

INFLATION REPORT

2021-I

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TÜRKİYE CUMHURİYET
MERKEZ BANKASI

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1. Overview

Economic activity posted a significant domestic demand-driven recovery in the third quarter of 2020, owing to the strong credit impulse. While economic recovery was widespread across most sectors, activity remained weak in services groups hardest hit by the pandemic. The postponed demand stepped in quickly amid a strong credit impulse, and private consumption and investment expenditures increased significantly in the third quarter. Meanwhile, the contribution of net exports to growth recorded its historic lows due also to the weak course of tourism.

Data flows following the national income data pointed to a stronger course in economic activity. The strong uptrend in industrial production as well as in turnover in trade and services continued in the October-November period. Indicators for sales and orders significantly exceeded their pre-pandemic levels and long-term trends. Durable consumption goods orders signaled that demand conditions were buoyant due to the cumulative effects of the credit expansion. Investment demand increased further in the last quarter and manufacturing industry firms' propensity to invest strengthened. In light of these data, evaluations of the cyclical state of the economy suggest that aggregate demand conditions are at inflationary levels. The stronger-than envisaged course of economic activity in the second half of 2020 led to a significant upward revision in the output gap forecasts.

Although the negative impacts of the pandemic restrictions on the economy were limited compared to the second quarter of last year, the slowdown in services and related sectors and the uncertainties regarding their short-term outlook continue. Looser restrictions compared to the early phases of the pandemic, along with changing consumption patterns, limit the adverse effects of restrictions on activity and the labor market. Indeed, job losses in sectors with high physical contact can be offset, albeit partially, by increases in employment in the information-communication and transport-storage sectors. Uncertainties surrounding domestic and external demand, primarily in the services sector, persist and depend on the course of the pandemic.

The domestic demand that strengthened due to the cumulative effects of high credit growth during the pandemic, continues to have an adverse effect on the current account balance and inflation. The strong credit impulse boosted imports through the channels of both domestic demand and inflation expectations and dollarization, and became an important driver of the deterioration in the current account balance in 2020. Although economic activity in our foreign trade partners has been slowing due to the recent increases in Covid-19 cases, the fact that pandemic restrictions do not cover the manufacturing industry activities supports the outlook for exports. On the other hand, a partial deceleration is observed in the import demand, while gold imports are still above their historical averages. The limiting effect on domestic demand and imports of the recent slowdown in loans due to tightening financial conditions is projected to be more pronounced in the upcoming period which is expected to improve the current account balance.

Domestic demand conditions, cumulative cost effects- in particular the exchange rate-, increasing international food and other commodity prices and high levels of inflation expectations continue to affect the inflation outlook adversely. Consumer inflation overshot the October Inflation Report forecasts. Having remained almost flat around 12% during the first ten months of 2020, consumer inflation increased in the last quarter due to an apparent rise in core goods and food inflation, and stood at 14.60% at the end of the year. The increase in core goods inflation was driven by demand conditions on the back of the strong credit impulse, as well as cost pressures led by exchange rates and international commodity prices. While goods and services items with weak demand conditions due to the pandemic contained consumer inflation, inflation remains high in groups that are relatively more sensitive to credit and exchange rate developments. Against this background, while core inflation indicators continue to increase, the tendency to raise prices has become widespread across sectors.

On the back of the effects of the strong monetary tightening, demand and cost factors that affect inflation are expected to weaken gradually. However, developments in international commodity prices, supply constraints that became more discernible in certain sectors, along with the recent wage and administered price adjustments, remain significant to the medium-term inflation outlook. Despite the appreciation of the Turkish lira, increasing commodity prices and supply constraints that became more evident in some sectors cause producer inflation to remain on the rise. Due to the drought and protective food policies, international food commodity prices have increased drastically. The hikes in industrial metal

and oil prices are having an effect on core goods and energy groups. As for the administered prices, despite the increases in electricity, natural gas and raw milk reference purchase prices, the tax adjustment in tobacco products played a role in the short-run outlook of inflation. It is assessed that the considerable rise in the minimum wage compared to the inflation target will affect inflation adversely through the channels of services prices in particular and increasing inflation rigidity.

Factors that affected the inflation outlook in the period following the October Inflation Report signaled the need to maintain the tight monetary policy stance for an extended period. Although the lagged effects of the deceleration that started in loans are expected to become more pronounced in the upcoming period, annual inflation rates are judged to remain high for a few more months due to the short-term supply-side factors. Maintaining the tight monetary stance resolutely will serve as a buffer against external and temporary volatilities in inflation expectations, pricing behavior and financial market developments. Besides the current information set, if any new information arrives pointing to the risk of inflation expectations and pricing behavior diverging from the medium-term disinflation path, additional tightening will be implemented decisively.

Citing a price stability-oriented monetary policy as critical to also containing macrofinancial risks since November, the CBRT announced that it would decisively implement a full-fledged inflation targeting strategy. As of the first week of November, the CBRT strongly communicated that it would adopt a policy stance that takes into account the existing risks and gives priority to disinflation. Accordingly, the CBRT implemented a transparent and strong monetary tightening within a simple operational framework in November and December in order to eliminate risks to the inflation outlook, contain inflation expectations and rapidly restore the disinflation process. Monetary policy decisions were supported by a communication policy emphasizing that the CBRT would determine its policy stance only with a focus on price stability. At the January MPC meeting, the CBRT stated that the tight monetary policy stance will be maintained “for an extended period” until strong indicators point to price stability and a permanent fall in inflation, and “additional monetary tightening would be delivered if needed”, thus providing strong forward guidance and enhancing policy predictability.

The strong communication regarding monetary policy tightening and price stability had positive implications for the markets, and financial indicators improved. Enhancing policy predictability by adopting a price stability-oriented and simple operational framework has led to a fall in the risk premium, exchange rate volatility and long-term interest rates and a rise in capital inflows since November (Box 1.1). Moreover, as the monetary policy tightening steps became clearer, the deterioration in inflation expectations slowed significantly and reversed in January. In fact, the absence of a major change in medium-term inflation expectations following the November inflation rate, which was above market expectations, and the minimum wage increase in December, is an important indicator that a price stability-oriented monetary policy communication is effective in managing expectations. The pass-through from higher policy rates into deposit and loan rates shows that the monetary transmission mechanism works effectively. The alignment of deposit rates with policy rates is key to achieving the desired change in residents' portfolio preferences. The decisive implementation of the tight monetary policy in line with the 5-percent medium-term inflation target will cause the inflation expectations to become compatible with the target, exchange rate pass-through to decline to reasonable levels and inflation rigidity to go down.

In order to contain existing macrofinancial risks, it is essential that loans and domestic demand move towards a moderate path. Loans have been slowing significantly as the monetary transmission mechanism works effectively. Personal loans are monitored closely, and targeted macroprudential tools applicable in this regard are discussed with the relevant stakeholders. The decelerating impact of the strong monetary tightening implemented in November and December MPC meetings on credit and domestic demand is expected to become more evident; hence, the effects of demand and cost factors on inflation are envisaged to wane gradually.

The monetary policy stance will be formulated in a way to gradually converge to the medium-term inflation target. Since monetary policy decisions influence aggregate demand and inflation with a lag, it is more effective to have the policy stance set in line with inflation forecasts. In this regard, the forecasts announced in Inflation Reports will also be a “forecast target” and will serve as interim targets by being a reference to inflation expectations. In other words, to steer expectations more efficiently while converging to the medium-term target, the reference values that will guide economic units regarding the future trend of inflation are the inflation forecasts for the short term and the inflation targets for the medium term.

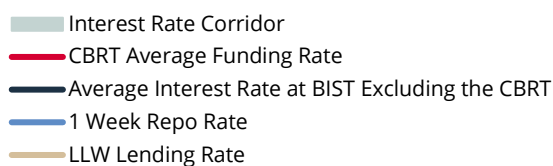
In 2021, the CBRT will implement a full-fledged inflation targeting strategy and make monetary policy decisions in pursuit of the primary objective of price stability. All factors affecting inflation will be taken into account, and the tightness of monetary policy will be decisively sustained until there are strong indicators that point to price stability and a permanent fall in inflation. The monetary policy communication will be strengthened by adhering to transparency, accountability and predictability principles.

1.1 Monetary Policy Decisions

The tightening steps taken towards liquidity management in August to contain inflation expectations and risks to the inflation outlook were maintained in November. Accordingly, effective from 3 November 2020, banks' borrowing limits at the CBRT Interbank Money Market were reduced to zero, and overnight repo transactions via the quotation method against TL-denominated lease certificates in the scope of Open Market Operations (OMO) were suspended. In addition, the Turkish lira interest rate applied to the Turkish Lira Currency Swap Market and the Turkish Lira Gold Swap Market was raised to 13.25% from 11.75%. With the tightening measures taken in response to the pandemic, the weighted average funding cost increased by approximately 750 basis points to 14.87% from July to November (Chart 1.1.1).

To eliminate risks to the inflation outlook, contain inflation expectations and restore the disinflation process in the shortest possible time, the CBRT delivered a transparent and strong monetary tightening and raised the policy rate to 15% from 10.25% in November. In addition to monetary tightening, it decided to adopt a simple operational framework to enhance transparency and predictability, and to provide all short-term funding at the one-week repo rate, which is the main policy rate. Accordingly, on 20 November 2020, the CBRT started to provide funding via one-week quantity repo auctions, the main monetary policy tool, instead of traditional-method repo auctions with one-month maturity and Late Liquidity Window (LON) facilities that were employed previously. Following the simplification of the operational framework, the liquidity composition also became simplified as the traditional repo auctions matured. In the current reporting period, the funding need of the system was met through TL currency swap transactions at the CBRT and BIST, in addition to the OMO funding. In this context, the Turkish lira interest rate applied on the Turkish Lira Currency Swap Market and the Turkish Lira Gold Swap Market was set as the one-week repo auction rate. The amount of swap transactions, which was TRY 373 billion as of 30 October 2020, decreased to TRY 320 billion as of 22 January 2021. In the same period, the net OMO funding posted an increase to TRY 254 billion from TRY 223 billion (Chart 1.1.2). As stated in the Monetary and Exchange Rate Policy for 2021 document, the share of swap transactions in the funding need of the system has declined within market conditions, and the share of OMO funding has increased with respect to the previous Report period.

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



Sources: BIST, CBRT

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



Source: CBRT

In its November meeting, the MPC assessed the need for a revision in the reserve requirement policy in order to enhance the effectiveness of the monetary transmission mechanism in line with the primary objective of price stability. Accordingly, the CBRT decided to repeal the reserve requirement practice that links the reserve requirement ratios and remuneration rates to real loan growth rates, and apply the same reserve requirement ratios and remuneration rates to all banks. The simplification of the reserve requirement policy contributed to increasing the transparency and predictability of monetary policy. In addition, hikes in Turkish lira and foreign currency reserve requirement ratios supported the CBRT's monetary stance and the monetary transmission mechanism.

In December, taking into account the end-2021 forecast target, the CBRT decided to implement a strong monetary tightening. In the MPC meeting on 24 December 2020, the policy rate (one-week repo auction rate) was increased to 17% from 15%. Including in the decision minutes a new expression regarding the forecast target, the MPC reinforced the message in the Monetary and Exchange Rate Policy for 2021 that read "the targets announced by the CBRT via Inflation Reports will serve as interim targets and a reference to inflation expectations".

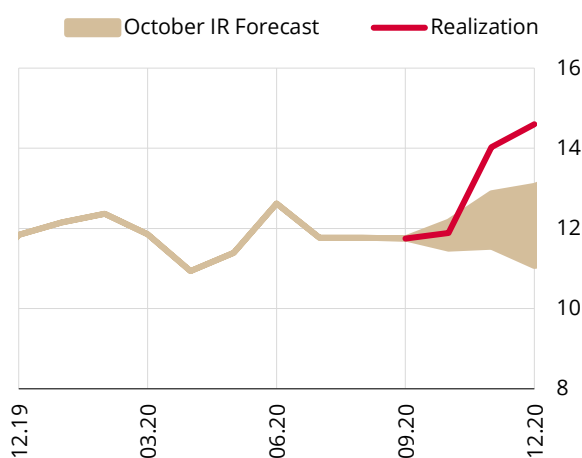
At the meeting of the Monetary Policy Committee on January 21, 2021, clear messages were given to enhance the predictability of the tight monetary policy stance, while the one-week repo auction interest rate, which is the policy rate, was kept constant at 17%. The CBRT strengthened its tight monetary policy stance by stating in the decision minutes that the tightness of the monetary policy stance will be maintained "for an extended period" until strong indicators point to price stability and a permanent fall in inflation and that "additional monetary tightening will be delivered if needed". The CBRT also included in its MPC decision the indicators that will be closely monitored for the course of inflation, thereby strengthening its communication with economic agents in terms of forward guidance.

In the current reporting period, steps towards effective functioning of financial markets continued. Additional flexibility introduced by the BRSA in derivatives transactions stood as a factor that increased flexibility in banks' Turkish lira and foreign currency liquidity management. The coordinated manner in which the BRSA regulations accompanied the tightening in monetary policy contributed to the deceleration in credits and to the effective functioning of the transmission channel (Table 1.1).

1.2 Medium-Term Projections

In the final quarter of 2020, consumer inflation stood at 14.6%, materializing above the upper bound of the forecast range in the October Inflation Report. In this period, the B index, which is one of the core indicators, also followed a similar course (Charts 1.2.1 and 1.2.2). Due to the rapid recovery in domestic demand, cumulative cost effects, in particular the exchange rate effects, and the developments in food prices, inflation was higher than projected.

