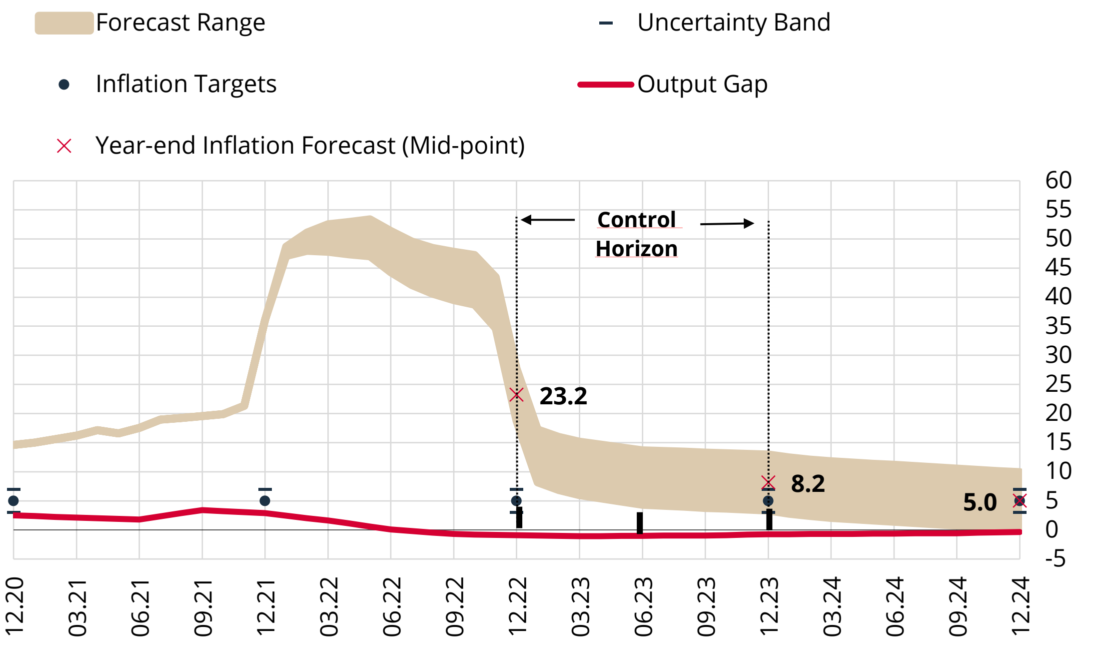
***Medium-term projections are based on an outlook in which macroeconomic policies are determined with a medium-term perspective and in a coordinated manner with a focus on bringing inflation down.*** In this context, it is assumed that adjustments in administered prices will be determined largely to support the disinflation process. A strong policy coordination prioritizing a sustained decline in inflation is critical to maintaining improvements in the risk premium and perceptions of uncertainty.

## 3.2 Medium-Term Projections

The CBRT formulates monetary policy decisions with a medium-term perspective based on all factors affecting inflation and their interaction, focusing on the alignment of future inflation with the target.

***The monetary policy stance will be decided with the focus on evaluating the sources of the risks to inflation, their permanence and how they can be controlled by monetary policy, targeting sustainable price stability with a solid approach. The disinflation process is expected to start on the back of measures taken for sustainable price and financial stability along with the decline in inflation owing to the base effect.*** Accordingly, inflation is projected to be 23.2% at the end of 2022 and fall to 8.2% at the end of 2023 before stabilizing around 5% in the medium term. With a 70% probability, inflation is expected to be between 18.6% and 27.8% (with a mid-point of 23.2%) at end-2022, and between 3.4% and 13.0% (with a mid-point of 8.2%) at end-2023 (Chart 3.2.1).