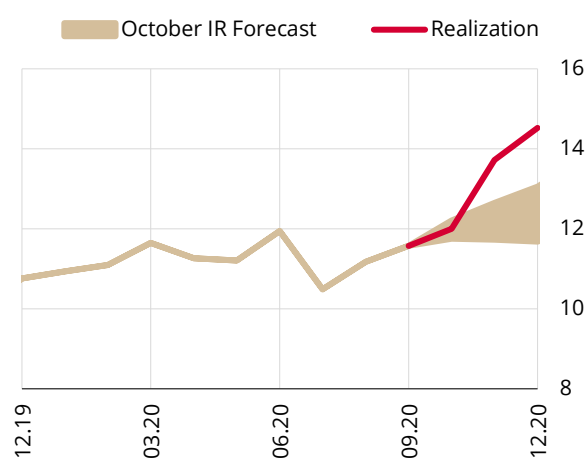
Chart 1.2.1: October CPI Inflation Forecast and Actual Inflation* (%)



Sources: CBRT, TURKSTAT.

* Shaded area denotes the 70% confidence interval for the forecast.

Chart 1.2.2: October Forecast and Actual Rates for Inflation Excl. Unprocessed Food, Energy, Alcohol-Tobacco and Gold (B Index)* (%)

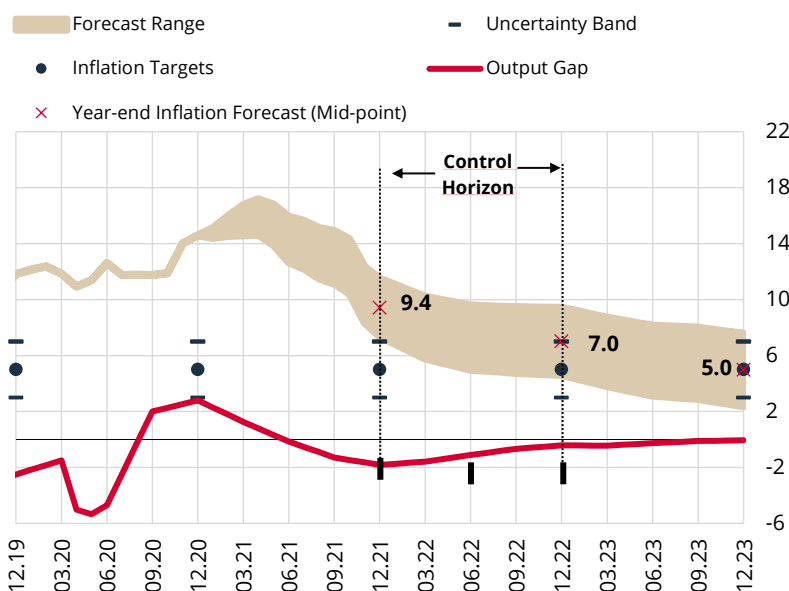


Sources: CBRT, TURKSTAT.

* Shaded area denotes the 70% confidence interval for the forecast.

Based on the revisions in the assumptions for Turkish lira-denominated import prices and oil and food prices accompanied by the effects of the tight monetary policy stance to be maintained until there are strong indicators that point to a permanent fall in inflation and price stability, inflation forecasts have been kept unchanged. Accordingly, inflation is projected to be 9.4% at the end of 2021, and fall to 7% at the end of 2022 before stabilizing around 5% in 2023, which is the medium-term target. With a 70% probability, inflation is expected to be between 7.3% and 11.5% (with a mid-point of 9.4%) at end-2021 and between 4.6% and 9.4% (with a mid-point of 7%) at end-2022 (Chart 1.2.3).

Chart 1.2.3: Inflation and Output Gap Forecasts*



Sources: CBRT, TURKSTAT.

* Shaded area denotes the 70% confidence interval for the forecast

The tightness of monetary policy stance towards the 5 percent inflation target will be determined as follows. The level between the realized/expected inflation rate path and the monetary policy rate path until the 5 percent target is reached will be set by aiming for a strong disinflationary balance; this balance will be preserved continuously. Besides the current information set, if any new information arrives pointing to the risk of inflation expectations and pricing behavior diverging from the medium-term target path, additional front-loaded tightening will be implemented.

Forecasts are based on the assumption that a pandemic-led shock will not arise in global growth as well as that the external demand outlook, and the recovery in Turkey-specific risk perceptions will continue amid improvements in the global risk appetite. Intensified efforts on vaccination against the Covid-19 virus accompanied by the expectations that advanced economies will maintain their expansionary monetary and fiscal stance increased the global risk appetite in the last quarter of 2020. Moreover, the low interest rate environment in advanced and emerging economies is expected to last for a long time. Projections also rely on an outlook in which maintaining the tight monetary policy stance within a simple framework until there are strong indicators that point to price stability and a permanent fall in inflation will contribute further to the improvement in the country risk premium.

Economic activity is slowing down recently owing to the effects of pandemic-related measures and monetary tightening. Following the strong rebound in the third quarter of the year amid alleviated pandemic-related restrictions and the strong credit impulse, economic activity displayed a robust course in the last quarter as well. Although the lagged effects of the slowdown in credits are expected to become more significant in the upcoming period, annual inflation may continue to move upwards for a few more months due to the supply-side inflationary factors that are quite effective in the short run. Increasing commodity prices despite the appreciation of the Turkish lira, and supply constraints that became more evident in some sectors cause producer inflation to remain on the rise. As for the administered prices, as opposed to the rise in electricity, natural gas and raw milk reference purchase prices, the tax adjustment in tobacco products played a role in the short-term inflation outlook. The additional inflation rigidity to be led

by the minimum wage through the services prices in particular, necessitates an extended period of a tight monetary policy stance compared to past projections. The tight monetary stance will serve as a significant buffer against external and temporary volatilities in the context of inflation expectations, pricing behavior and financial market developments. Moreover, due to cumulative effects of the monetary stance on demand conditions the output gap is expected to contribute to disinflation in the second half of the year.

1.3 Key Risks to Forecasts

The outlook underlying the medium-term projections presented in the Inflation Report is based on the Monetary Policy Committee's judgments and assumptions. The major downside and upside macroeconomic risks that may lead to a change in the baseline projections and the associated monetary policy stance are as follows.¹

Uncertainties regarding the course of the pandemic and the recovery in global economy have declined to some extent since the previous reporting period, owing to the favorable developments in vaccines and treatment. However, uncertainties over the rate of the spread of the virus as well as the effective use of the vaccine keep downside risks to the growth outlook alive.

The uptrend that has recently become more evident in international food and other commodity prices led by global demand developments and the recovery in economic activity pose upside risks to the inflation outlook. Secondary effects of supply-side inflationary factors on expectations and their interaction with financial indicators will be monitored closely.

The uptrend in the global inflation in 2021 creates uncertainties pertaining to the timing and speed of normalization in expansionary monetary policies in advanced economies. This may in turn lead to volatilities in the global risk appetite and capital flows towards emerging economies.

As the cumulative effects of the rapid credit growth of 2020 continue on domestic demand, the decelerating effects of monetary tightening may not be observed fast enough and this may delay the disinflation process. Residents' demand for FX/gold continues and sensitivity of portfolio preferences to negative news keeps the risks that may lead to a delay in the disinflation process alive. Exogenous factors, which may push credit growth upwards particularly in retail loans and sub-items and curtail the tight monetary stance transmission, may deteriorate inflation outlook via total demand, the current account balance and external financing, and risk premium channels.

Sectoral divergences that surfaced due to the pandemic dynamics and the macro policy mix are expected to continue in the normalization process as well. During the normalization process that will start once the effects of the pandemic wane on a global scale, the likely recovery in domestic demand and tourism may exert an upside pressure on inflation rates of certain goods and services items that were adversely affected by the pandemic such as clothing and footwear, accommodation, education, entertainment and culture, package tours etc. Sectoral divergences in demand conditions and closures, and measures introduced to maintain employment due to the pandemic make it harder to measure output gap and unit labor costs, and increase uncertainties with respect to inflation forecasting.

Year-end and medium-term inflation expectations hovering above the target levels keeps risks to inflation outlook in place via the pricing behavior channel. The sharp increase in the minimum wage coupled with the uptrend observed in international commodity prices may delay the improvement in inflation trend despite the relatively stable exchange rates. Against this backdrop, the short-term uptrend in inflation may adversely affect medium-term inflation expectations and pose a risk of slowdown in the speed at which expectations converge to forecast targets.

The disinflation process may be delayed, should the path of administered prices and tax adjustments significantly exceed the path envisaged in this Report due to the increase in public financing needs in relation to measures to contain the effects of the pandemic. Endorsement of inflation targets by all stakeholders and commitment to the price stability efforts with a common understanding and public accord, along with determination of macro policies in a coordinated manner in line with the projected disinflation path, will strengthen the effectiveness of the monetary policy.

¹ Evaluations of how and through which channel these risks may affect the inflation forecasts cited in the previous section are summarized in Table 3.2.2 in Chapter 3.

Table 1.1: Monetary Policy Actions

Date	Institution	Policy Decision
2 November 2020	CBRT	<ul style="list-style-type: none"> In the scope of tightening steps taken for liquidity management, effective from 3 November 2020, banks' borrowing limits at the CBRT Interbank Money Market were reduced to zero, and overnight repo transactions via the quotation method against TL-denominated lease certificates in the scope of Open Market Operations were suspended.
3 November 2020	CBRT	<ul style="list-style-type: none"> The Turkish lira interest rate applied to the Turkish Lira Currency Swap Market and the Turkish Lira Gold Swap Market was raised to 13.25% from 11.75%.
11 November 2020	BRSA	<ul style="list-style-type: none"> The regulatory capital limitations were eased for derivative transactions carried out by banks with non-residents in which banks pay TRY and receive FX in exchange at the maturity date.
19 November 2020	CBRT	<ul style="list-style-type: none"> The operational framework was simplified and the CBRT decided to provide all funding through the main policy rate, which is the one-week repo auction rate. Banks were allowed to borrow from the Central Bank Interbank Money Market within their limits applicable on 17 August 2020 and from Borsa Istanbul's Repo and Reverse Repo Market and Committed Transactions Market, and utilize the overnight repo facility provided through quotation against TL denominated lease certificates at the Open Market Operations.
20 November 2020	CBRT	<ul style="list-style-type: none"> The Turkish lira interest rate applied on the Turkish Lira Currency Swap Market and the Turkish Lira Gold Swap Market was raised to 15.00% from 13.25%.
24 November 2020	BRSA	<ul style="list-style-type: none"> The Asset Ratio (AR) calculation practice was terminated and all BRSA resolutions regulating the AR were repealed as of 31.12.2020.
25 November 2020	CBRT	<ul style="list-style-type: none"> The total limit of outstanding Turkish lira currency swap transactions conducted via the traditional (multi-price) auction method was raised from 50% to 60% of banks' total transaction limits at the Foreign Exchange and Banknotes Markets.
27 November 2020	CBRT	<ul style="list-style-type: none"> The CBRT decided to repeal the reserve requirement practice that links the reserve requirement ratios and remuneration rates to real loan growth rates, and apply the same reserve requirement ratios and remuneration rates to all banks. Moreover, the CBRT decided to decrease the commission rate applied to reserve requirements maintained against USD-denominated deposit / participation fund liabilities to 0% from 1.25%.
30 November 2020	BRSA	<ul style="list-style-type: none"> The regulatory capital limitation imposed on TL placements, TL deposits, TL repo and TL loans made by banks to non-resident financial institutions was eased.
25 December 2020	CBRT	<ul style="list-style-type: none"> The CBRT raised the TL interest rate on Turkish Lira currency swap transactions to 17% from 15%.

Box 1.1

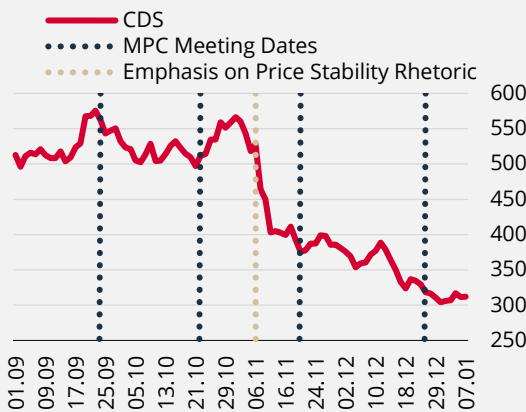
Recent Monetary Policy Decisions and Their Effects on Financial Indicators

This box examines the effects of monetary policy decisions in the September-December period on inflation compensation, the CDS premium and long-term interest rates. Under an inflation targeting regime, central banks tighten monetary stance by raising the short-term policy interest rates in case of deterioration in the inflation outlook. Monetary tightening is expected to slow down economic activity by reducing aggregate demand in the short term.

Saving and investment decisions depend heavily on long-term interest rates. Therefore, achieving permanent decline in inflation and price stability will enhance production capacity in the economy as it will bring low interest rates and a predictable investment environment. In times of high and volatile inflation, tight monetary policy practices aiming at price stability can reduce long-term interest rates by lowering inflation expectations and country risk premium.

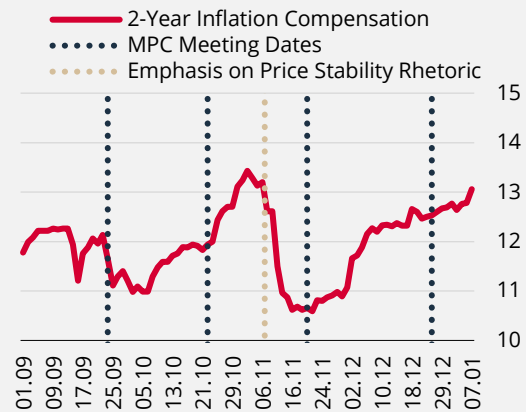
The vigorous recovery achieved in the economy with the rapid expansion in monetary aggregates and credits led to a deterioration in the external balance and inflation outlook. Accordingly, the CBRT increased the policy rate by 200 basis points at the MPC Meeting on September 24, 2020. After the decision, the risk premium of Turkey began to decline and 2-year inflation compensation, which can be described as a measure of inflation expectations derived from market rates, decreased by almost 1 percentage point (Charts 1 and 2). Thus, while short-term market rates increased in line with the policy rate, long-term market rates declined significantly (Chart 3). Therefore, this monetary policy step can be evaluated as an "expansionary tightening".