**Chart 3.2.1: Inflation and Output Gap Forecasts * (%)**




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

***Given the recent inflation realizations and all the factors affecting inflation, year-end forecasts for 2022 and 2023 have been revised upwards compared to the previous report period*** (Chart 3.2.2). Owing to accelerated vaccination and eased restrictions accompanied by the evident rebound in tourism activities, economic activity remained robust in the third quarter of 2021. Domestic demand contributed significantly to annual growth in the third quarter. Leading indicators for the third quarter indicate that domestic economic activity remains strong due also to foreign demand. In addition, the widespread vaccination rollout helps services, tourism, and related sectors, which were adversely affected by the pandemic, recover and economic activity to have a more balanced composition. However, aggregate demand conditions followed a stronger course than projections of the October Inflation Report, albeit with some deceleration in the last quarter. Therefore, output gap forecasts were revised considerably upwards for the third and fourth quarters of 2021. On the other hand, it is expected that market and exchange rate volatility will decline with the help of the monetary policy stance that will support macroprudential tools and financial products such as the FX-protected deposit facility. Recently, strong supply-side factors such as exchange rates and increases in import prices and administered prices coupled with supply constraints in some sectors and disruptions in delivery chains have kept upside risks to inflation in place. Moreover, demand-side factors related to the strong momentum in vaccination and high levels in inflation expectations continue to pose risks to pricing behavior and the inflation outlook. On account of these developments, inflation forecasts were revised upwards.

***In consideration of analyses decomposing supply and demand shocks, the policy rate was reduced by 200 basis points in total in November and December.*** Accordingly, the Committee decided to complete the use of the limited room implied by transitory effects of supply-side factors and other factors beyond monetary policy's control on price increases. Cumulative effects of these decisions will be monitored closely in the first quarter of 2022, and a comprehensive policy framework review process will be carried out in this period in order to reshape price stability on a sustainable basis.

**Table 3.2.1: Revisions to Year-End Inflation Forecasts for 2022 and 2023 and Sources of Revisions**

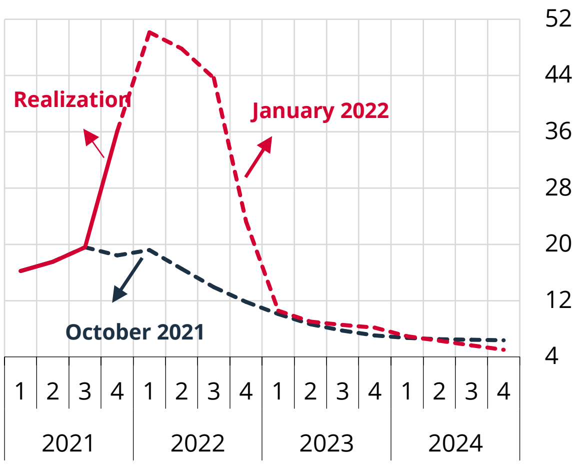
| | 2022 | 2023 |
|---|---|---|
| 2021- IV (October 2021) Forecast (%) | 11.8 | 7.0 |
| 2022 - I (January 2022) Forecast (%) | 23.2 | 8.2 |
| **Forecast Revision as Compared to the 2021-IV Period** | +11.4 | +1.2 |
| | | |
| **Sources of Forecast Revisions (% Points)** | | |
| Turkish Lira-Denominated Import Prices (Including the Exchange Rate, Oil and Import Prices) | +4.2 | +0.5 |
| Food Prices | +2.5 | +0.1 |
| Administered Prices | +3.0 | - |
| Unit Labor Cost | +2.0 | - |
| Output Gap | -0.3 | -0.2 |
| Deviation from the Inflation Forecast / the Underlying Trend of Inflation | - | +0.8 |

Source: CBRT.

***The year-end forecast for 2022 was revised upwards by 11.4 points from 11.8% to 23.2%.*** Compared to the previous reporting period, the inflation forecast was increased by 4.2 points due to the revisions in the TL-denominated import prices and by 2.5 points because of food prices. On the other hand, administered prices pushed the end-year inflation forecast up by 3.0 points primarily due to hikes in alcohol-tobacco, electricity and natural gas prices. Moreover, unit labor costs added 2.0 points to inflation due to the rise in the minimum wage for 2022. However, the revision in the output gap reduced the inflation forecast by 0.3 points (Table 3.2.1).

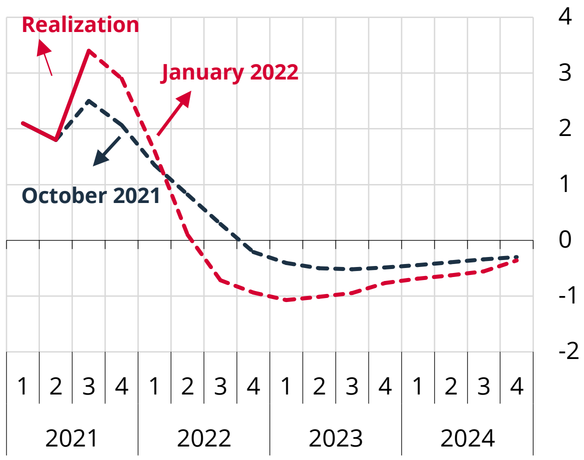
***The inflation forecast for end-2023 was revised upwards from 7% to 8.2%.*** Effects of the revision in initial conditions on the underlying inflation trend pushed the year-end inflation forecast for 2023 up by 0.8 points. Meanwhile, the revision in the food inflation assumption drove the forecast up by 0.1 points. In addition, TL-denominated import prices pushed the inflation forecast by 0.5 points upwards. The revision in the output gap lowered the forecast by 0.2 points (Table 3.2.1).

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




Sources: CBRT, TURKSTAT.

**Chart 3.2.3: Output Gap Forecast** (%)



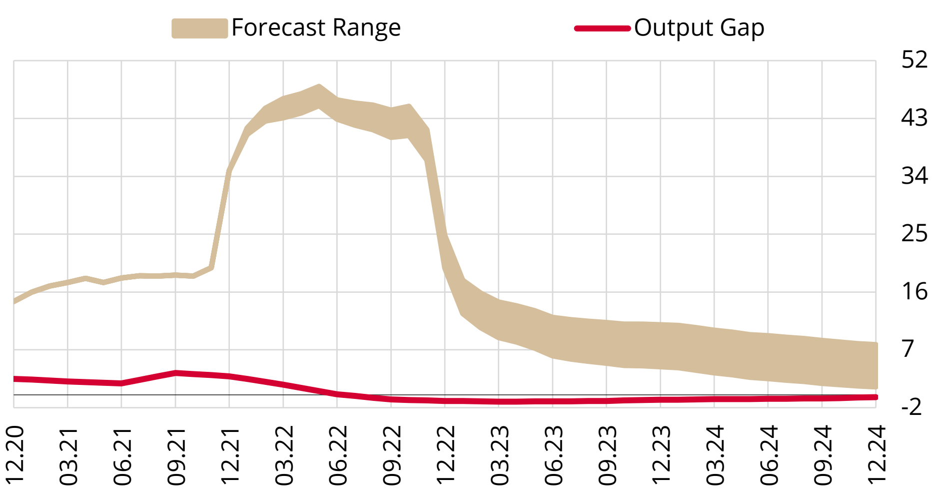

Source: CBRT.

***Projections are based on an outlook in which the robust recovery in global economic activity has recently lost a limited amount of pace amid the uncertainty triggered by the emergence of new variants and in which the effects of the rising inflation and inflation expectations on global financial conditions have been more evident.*** Despite the recovery in global economic activity and the increase in vaccination rollout, the resumption of closing measures and travel restrictions due to new virus variants keep downside risks to global economic activity alive and increase uncertainties. In this context, the recently announced confidence indices remained low due to the pandemic. The recovery in global demand, the high course of commodity prices, supply constraints in some sectors and the increase in transportation costs lead to an increase in producer and consumer prices on an international scale. Effects of elevated global inflation on inflation expectations and international financial markets are monitored closely, and major central banks consider that the rise in inflation may last longer than expected due to the hikes in energy prices and the supply-demand mismatch. The volatility in long-term bond issues in advanced economies and the course of global financial conditions keep risks to portfolio flows to emerging economies alive. The impact of such risks through the portfolio flows channel towards Turkey are judged to be relatively limited, considering the current levels of non-residents' portfolio positions.