Chart 1: Turkey's 5-Year CDS Premium (Basis Points)



Source: Bloomberg.

Chart 2: 2-Year Inflation Compensation (%)



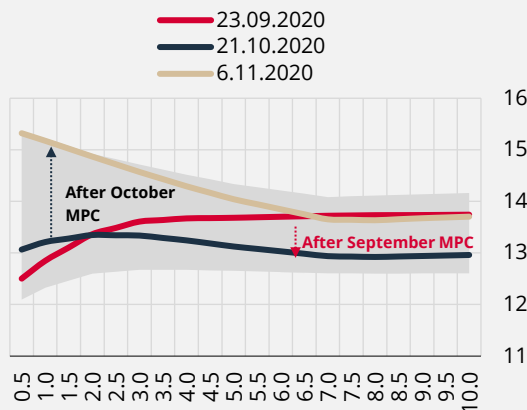
Source: Bloomberg.

Contrary to the rate hike predicted in the surveys conducted by various institutions prior to the MPC meeting in October, the CBRT left the interest rates unchanged and signaled that the additional monetary tightening that may be required would be carried out through liquidity management. After the decision, the country risk premium rose to the levels before the September MPC Meeting, while the inflation compensation also displayed a rapid upward trend. Similar to the increase in the risk premium, long-term interest rates also increased to pre-September MPC meeting levels, while short-term interest rates rose significantly owing to the additional tightening through liquidity management. The upsurge in interest rates across all maturities through inflation expectations and risk premium channels indicates a limiting effect of the October MPC decision on economic activity unlike the September decision.

In November, the country risk premium and inflation expectations decreased notably with the CBRT's adoption of a simple monetary policy framework accompanied by a rhetoric that prioritizes price stability. As a result, market rates fell by almost 1 percentage point in short terms and 2 percentage points in long terms in November (Chart 4). While the decline in the country risk premium continued, inflation compensation remained flat due to the implementation of a simple operational framework at the November MPC Meeting and the hike in the policy rate to converge to the actual money market interest rates. In the ensuing period, inflation compensation increased slightly due to the rapid increase in headline inflation. This increase was also reflected in market rates.

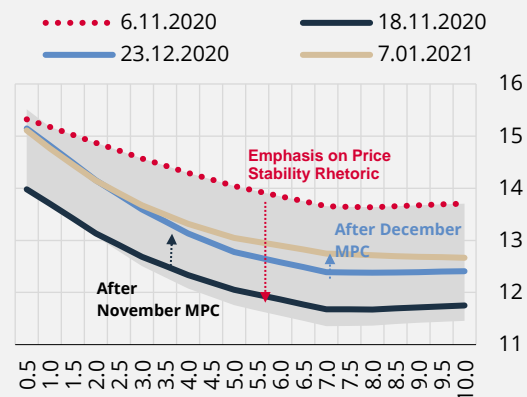
In order to limit the risks to the inflation outlook, the CBRT increased the policy rate by another 200 basis points at the MPC meeting in December. The country risk premium responded positively to this decision, but the increase in inflation expectations continued, albeit limited. While this increase was partially reflected on long-term market rates, interest rates remained flat in the short and medium terms.

Chart 3: Treasury Yield Curve
(%, 1 Sep.– 6 Nov. 2020 Period)



Sources: Bloomberg, CBRT.
* Shaded region represents the lowest and highest yields for the period between 1 September and 6 November 2020.

Chart 4: Treasury Yield Curve
(%, 6 Nov. 2020 – 7 Jan. 2021 Period)



Sources: Bloomberg, CBRT.
* Shaded region represents the lowest and highest yields for the period between 6 November 2020 and 7 January 2021.

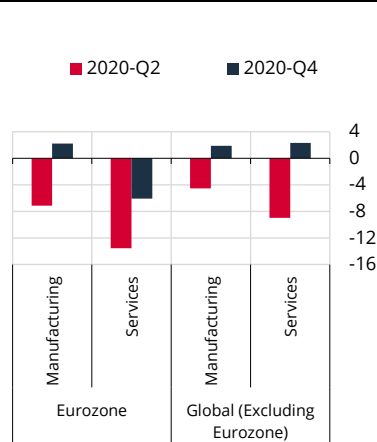
Considering the response lag, the decisive monetary policy stance is expected to alleviate the headline inflation in the upcoming period, which in turn improves the inflation outlook. In fact, the decline in the country risk premium by more than 200 basis points since the beginning of November indicates that the belief in economic stability has strengthened. Establishing a low inflation environment permanently will support the decrease in the country risk premium and long-term interest rates and will positively affect economic activity.

2. Economic Outlook

2.1 Global Economic Developments

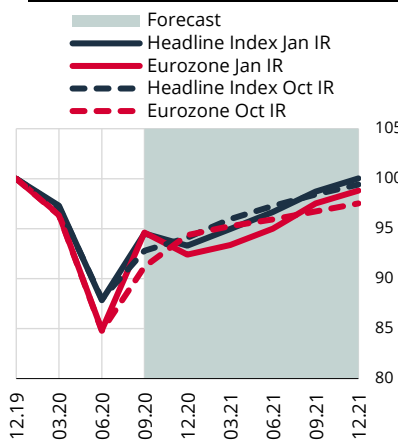
Pandemic measures reintroduced in some countries in the last quarter of the year decelerated the recovery trend in global growth. However, favorable vaccine and treatment developments strengthened the expectation for a faster recovery in the second half of 2021. The recently reintroduced restrictions appear to have a limited effect on global economic activity compared to early 2020. One of the underlying reasons for this is that the need for these measures arose within a more limited geographical area. Another reason is the greater number of workplaces and factories that remained operational as restrictions proved less strict than the previous ones. In addition, previous experience on pandemic conditions enabled everyone to be more prepared, which alleviated the adverse impact of restrictions on the production process. In general, countries kept manufacturing industry operational, and economies recorded a slowdown mostly in the services sector. In fact, excluding the euro area, the global PMI index rose in the last quarter. The manufacturing industry recovered further in the euro area, while the negative impact intensifies in the services sector and this slowdown remained lower than that in the second quarter, which was marked by strict restrictions (Chart 2.1.1). In sum, global economic activity in the third quarter proving stronger than past projections, and improving expectations for the second half of 2021, led to an improvement in the external demand outlook for Turkey to some extent since the previous reporting period (Chart 2.1.2). Moreover, the limited impacts of the restrictions in the manufacturing industry of the euro area point to more favorable prospects for Turkey's exports than those implied by the external demand indicator.

Chart 2.1.1: PMI Indices* (Seasonally Adjusted, Quarter-on-Quarter Change, Points)



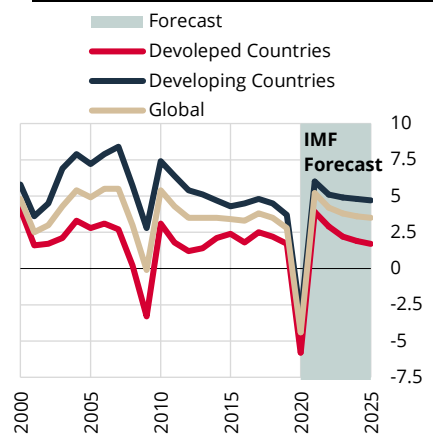
Source: IHS Markit.
* The average index value of three months was used for the quarterly PMI data.

Chart 2.1.2: Export-Weighted Global GDP* (2019 Q4=100)



Source: CBRT.
*Growth data of Turkey's 110 trading partners were weighted by their shares in Turkey's exports. Consensus Economics and IHS Markit forecasts for 2020 and 2021 were used.

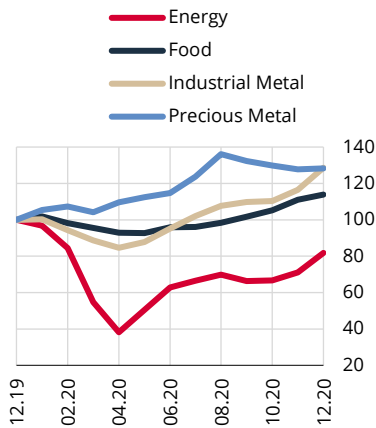
Chart 2.1.3: Global Growth Rates and IMF Forecasts (Annual Change, %)



Source: IMF.

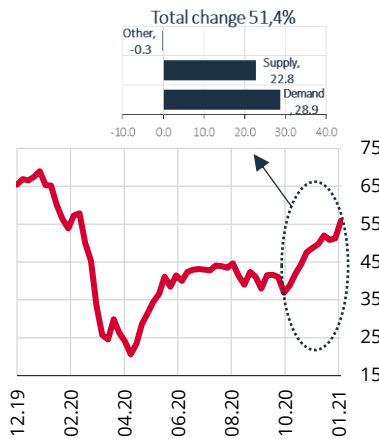
Uncertainties regarding global recovery have declined slightly since the previous reporting period. However, worries over the mutation risk of the virus and the extended timetable for mass vaccination keep downside risks to the growth outlook in place. The possible trend of medium-term global growth suggests risks in both directions. The determinant factor will be how quickly the administration of the vaccine and treatments will allow a return to normal in social life. Although the latest data suggest accumulation of experience in maintaining economic activity under pandemic conditions, the services sector, in particular, remains highly sensitive to restrictions. Moreover, practices such as expansionary economic policies, government grants and credit support generate an accumulating cost on economies. Therefore, the extension of the normalization period remains as a risk factor that may limit the pace of post-pandemic recovery. What is more, even under the best case scenario, structural problems that prevailed in the pre-pandemic period are still in place. Long-term growth projections of the International Monetary Fund (IMF) indicate that following a relatively strong growth performance in 2021 and 2022, owing to the base effect, growth rates of advanced and emerging economies will revert to the period averages recorded after the global financial crisis (Chart 2.1.3).

Chart 2.1.4: Commodity Prices Index
(2019 December = 100)



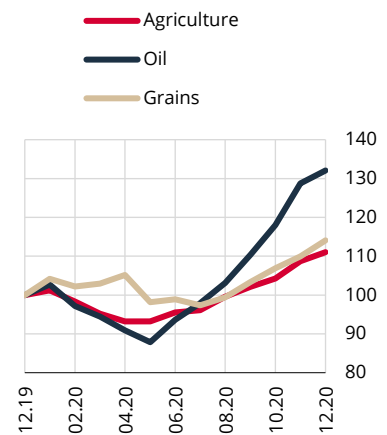
Source: World Bank.

Chart 2.1.5: Brent Oil Prices
(USD /bbl.)



Sources: Bloomberg, New York Fed.

Chart 2.1.6: Agricultural Commodity Prices*
(2019 December = 100)

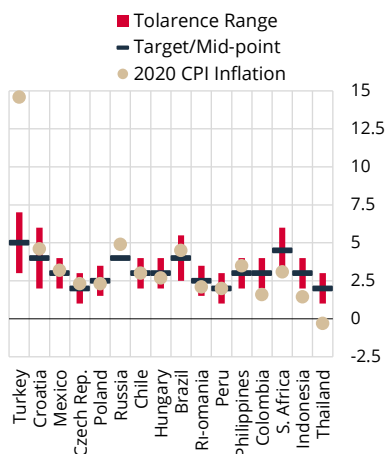


Source: World Bank.

* World Bank indices include the grains item composed mainly of rice, wheat and corn, while the oil item covers mainly soy bean, soy oil and palm oil.

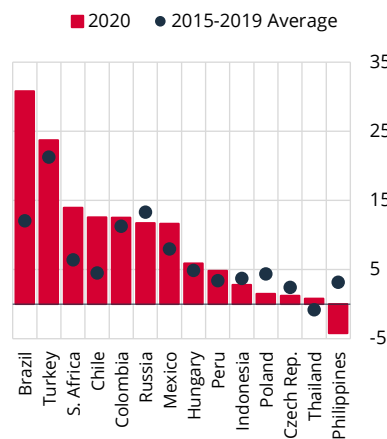
The rise in commodity prices has proven more evident, and poses upside risks to the global inflation outlook. The increase in commodity prices excluding energy that started in the second half of the year has continued until now. Meanwhile, energy prices, which had proved relatively low previously, surged as of November. Agricultural commodity and industrial metal prices in particular gained notable momentum in the last quarter of the year (Chart 2.1.4). Some portion of these increases in commodity prices was driven by global demand developments as well as expectations for recovery in economic activity. The New York Fed's factor decomposition analysis shows that the crude oil price increase since early November is quite attributable to demand (Chart 2.1.5). As for agricultural commodities, price hikes in oil and grains are noteworthy (Chart 2.1.6). These increases led by drought and the pandemic-induced local food policies pose upside risks to international food prices. Along with commodity prices, freight costs have also surged recently. Having been damaged during the pandemic, supply and procurement chains remain insufficient to meet the rapidly-recovering demand and lead to increasing costs in logistics.

Chart 2.1.7: Consumer Inflation in Emerging Economies for 2020 (Target, Tolerance Range and Realization, %)



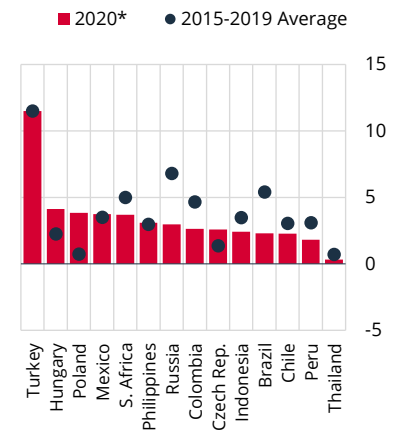
Source: Bloomberg, Central banks.

Chart 2.1.8: Exchange Rate in Emerging Economies (Annual Average Change against USD, %)



Sources: Bloomberg, CBRT estimates.

Chart 2.1.9: Core Inflation in Emerging Economies (Annual Average Change, %)



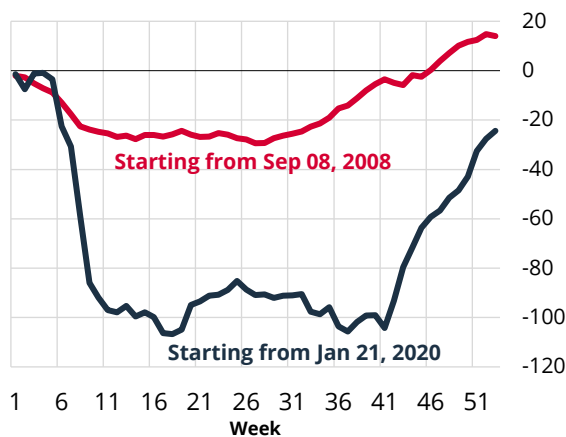
Sources: Bloomberg, CBRT estimates.

* November 2020 inflation in 12-month averages is used.

In 2021, both demand and cost-induced risks to global inflation are considered to be predominantly upside. In most of the emerging economies, inflation, which was inhibited particularly through weak domestic and external demand, remained low in 2020 and realized close to the target and/or within the tolerance range. In this respect, Turkey diverged negatively from other emerging economies (Chart 2.1.7). However, rising commodity prices and the likely recovery in demand may weigh on inflationary pressures in 2021. Pandemic measures as fiscal and monetary expansion implemented by all countries coupled with the re-emergence of the delayed demand may prove to be other element that may push prices up. Moreover, currencies of many emerging economies depreciated drastically in 2020 compared to the average of the last five years (Chart 2.1.8). However, core inflation remained lower than its average in the same period (Chart 2.1.9). Low levels in core inflation despite increased costs accompanied by the recovered demand may drive inflation upwards in emerging economies.

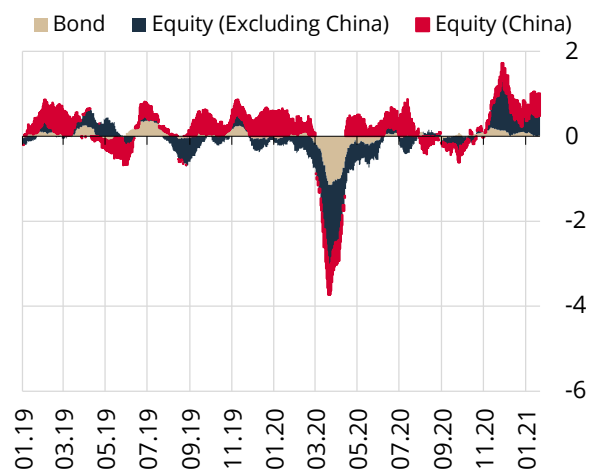
Improved prospects for global economic recovery stimulated risk appetite, and portfolio inflows towards emerging economies accelerated. Amid sustained support from global monetary and fiscal policies coupled with relatively waning uncertainties, portfolio inflows towards emerging economies were seen clearly after about 40 weeks since the outbreak of the pandemic. Around 76% of the portfolio outflows from emerging economies as of the start of the pandemic flowed back within 12 weeks from 30 October to 22 January (Chart 2.1.10). Moreover, contrary to the previously limited inflows led by the Asian market, inflows spread across the whole this time (Chart 2.1.11). However, the possibility of a change in the monetary policy stance in advanced economies in the event of a rise in inflation is considered to be a downside risk factor to portfolio inflows towards emerging economies (Zoom-In 2.1).

Chart 2.1.10: Portfolio Inflows to Emerging Economies (Cumulative, Weekly, Billion USD)



Source: Institute of International Finance.

Chart 2.1.11: Portfolio Inflows to Emerging Economies (Billion USD, 4-week Moving Average)



Source: Institute of International Finance.

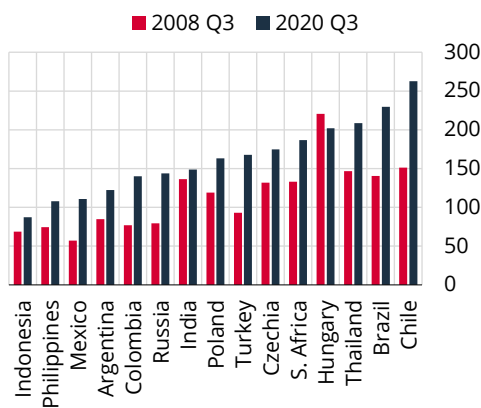
Zoom-In 2.1

Global Liquidity, Portfolio Movements and Potential Risks to Emerging Economies

Global liquidity hovers at historically high levels and keeps rising. With regard to the course of liquidity in the medium and long term, two scenarios come to the fore. The first one is the extended duration of supportive policies in advanced economies depending on the course of inflation. The second scenario is the start of normalization policies in advanced economies due to a faster-than-expected recovery and/or inflation increase. Both scenarios entail different risks for emerging economies.

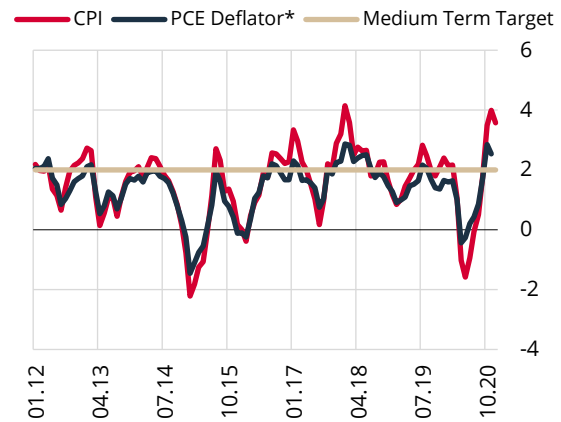
Ample global liquidity may pose risks to financial stability in emerging economies. Following the crisis in 2008, circumstances similar to this appeared. Appreciation in local currencies resulted in elevated indebtedness, deteriorated external balances and decreased quality in the financing of the current account deficit through the financing channel in emerging economies. Additionally, ample liquidity can cause sharp price fluctuations when expectations change. Compared to the period after the global financial crisis, emerging economies can be said to be more experienced in employing macroprudential policy tools to safeguard financial stability. Meanwhile, total indebtedness, which is higher than that period, increases fragility (Chart 1). The need to compensate for the deceleration in economic growth and the fall in employment during the pandemic may produce a challenging policy dilemma owing to the costs of prudential policies.

Chart 1: Total Indebtedness in Emerging Economies (Ratio to GDP, %)



Source: Institute of International Finance.

Chart 2: Headline Inflation Trend in the USA (Seasonally- Adjusted, Annualized 6—month Moving Average, %)



Sources: Bloomberg, St. Louis Fed.

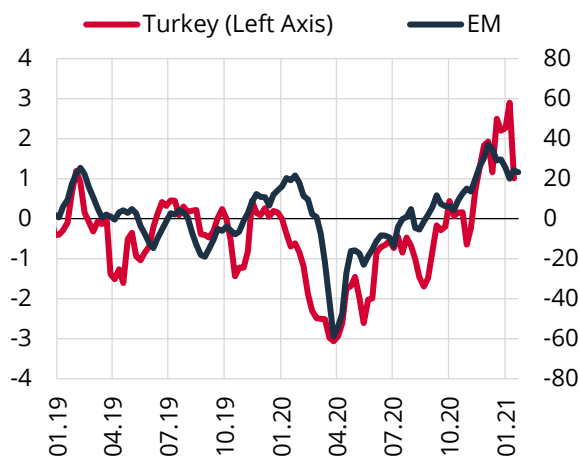
* PCE: Personal Consumption Expenditures

The likely upward course of inflation in 2021 generates uncertainties over the timing and pace of normalization in accommodative monetary policy practices of advanced economies. The Fed's transition to average inflation targeting underpinned its ability to tolerate a likely inflation shock. If inflation registers substantial increases, volatilities in the policy stance may occur due to earlier-than-expected pricing of normalization by markets. The underlying trend of inflation in the USA has been above the target since October (Chart 2). As forward guidance of central banks has been clear and strong, uncertainties regarding policy rates remain low with no expectations for a rise. However, that does not apply to bond purchases, and uncertainties regarding the timing and course of normalization remain high. Thus, as the share of foreign investors increases within the assets of emerging economies, expectations for fiscal and monetary policy practices for advanced economies, primarily the USA, may cause more fluctuations in the markets of emerging economies.

2.2 Financial Conditions

Strong capital inflows to Turkey have been observed on the back of favorable developments in the global risk appetite and improvement in risk perceptions specific to Turkey. The global risk appetite increased in the final quarter owing to advances in development of vaccines for coronavirus, the stimulus packages expected to be announced after the U.S. elections and expectations that the expansionary monetary and fiscal stances in advanced and emerging economies would continue. In this period with stronger capital flows to emerging economies, portfolio flows to Turkey diverged positively with the effect of the tightening of monetary policy within a simplified operational framework and the favorable expectations over economic policies (Chart 2.2.1). In fact, Turkey's risk premium significantly decreased and came down to the pre-pandemic level (Chart 2.2.2). Since early November, portfolio flows to Turkey reached USD 4.9 billion: USD 3.1 billion to the bond markets and USD 1.8 billion to the stock market. Meanwhile, in the FX swap market where inflows and outflows can quickly change direction with low costs, the net balance increased from USD 7.3 billion in November to USD 21.1 billion in the third week of January. Thus, net capital inflow to Turkey via the swap channel was USD 13.8 billion.

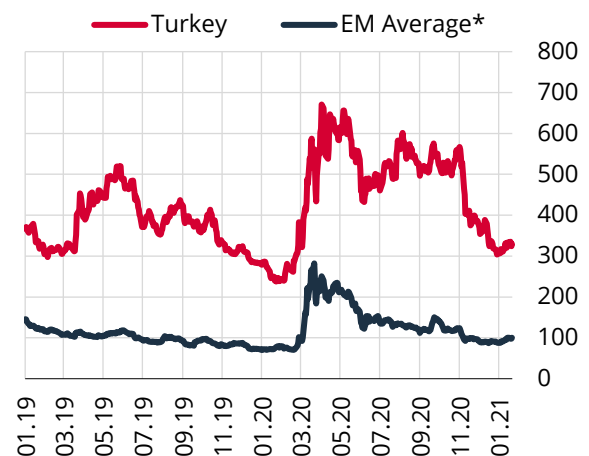
Chart 2.2.1: Portfolio Flows to Turkey and Emerging Economies*
(4-Week Cumulative, Billion USD)



Source: EPFR, CBRT.

* Turkey data includes portfolio flows to stocks and GDDS market. Repo is included in the GDDS data. Emerging Markets data is taken from the EPFR database and includes all the database-covered funds' weekly net investments in equity and GDDS markets in emerging economies.

Chart 2.2.2: Change in Risk Premiums of Turkey and Emerging Economies
(5-Year CDS, Basis Points)

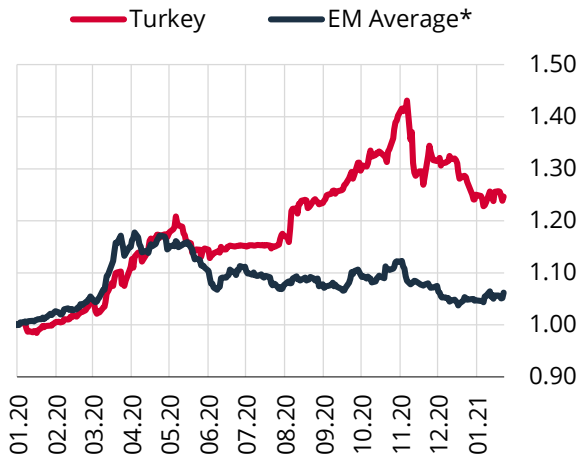


Source: Bloomberg.

* EM: Brazil, Chile, Colombia, Indonesia, Mexico, the Philippines, Russia, S. Africa.

Despite the rise in TL deposit rates and the appreciation of the Turkish lira over the last few months, the rise in residents' FX deposits continued. While currencies of emerging market economies slightly appreciated against the USD over the last quarter on the back of the favorable global risk appetite, the Turkish lira appreciated significantly (Chart 2.2.3). Despite the recent decline in Turkey's risk premium and the appreciation in the Turkish lira attracting foreign investors to Turkey, FX deposits of residents have not yet decreased (Chart 2.2.4). Although the share of FX deposits in residents' total deposits slightly decreased since November, this decrease can be mostly attributed to the exchange rate effect. In the upcoming period, residents are expected to decrease FX deposits with the effect of the continued tight monetary stance and the improvement in expectations regarding exchange rates (Box 2.1).

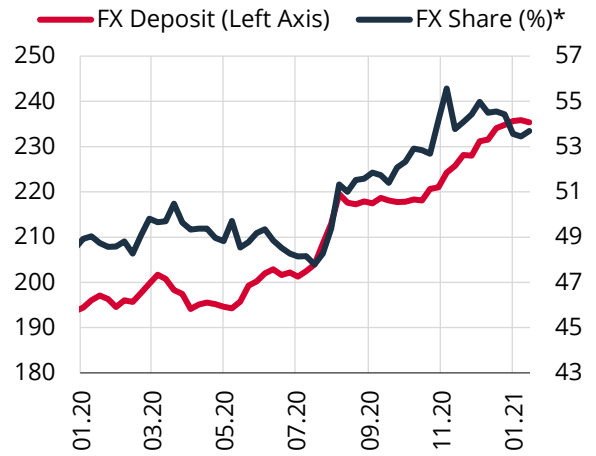
Chart 2.2.3: Turkish Lira and Emerging Market Currencies against US Dollar
(31.12.2019 = 1)



Source: Bloomberg.