***The current monetary policy framework and macroprudential measures are projected to help aggregate demand conditions to converge to the potential in the upcoming period.*** Leading indicators suggest that domestic economic activity is vibrant thanks to the external demand. It is considered that contrary to the past experience, fluctuations in financial markets will not have a sudden decelerating effect on economic activity in 2022, which will lead domestic demand to converge moderately to its potential. In fact, high frequency data do not point to a sudden deceleration in 2022, either. On the other hand, it is considered that external demand conditions will remain supportive throughout the year, and exports of goods and services, with tourism activities in the lead, will have further positive effects on economic activity. The loan-deposit spread indicating the lending tendency of banks increased compared to the previous reporting period. Inflation developments suggest that the recent exchange rate developments, increases in domestic energy prices, the ongoing negative course of international commodity prices and the resurgence of supply setbacks drove producer prices considerably higher. Thus, cost pressures on consumer prices are in place. Inflation is considered to assume a downward trend as these effects led by temporary factors disappear. Effects of both the macroprudential policies and the adjustment in the monetary policy on credit growth and growth composition are envisaged to contribute to disinflation. Moreover, the additional inflation to be led by the minimum wage as well as the increases in administered prices weigh on upside risks to the short-term inflation outlook. With the actions taken to achieve sustainable price stability and financial stability, it is considered that volatilities in inflation expectations, pricing behavior and financial markets will wane, and disinflation will start as base effects on inflation disappear.

***The unpredictable volatility in items such as unprocessed food and energy, which are beyond the control of the monetary policy, have been the primary factors that caused a deviation in inflation forecasts.*** Core inflation indicators, which are obtained by excluding these items, contain more information about the underlying trend of inflation. For this reason, inflation forecasts excluding unprocessed food products, energy, alcoholic beverages, tobacco, and gold items (B index) are also shared with the public. Accordingly, the annual inflation of the B index is expected to take up a downtrend as of the last quarter of 2022 (Chart 3.2.4).

**Chart 3.2.4: Annual Inflation Forecast for the B index*** (%)




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

## 3.3. Key Risks to Inflation Forecasts and Possible Impact Channels

***Macroeconomic risks that may change the outlook, on which the inflation forecasts are based, as well as the monetary stance are shared in detail in Section 1.3.*** Evaluations of the channels through which these risks may influence inflation forecasts are presented in Section 3.2 and the direction in which they may change the forecasts are summarized in Table 3.3.1.

**Table 3.3.1: Key Risks to Inflation Forecasts***

| Key Risks | Indicators Monitored |
|---|---|
| **Cost Pressures**<br>▪ Pressures on producer prices has been increasing.<br>▪ The cumulative effects of the depreciation in the Turkish lira, the elevated levels of commodity prices, supply constraints and transportation costs are the primary factors behind these pressures.<br>▪ In addition, developments in energy markets and price adjustments in electricity and natural gas for producers are monitored within this context. | ▪ Crude oil prices and supply-demand balance and<br>▪ OPEC+ decisions<br>▪ Industrial metal prices<br>▪ Agricultural commodity prices<br>▪ Supply-demand balance in agricultural products<br>▪ Indicators pertaining to the divergence between producer and consumer prices<br>▪ Global supply indicators, transport and freight costs<br>▪ Climate change, drought indicators<br>▪ International food prices indicators<br>▪ Indicators pertaining to domestic energy market<br>▪ Administered prices |
| **Uncertainties Regarding Domestic and External Financial Markets**<br>▪ Exchange rate developments is the most important risk factor to be closely monitored in the upcoming period.<br>▪ The monetary policy stance coupled with the FX-protected deposit product is expected to reduce volatility in the markets; thus, predictability is expected to increase.<br>▪ Indicators such as currency substitution trend and the course of the country risk premium will be closely monitored.<br>▪ As global inflation is speeding up, monetary policy communication of central banks in advanced economies varies.<br>▪ Still, central banks continue their supportive monetary stances and asset purchase programs.<br>▪ A possible tightening scenario may affect financial markets through capital flows and global risk appetite.<br>▪ On the other hand, the impact of such risks through the portfolio flows channel towards Turkey are judged to prove to be relatively limited, considering the current levels of non-residents' portfolio positions.<br>▪ After the introduction of the FX- protected deposit product, deposit rates slightly diverged from the policy rate, and loan rates followed this divergence in the following period. | ▪ Course of demand and growth components<br>▪ Developments in loan and deposit rates<br>▪ Credit conditions (Bank Loans Tendency Surveys)<br>▪ Financing of balance of payments<br>▪ Portfolio flows to equity and bond markets<br>▪ Bond yields and monetary policy stances of advanced economies<br>▪ Risk premium indicators<br>▪ Dollarization indicators<br>▪ Global inflation indicators<br>▪ Course of global monetary policies |