* EM: Brazil, Chile, Colombia, Hungary, Indonesia, Malaysia, Mexico, the Philippines, Poland, Russia, S. Africa.

Chart 2.2.4: FX Deposits of Residents (Weekly, Billion USD)



Source: CBRT.

* FX share series is calculated by taking the ratio of residents' FX deposits to their total deposits.

Exchange rate volatility has abated due to the fall in Turkey's risk premium and the appreciation of the Turkish lira. Implied volatility of the Turkish lira has significantly decreased since November. The decline in 12-month implied volatility was close to the decline in 1-month implied volatility and this indicates that the rise in the confidence in the Turkish lira is based on permanent factors (Chart 2.2.5 and Chart 2.2.6).

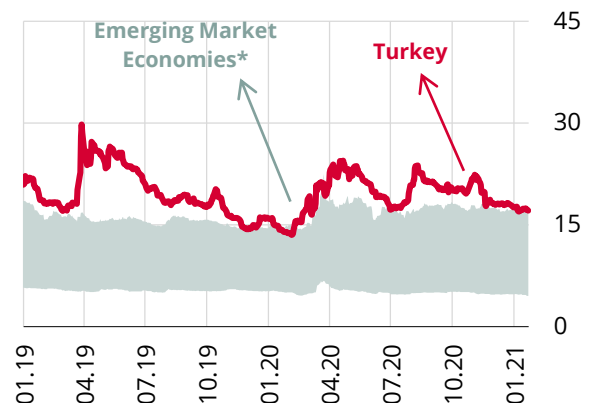
Chart 2.2.5: Exchange Rate Volatilities Implied by Options (against USD, 1-Month Forward, %)



Source: Bloomberg.

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

Chart 2.2.6: Exchange Rate Volatilities Implied by Options (against USD, 12-Months Forward, %)



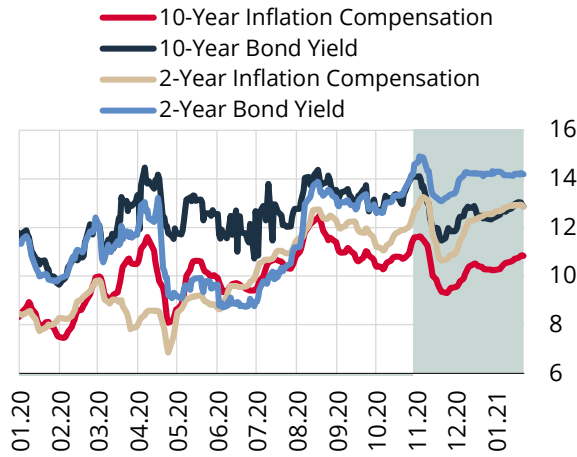
Source: Bloomberg.

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

The tightening delivered in monetary policy favorably affected country risk premium and inflation expectations leading to a decrease in long-term interest rates. With the effect of the monetary tightening and simplification steps taken by the CBRT in the final quarter of 2020, inflation compensation rapidly decreased towards the end of November, to be followed by a rally as inflation exceeded market expectations (Chart 2.2.7). With the effect of the policy rate hike in November, short-term market rates increased minimally, while medium and long-term market rates decreased significantly and the slope of the yield curve became inverted (Chart 2.2.8). The fact that long-term interest rates are significantly lower than

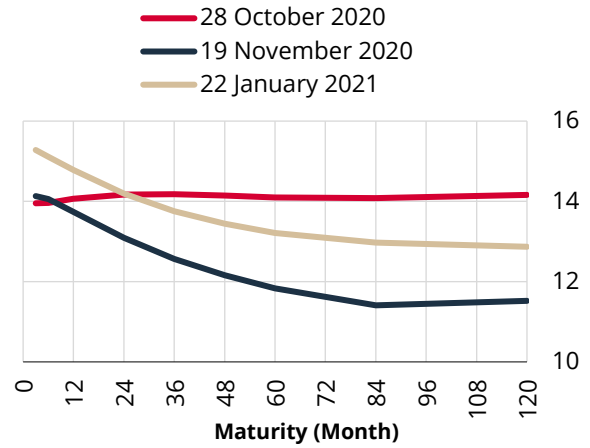
short-term interest rates points to an improvement in risk premium and inflation expectations. The tightening steps, which focused on price stability and decreased monetary policy uncertainty, may generate expansionary impacts by positively affecting expectations, risk perceptions and long-term interest rates.

Chart 2.2.7: Long-term GDSS Yield and Inflation Compensations (%)



Source: Bloomberg.

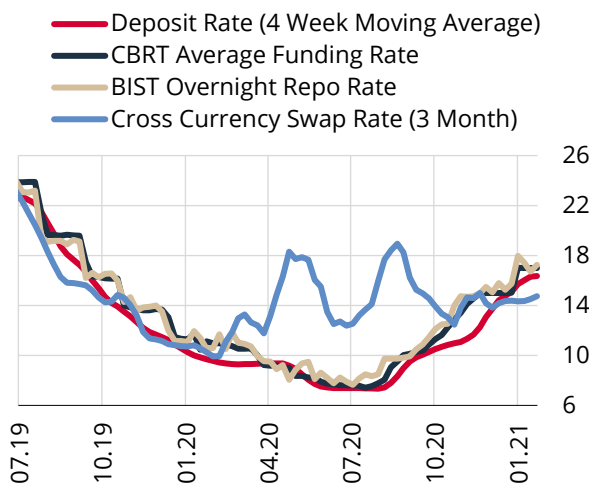
Chart 2.2.8: GDSS Yield Curve (%)



Source: Bloomberg.

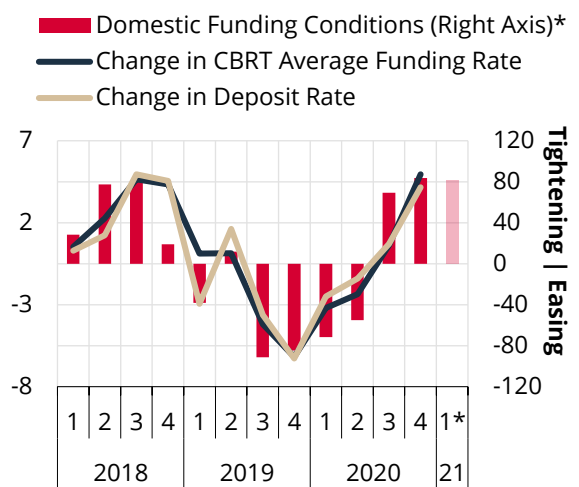
In the final quarter of 2020, banks' funding rates rose on the back of the rise in the tightening in monetary policy and deposit rates moved closer to the policy rate. While on the one hand, the rise in the policy rate and reserve requirement ratios pushed Turkish lira funding rates upwards, on the other hand, the rise enhanced predictability contributing to convergence of interest rates. Thus, the gap between deposit rates and the CBRT weighted average funding rate as well as BIST overnight repo rate narrowed and monetary transmission became more operational (Chart 2.2.9). Cross currency swap rates in swap transactions conducted with non-resident banks moved in tandem with the CBRT weighted average funding rate for a while; nevertheless they remained below other interest rates because of swap transaction limits and non-residents' expectations of higher appreciation in the Turkish lira. As a result of these developments, the CBRT weighted average funding rate and deposit rates changed by approximately 5% quarterly (Chart 2.2.10). The Bank Loans Tendency Survey (BLTS) suggests that the tightening in banks' domestic funding conditions would continue in the first quarter of 2021 as well.

Chart 2.2.9: Indicators of Banks' Funding Costs (%)



Source: Bloomberg, CBRT.

Chart 2.2.10: Banks' Domestic Funding Conditions (Quarterly % Change)

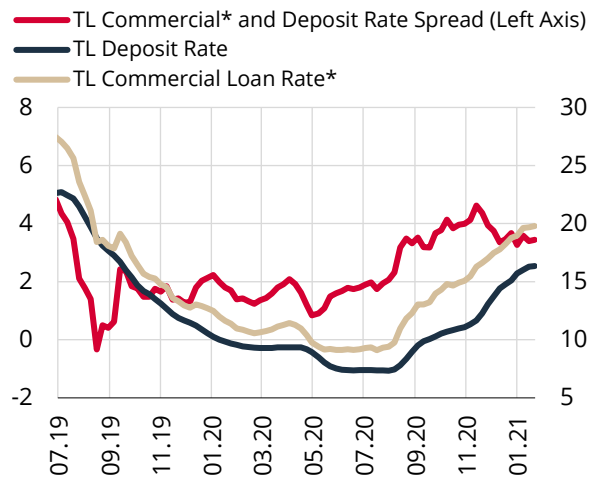


Source: CBRT.

*Shows banks' expectations in Bank Loans Tendency Survey (BLTS) and results have been used with opposite signs. Note: Red lines show the contribution of domestic funding conditions to credit standards in the BLTS.

While the rise in loan rates curbed new loan demand, the downtrend in the loan/deposit rate spread supports loan supply. With the rapid effect of the monetary policy tightening delivered in the final quarter of the year, the uptrend in commercial loan rates became clearer. Thus, compared to the previous Report period, commercial loan rates increased by approximately 600 basis points and reached 20%. Despite this development limiting loan demand, the deposit/loan rate spread, which is an indicator of tightness in credit conditions, slightly decreased after November as deposit rates climbed faster than loan rates (Chart 2.2.11). The deposit/loan rate spread is currently close to the historical average value, yet below the level recorded in the first half of 2018. In the final quarter of the year, the rise in consumer loan rates continued, while the rise in vehicle loans remained limited compared to other types of loans. At the end of the year, new car sales campaigns, which were introduced to revive demand for vehicles that had decreased due to the change in Special Consumption Tax and the appreciation in exchange rates, became the key driver of the divergence of vehicle loan rates (Chart 2.2.12).

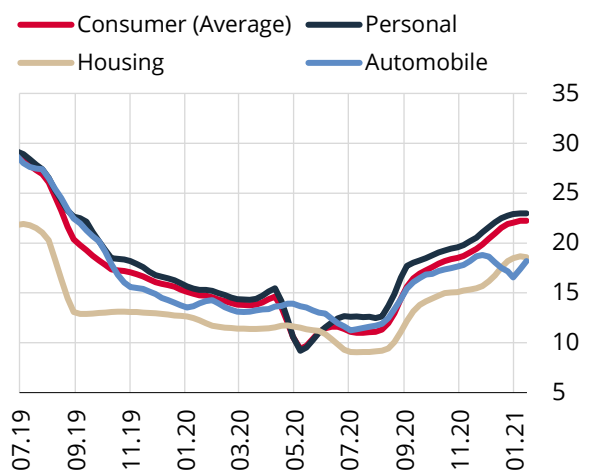
Chart 2.2.11: TL Commercial Loan and TL Deposit Rates (Flow Data, Annual, 4-Week Moving Average, %)



Source: CBRT.

* Overdraft accounts and credit cards excluded.

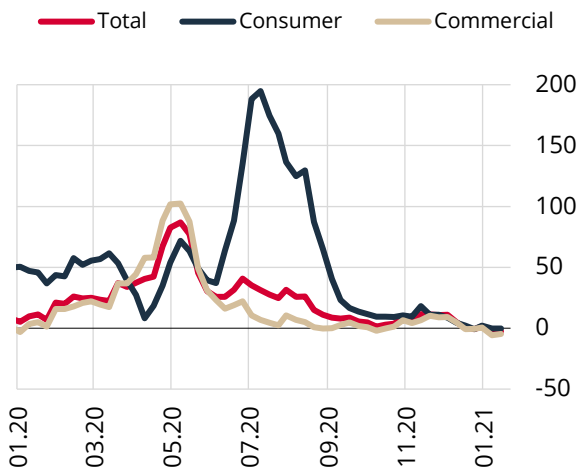
Chart 2.2.12: Consumer Loan Rates (Flow Data, Annual, 4-Week Moving Average, %)



Source: CBRT.

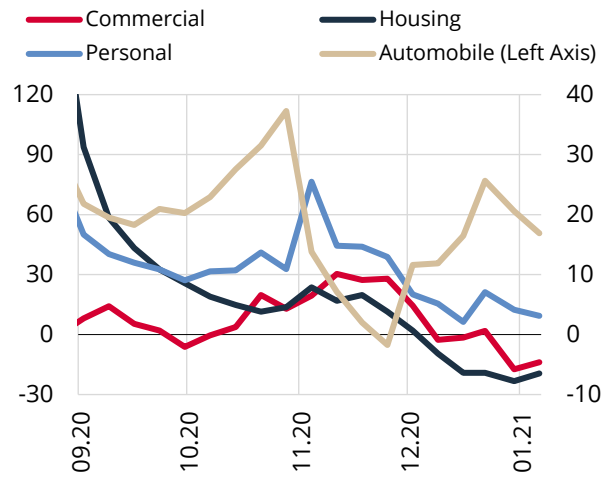
The support measures introduced during the pandemic period were revoked in the final quarter, leading to a slowdown in commercial and consumer loan growth (Chart 2.2.13). Unlike other loan rates, vehicle loan rates decreased, supporting the relatively strong trend in vehicle loans (Chart 2.2.14). The slowdown in growth in commercial loans, housing loans and general-purpose loans became more significant towards the end of November (Chart 2.2.14). According to the BLTS results, banks expect firm loans to increase, and housing and general purpose loans to continue to decrease in the first quarter of 2021 (Chart 2.2.15). Meanwhile, owing to the tight monetary policy stance and increased predictability, the likely decline in inflation expectations may increase the expected real cost of loans and enhance the demand-curbing effect.

Chart 2.2.13: Loan Growth (4-week Annualized Moving Average, Adjusted for Exchange Rates, %)



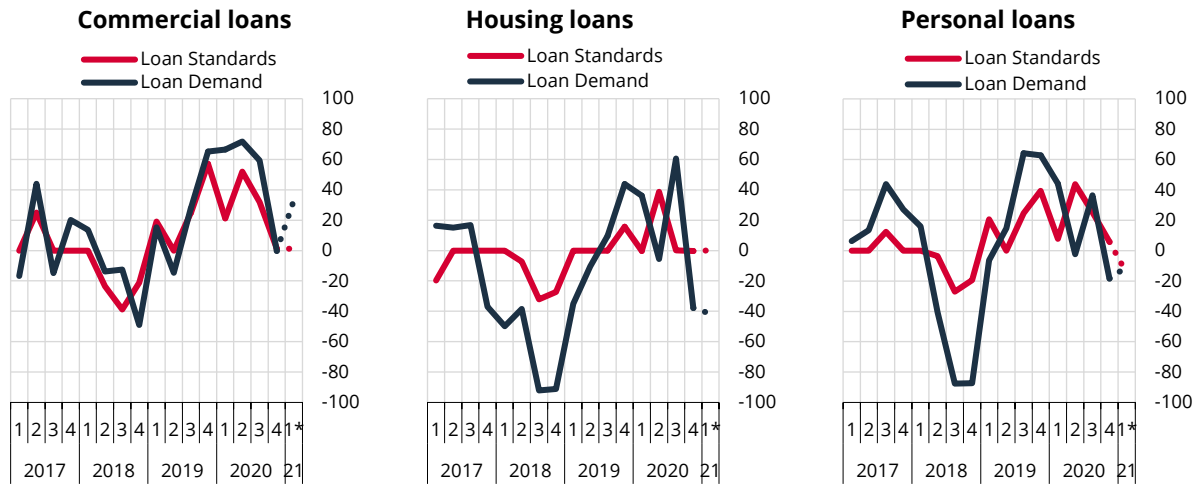
Source: CBRT.

Chart 2.2.14: Consumer Loan Growth (4-week Annualized Moving Average, %)



Source: CBRT.

Chart 2.2.15: Credit Standards and Expectations for Credit Demand



Source: CBRT.

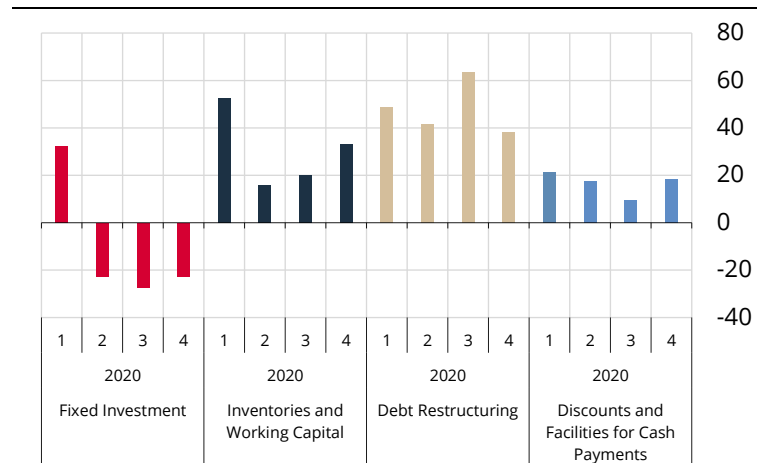
* Shows banks' expectations.

Note: To calculate Credit Standards and Demand Index, banks are asked how their credit standards (credit demand) have changed over the past three months. Net tendencies calculated based on response percentages indicate the direction of the change in credit supply (demand). Index values above 0 indicate easing in credit standards (increase in credit demand).

The survey results suggest that similar to the previous quarters, the commercial loans utilized in the final quarter were used in restructuring of loans, stock build-up and working capital rather than investments.

Commensurate with economic recovery, in the final quarter of the year, loan demand for stock build-up and working capital purposes increased, while loan demand for restructuring of loans decreased (Chart 2.2.16, Box 2.2).

Chart 2.2.16: Leading Factors Affecting Firms' Loan Demand (%)



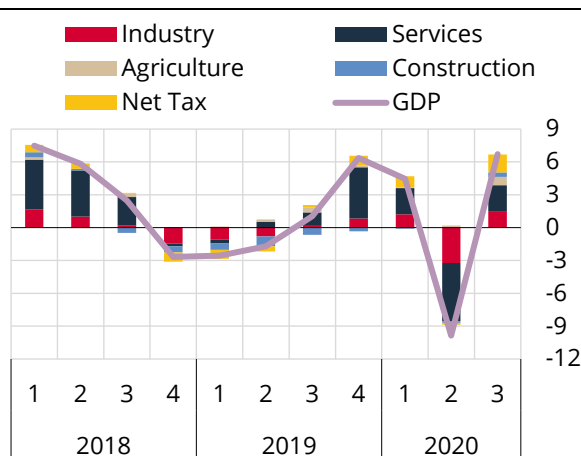
Source: CBRT.

Note: Net percentage changes regarding factors are the difference between the percentage ratio of the banks reporting that this factor increased the loan demand and those reporting that it decreased the loan demand.

2.3 Economic Activity

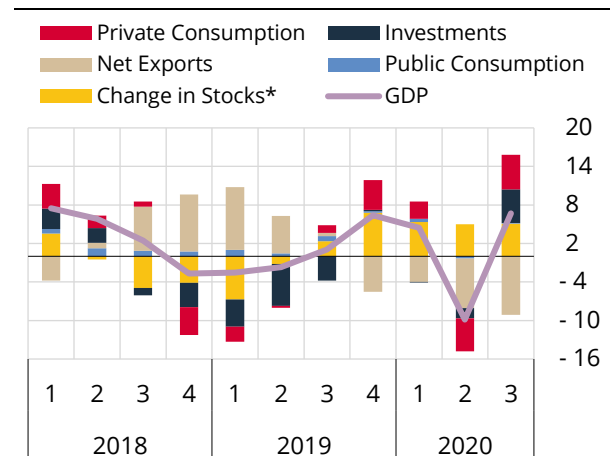
Economic activity posted a significant recovery in the third quarter of 2020 owing to the normalization process and the strong credit impulse. In the third quarter of 2020, GDP increased by 6.7% on an annual basis and 15.6% on a quarterly basis, exceeding its pre-pandemic level. While the recovery showed a wide sectoral spread, the contribution of services in the third quarter was mainly generated by financial and insurance activities and information-communication (Chart 2.3.1). On the other hand, the recovery in tourism-related services sectors adversely affected by the pandemic was less pronounced. Private consumption increased significantly due to eased financial conditions and pent-up demand, while investment spending made a large contribution to growth through both construction and machinery-equipment (Chart 2.3.2). Despite a rapid recovery in exports of goods, the contribution of net exports to annual growth was at a historically low level due to sluggish tourism and robust domestic demand and gold imports.

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



Sources: CBRT, TURKSTAT.

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

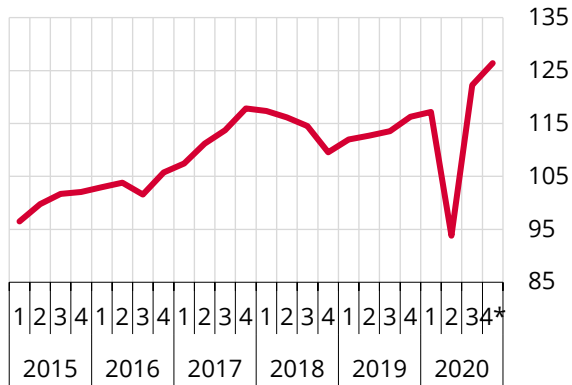


Sources: CBRT, TURKSTAT.

* Includes change in stocks and statistical discrepancy due to chain-linking.

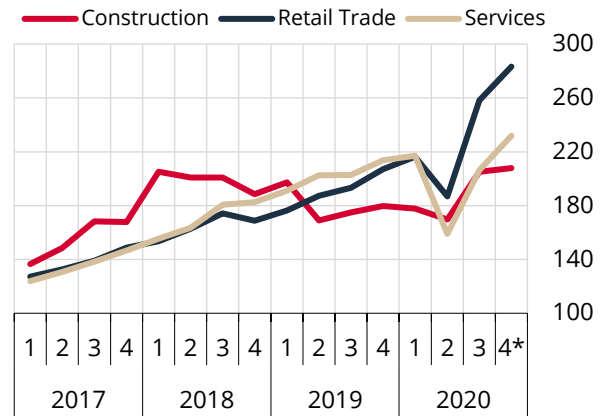
Indicators for the fourth quarter point to a strong course in economic activity. Industrial production continued to increase in October and November, up 4.2% from the third quarter (Chart 2.3.3). As of November, except for some export and tourism related activities (other transport, food and clothing), manufacturing industry output has been generally above its pre-pandemic level. Hence, industrial production in November was 6.4% above the February level. Similar to industrial production, turnover and retail sales volume indices also increased on a quarterly basis, while services excluding tourism-related sectors and trade were buoyant (Chart 2.3.4).

Chart 2.3.3: Industrial Production Index
(Seasonally and Calendar Adjusted 2015=100)



Source: TURKSTAT.
* As of November.

Chart 2.3.4: Sectoral Turnover Indices
(Seasonally and Calendar Adjusted 2015=100)

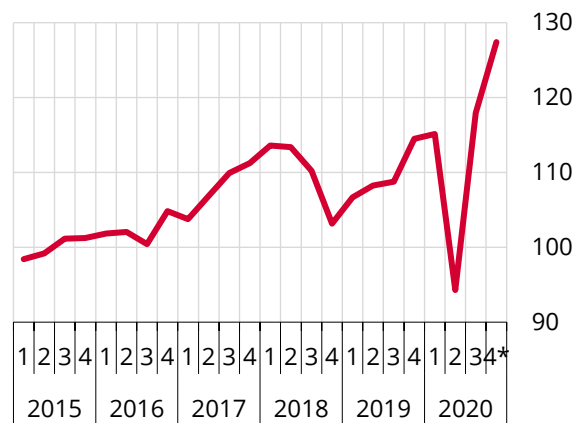


Source: TURKSTAT.
* As of November.

Domestic demand lost some momentum in December but remained robust throughout the fourth quarter.

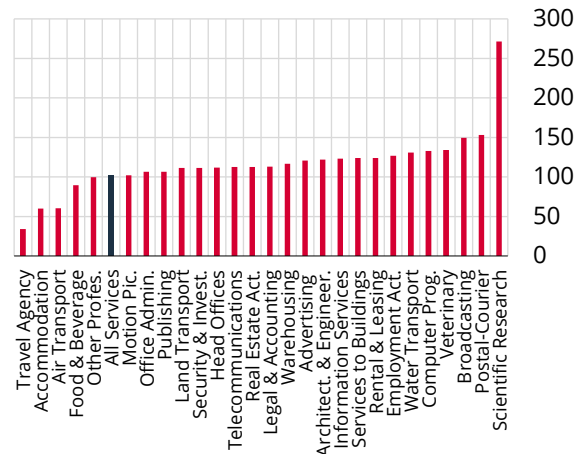
In the October-November period, retail sales volume was up 8.0% from the third quarter, pointing to a strong consumption demand (Chart 2.3.5). High-frequency data and survey-based capacity utilization rates and orders signaled brisk activity in durable consumer goods sensitive to financing conditions, such as automobiles, white goods and furniture, as well as in construction-related intermediate goods. On the other hand, despite still being strong, automobile sales recorded a monthly decline in December and personal loans lost significant momentum, which suggest that domestic demand will continue to wane. Meanwhile, restrictions imposed due to the increasing number of coronavirus cases create uncertainty over the short-term economic outlook, particularly via the services sector (Chart 2.3.6).

Chart 2.3.5: Retail Sales Volume Index
(Seasonally Adjusted, 2015=100)



Source: TURKSTAT.
* As of November.

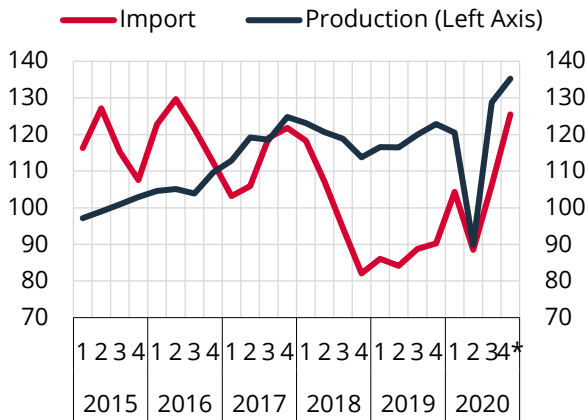
Chart 2.3.6: Services Turnover Indices
(As of November 2020, Seasonally Adjusted, February 2020=100)



Source: TURKSTAT.

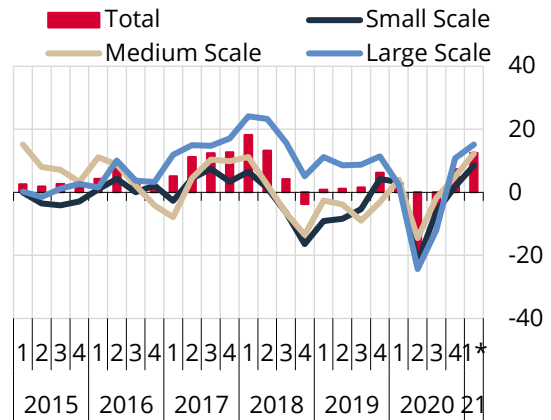
The recovery in investment demand strengthened in the last quarter of the year, and the improvement in investment tendency spread across the entire manufacturing industry. November external trade, production and turnover indices point to a strong demand for fixed capital goods in the last quarter of the year (Chart 2.3.7). According to January BTS data, 12-month-ahead investment tendencies of manufacturing industry firms continue to show marked improvement, which is widespread in terms of scale, yet stronger for larger firms (Chart 2.3.8).

Chart 2.3.7: Imports and Production of Capital Goods (Seasonally Adjusted)



Source: TURKSTAT.
* As of November.