**Table 3.3.1: Key Risks to Inflation Forecasts***

| | |
|---|---|
| ▪ Loan growth, which was quite strong in the last quarter, is expected to return to a moderate course, thus contributing to the disinflationary path.<br>▪ The effects of macroprudential measures and the adjustment in monetary policy on loan growth and composition will be monitored.<br>▪ Composition of credit growth affects the inflation outlook through aggregate demand, current account balance, external financing and risk premium channels. In this framework, indicators regarding loan supply and demand will be closely monitored. | ▪ Supply and demand indicators for FX-protected deposit product |
| **The Pandemic and Economic Activity**<br>▪ Despite the increasing number of cases due to the Omicron variant, the risks to economic activity remained on the upside with the contribution of the increase in vaccination rates and the experience learned pertaining to carrying on economic activities amid pandemic.<br>▪ The global growth outlook slightly deteriorated due to concerns and uncertainties over the new variant.<br>▪ Domestic economic activity is strong. With the acceleration of vaccination and the relaxation of travel restrictions on Turkey, the services, tourism and related sectors, which were negatively affected by the pandemic, revived, and economic activity assumed a more balanced composition.<br>▪ Investment tendency is high due to the rising capacity need in the industrial sector.<br>▪ Changes in the number of cases and deaths due to the pandemic, developments pertaining to new variants and pandemic waves, and the impact of these developments on domestic and international demand conditions are closely monitored. | ▪ The course of the pandemic and vaccination in Turkey and abroad<br>▪ Developments in exports, the current account balance, tourism and transport<br>▪ Demand and inflation indicators by sectors and subsectors<br>▪ Wage and labor cost indices |
| **Pricing Behavior and Elevated Levels of Inflation Expectations**<br>▪ The latest data suggest that the deterioration in the pricing behavior has been increasing upside risks to inflation.<br>▪ The increase in the frequency of price updates and the corresponding decrease in the average time that a price stays unchanged emerge as one of the main factors accelerating inflation.<br>▪ In addition, the increase in the tendency to index prices to exchange rates significantly increases the pass-through from exchange rates to consumer inflation.<br>▪ Survey-based indicators and inflation compensations suggest that inflation expectations have increased.<br>▪ In addition to expectations, inflation uncertainty has been also increasing. | ▪ Survey and market-based expectations for inflation and exchange rates<br>▪ Indicators for backward indexation<br>▪ Indicators for inflation uncertainty<br>▪ Financial volatility indicators |

**Table 3.3.1: Key Risks to Inflation Forecasts***

| | |
|---|---|
| **Monetary, Fiscal and Financial Coordination**<br>▪ The disinflation process may be delayed, should the path of administered prices and tax adjustments exceed the path envisaged in this Report. | ▪ Adjustments to administered prices and taxes<br>▪ Developments in tax revenues and public spending<br>▪ Government wage policies<br>▪ Indicators of government budget and public debt stock<br>▪ Fiscal stance (structural budget balance) |

* Each risk row on the table presents evaluations on the channel through which inflation forecasts may change. Indicators used in monitoring are listed in the column on the right.