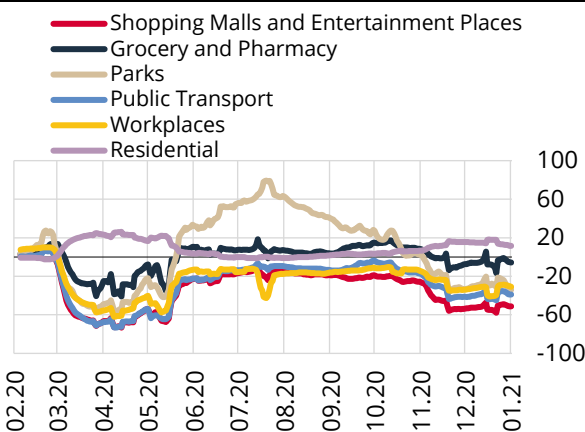
Chart 2.3.8: BTS Expectations for Fixed Capital Investment Spending (Seasonally Adjusted, Up-Down, %)



Source: CBRT.
* As of January.

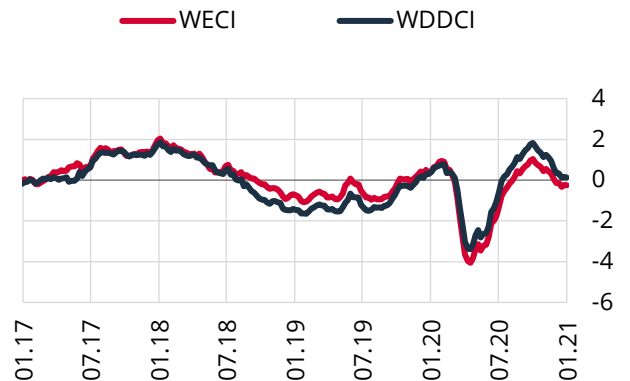
Due to coronavirus measures and monetary tightening, economic activity has recently been slowing. Restrictions in place since early November due to the increasing number of cases have reduced mobility sharply across the country, but affected economic activity to a relatively limited extent compared to the beginning of the outbreak (Chart 2.3.9). The weekly economic conditions index (WECI) and the weekly domestic demand conditions index (WDDCI) signal a domestic demand-driven slowdown in economic activity (Chart 2.3.10, Zoom-In 2.2).

Chart 2.3.9: Google Mobility Index for Turkey (7-Day Moving Average)



Source: Google.

Chart 2.3.10: Weekly Economic Conditions and Domestic Demand Conditions Indices* (4-Week Moving Average)



Source: CBRT.

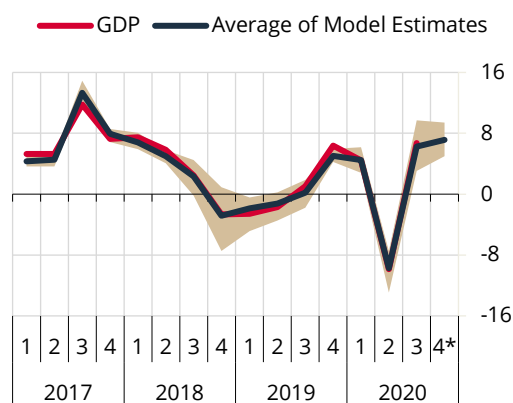
* Values of the index show the distance (high/low) from the mean in terms of the standard deviation. For details on methodology, see Çelgin and Günay (2020) and the CBRT Inflation Report 2020-III Box 4.1 Weekly Economic Conditions Index (WECI). WDDCI is WECI excluding exports and payments made with foreign credit cards.

Zoom-In 2.2

Short-Term Growth Outlook

National income data and indicators for the fourth quarter point to a stronger-than-expected economic activity for the second half of the year. Economic activity is above pre-pandemic levels and long-term trends in many sectors, except for goods and services, which have been hampered by COVID-19 and restrictions. Nowcasting models monitored by the CBRT and based on lagged data such as industrial production, turnover indices and tax revenues indicate a stronger growth momentum in the fourth quarter than in the previous quarter (Chart 1). On the other hand, the Weekly Economic Conditions Index (WECI) constructed for January using high-frequency data signals a quarter-on-quarter slowdown in economic activity (Chart 2). Against this backdrop, it is predicted that economic activity reached its cyclical peak in the last quarter and will start converging to its potential level in the following period amid coronavirus measures and tight financial conditions. Our short-term output gap estimates, i.e. the initial point of our medium-term forecasts, are based on this assumption.

Chart 1: GDP and Nowcasting Model Estimates (Annual % Change)**



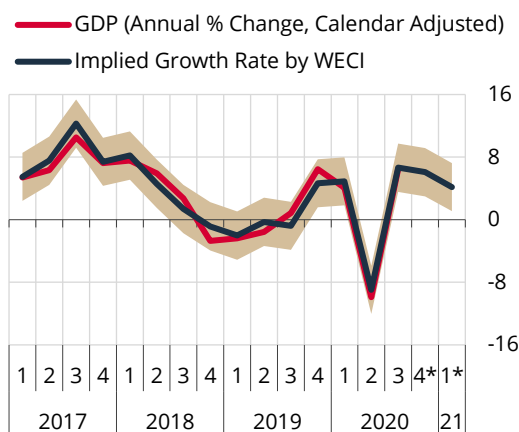
Sources: TURKSTAT, Authors' calculations.

* Forecast.

** Estimates obtained by modeling the annual GDP growth using the bridge equations approach. The forecast band is obtained using models that deliver the highest and lowest estimates.

For details on methodology, see Günay and Yavuz (2017).

Chart 2: GDP and Implied Growth Rate by WECI (Calendar Adjusted Annual % Change)**



Sources: TURKSTAT, Authors' calculations.

* Forecast.

** The forecast band is obtained using the two standard deviations of the forecast error.

For details on methodology, see Çelgin and Günay (2020).

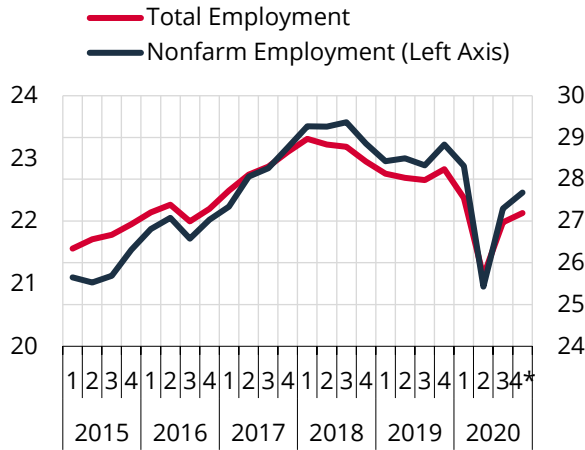
Thanks to the robust economic recovery, employment opportunities have improved, but the labor market has recently begun to see the adverse effects of COVID-19 restrictions. As of the October period

(September-October-November), of 2 million job losses during the pandemic, about 1.5 million were recovered.¹ With the economic rebound in the third-quarter, nonfarm employment recorded an increase across all sectors. The impact of coronavirus measures on the labor market varies across sectors. Employment fell in services and construction, which are relatively more affected by lockdown measures, but continued to increase in the industrial sector due to growing exports. As of October, services

¹ Job losses during the pandemic are estimated using the seasonally adjusted change in employment from January to May.

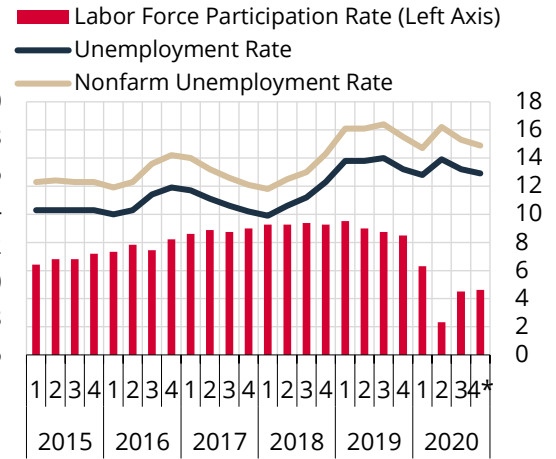
employment and nonfarm employment shrank by 682 thousand and 681 thousand people, respectively, from their pre-pandemic (January 2020) level (Chart 2.3.11). In this period, seasonally adjusted total and nonfarm unemployment rates were up 0.1 point each from the previous period to 12.9% and 14.9%, respectively (Chart 2.3.12). Broad unemployment indicators including non-job seekers are still high (Chart 2.3.13).

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



Source: TURKSTAT.
* As of October.

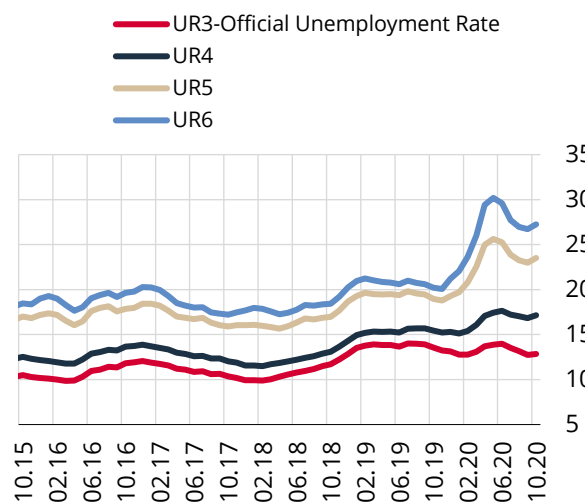
Chart 2.3.12: Unemployment and Labor Force Participation (Seasonally Adjusted, %)



Source: CBRT.
* As of October.

Although COVID-19 restrictions and changing consumption patterns stimulate demand and employment in some sectors, they restrain services employment in total. The recent tightening of restrictions curbed employment in many services sectors, accommodation and catering services and trade in particular, whereas sectors such as information-communication and transport and storage services that benefited from pandemic-driven demand conditions posted a quarter-on-quarter increase in employment (Chart 2.3.14).

Chart 2.3.13: Broad Unemployment Rates (Seasonally Adjusted, %)



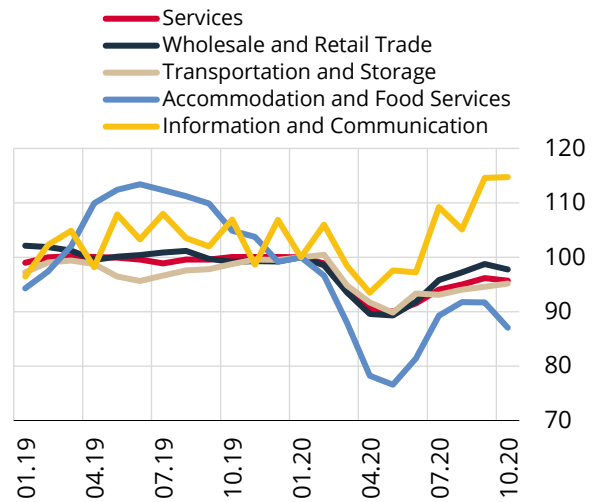
Sources: CBRT, TURKSTAT.

UR-4: The ratio of the sum of unemployed and those who have lost their hope of finding a job to civilian labor force and those who have lost their hope of finding a job.

UR-5: The ratio of the sum of unemployed and non-job seekers to the sum of civilian labor force and non-job seekers.

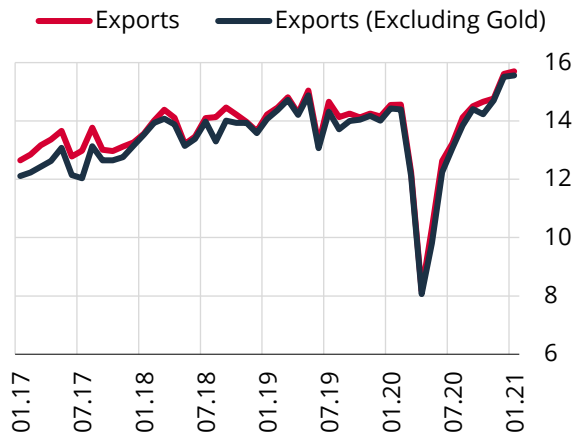
UR-6: The ratio of the sum of unemployed, non-job seekers, seasonal workers and underemployed to the sum of civilian labor force and non-job seekers.

Chart 2.3.14: Employment in Selected Services (Seasonally Adjusted, January 2020=100)



Despite lockdown measures in Europe, exports to the region remain strong and support total export growth. Exports to Europe accelerated in the last quarter of 2020 and supported the total export growth (Chart 2.3.15). This was largely driven by uninterrupted manufacturing activities that were kept out of the scope of lockdown measures (Chart 2.3.16). High-frequency data for January indicate that exports to Europe were still elevated, albeit slightly down (Zoom-In 2.3). Meanwhile, exports to non-European countries increased in January. Thus, exports were nearly flat in January.

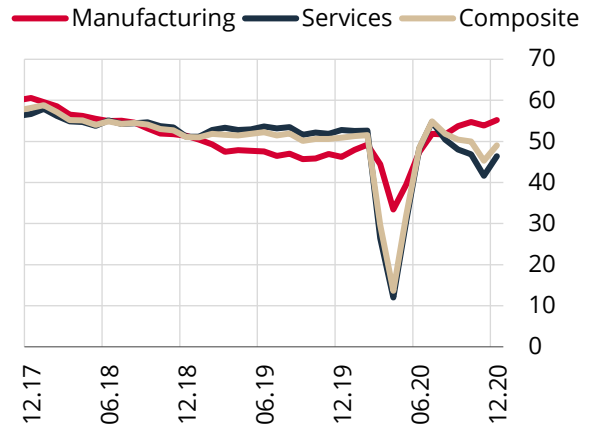
Chart 2.3.15: Exports* (Seasonal and Calendar Adjusted, Billion USD)



Sources: TEA, TURKSTAT and CBRT.

* January data is estimated.

Chart 2.3.16: Euro Area PMI (Level)



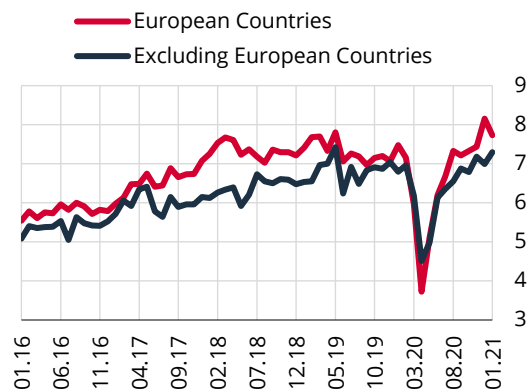
Source: IHS Markit.

Zoom-In 2.3

Export Outlook Across Regions

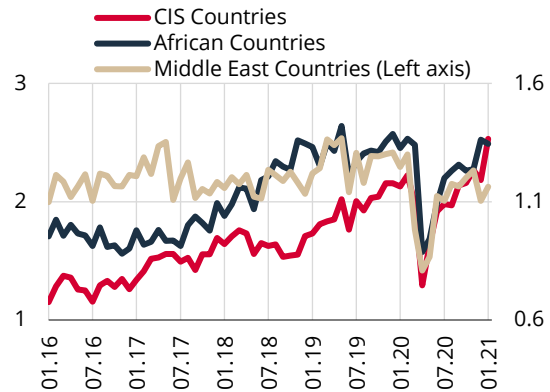
Although our trading partners tightened Covid-19 restrictions, exports remained strong in the last quarter. Exports of goods fell sharply across regions and sectors in March-April due to mobility restrictions and border closures in the early days of the outbreak, but after a rapid subsequent recovery, they bounced back to their pre-pandemic level in August. Amid the second wave of the pandemic in November, many countries, especially in Europe, reintroduced COVID-19 measures, posing a risk to the export outlook. However, official and provisional data showed that there was no slowdown in exports due to the pandemic (Charts 1 and 2). Contrary to expectations, exports to Europe, where measures were strictly enforced, gained momentum in December, because unlike the first wave, coronavirus measures mostly covered the services sector and activity continued in the manufacturing industry. On the other hand, exports to the Middle East have been weakening due to geopolitical tensions. Exports to Saudi Arabia came to a near standstill in this period.

Chart 1: Exports (Seasonally Adjusted, Billion USD)



Sources: TEA, TURKSTAT and CBRT.

Chart 2: Exports (Seasonally Adjusted, Billion USD)



Sources: TEA, TURKSTAT and CBRT.

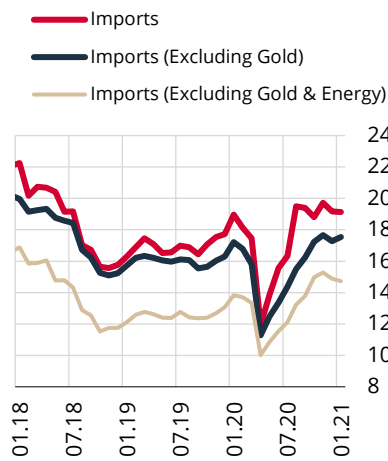
Exports remain robust in January. Exports to Europe have somewhat declined but this fall is compensated for by exports to non-European countries. Although exports to the Commonwealth of Independent States are above their past trends, the UK accounts for a significant portion of our falling exports to Europe. While this might be due to stricter measures taken against the increasing number of coronavirus cases, the decrease is quite small compared to that of the March-April period. With the easing of COVID-19 restrictions, exports are expected to gain further strength.

Having strengthened under the cumulative effects of rapid credit expansion, domestic demand continues to have an adverse impact on the current account balance. After increasing sharply as the strong credit impulse during the pandemic stimulated domestic demand and growing dollarization pushed up the demand for gold, imports are now almost flat (Chart 2.3.17). Import prices that have been on the rise recently limit the fall in imports.

As the pandemic unfolded, the partial recovery in tourism lost momentum and services revenues continued to provide a limited contribution to the current account balance. Travel revenues, one of the key determinants of the balance of services, recovered moderately after July, as pandemic-related travel restrictions were eased, and reached about half their pre-pandemic level in November. With tighter restrictions in place and the tourism season ending as of December, travel revenues are expected to recover at a slower pace. Thus, the annual services balance is estimated to shrink further in December from USD 36 billion at the end of 2019 to around USD 7 billion at the end of 2020 (Chart 2.3.18). Against this background, the current account balance is expected to end the year with a deficit of around USD 39 billion (Chart 2.3.19).

With tighter financial conditions, the recent slowdown in loans will likely have a more pronounced dampening effect on domestic demand and imports in the upcoming period. While the start of vaccinations bodes well for global growth and the export outlook, its impact on international commodity prices limits the improvement in import volume. In the upcoming period, the ongoing slowdown in loans and a shift in their composition from consumer loans to commercial loans may contribute positively to the current account balance both through domestic demand and through gold imports via inflation expectations and reverse dollarization (Boxes 2.1 and 2.3).

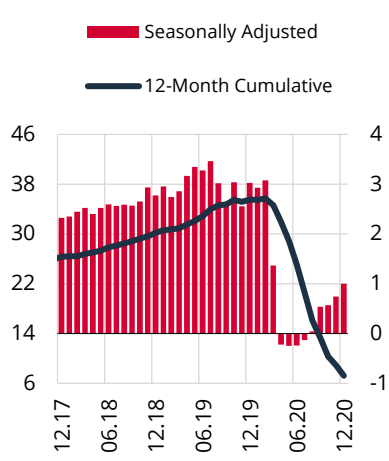
Chart 2.3.17: Imports* (Seasonal and Calendar Adjusted, Billion USD)



Sources: Ministry of Trade, TURKSTAT.

* January data is estimated.

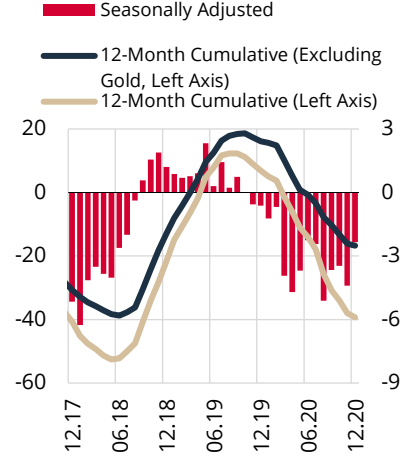
Chart 2.3.18: Services Balance * (Billion USD)



Source: CBRT.

* December data is estimated.

Chart 2.3.19: Current Account Balance* (Billion USD)

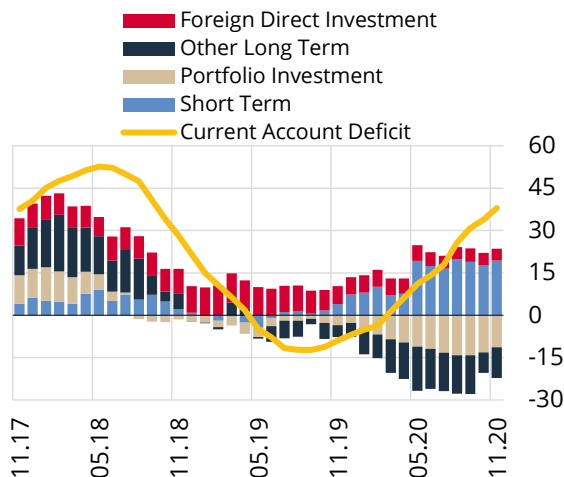


Source: CBRT.

* December data is estimated.

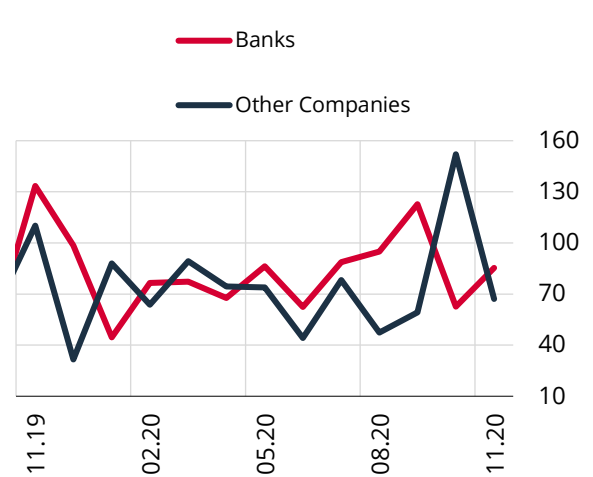
The price stability-oriented tight monetary policy stance is critical for Turkey's risk premium and for a lasting improvement in external financing opportunities. Turkey witnessed portfolio inflows in November, which high-frequency data suggest continued in December. Hence, on an annual basis, portfolio outflows began to decline in 2020 (Chart 2.3.20). In this period, banks and companies continued to d (Chart 2.3.21). The CBRT's reserves have recently stabilized and somewhat increased amid capital inflows. With steps towards achieving macrofinancial stability, Turkey's risk premium and external financing opportunities are expected to improve and contribute to reserves in the upcoming period.

Chart 2.3.20: Financing of the Current Account Deficit (12-Month Cumulative, Billion USD)



Source: CBRT.

Chart 2.3.21: Debt Rollover Ratios (Long-Term Loans, %)



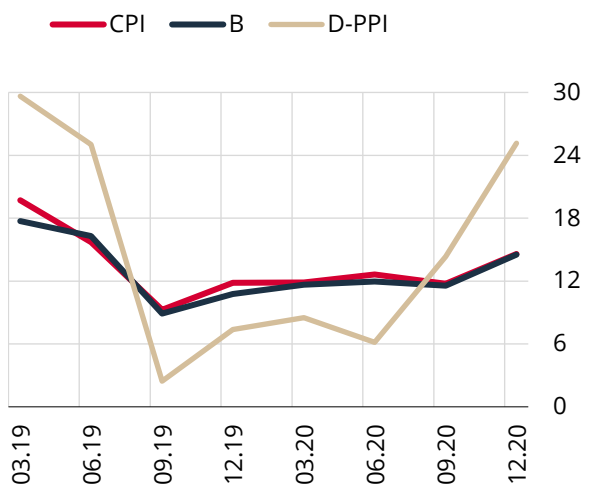
Source: CBRT.

2.4 Inflation

Consumer inflation ended 2020 at 14.6%, which is above the upper bound of the forecast range in the October Inflation Report. Both demand and cost factors contributed to the rise in inflation. In this period, due to domestic demand conditions, cumulative cost effects -in particular the exchange rate-, increasing international food and other commodity prices, and deterioration of inflation expectations, consumer inflation remained on a higher-than-expected course. Strong demand conditions and supply constraints that became more evident in some sectors, as well as the depreciation of the Turkish lira and increasing commodity prices caused producer prices (D-PPI) to soar, thus, cost pressures weighed further on consumer inflation (Chart 2.4.1, Box 2.4).

The increase of consumer inflation to 14.60% from its September level of 11.75% was mainly driven by the core goods and food groups. In this period, while the contribution of core goods to annual inflation increased by 1.46 points to 4.71 points, that of the food group increased by 1.33 points to 4.69 points. In 2020, gold prices, despite a low share in the basket, also made a significant contribution of 0.96 points to inflation. Meanwhile, energy, along with the alcoholic beverages and tobacco group, made a contribution of 0.73 points in total, restricting consumer inflation significantly (Chart 2.4.2). Inflation remained relatively low in items where demand remained weak due to the pandemic, such as clothing, accommodation, education, and recreational and cultural services. On the other hand, inflation remained quite high in some subcategories, particularly in durable goods, where demand remained strong due to the policy mix in place and the change in spending patterns (Table 2.4.1).

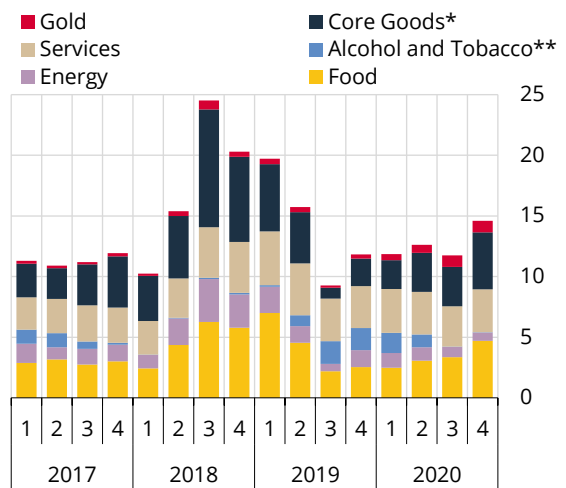
Chart 2.4.1: CPI, D-PPI and B Index *
(Annual % Change)



Source: TURKSTAT.

* CPI excluding unprocessed food, energy, alcohol-tobacco and gold.

Chart 2.4.2: Contributions to Annual CPI
(% Points)



Sources: CBRT, TURKSTAT.

* Core Goods: Goods excluding food, energy, alcoholic beverages tobacco, and gold.

** Alcohol and Tobacco: Alcoholic beverages and tobacco products.

The divergence observed in sectoral demand conditions due to the strong credit impulse continued in the last quarter, and inflation in durable goods reached quite high levels amid exchange rate developments and buoyant demand conditions. On the other hand, prices in the clothing group where activity was adversely affected by the pandemic receded in December below the last year's level. Overall, the seasonally-adjusted quarterly increase in consumer prices accelerated to 4.76% in the last quarter of 2020 (Table 2.4.1). Against this backdrop, annual inflation rates and trends of core indicators increased compared to September (Chart 2.4.1, Chart 2.4.3). The largest contribution to consumer inflation, which rose by 2.76 points year-on-year at end-2020, came from the depreciation of the Turkish lira, while unprocessed food prices and real unit labor costs also made upward contributions to inflation (Box 2.5).

Table 2.4.1: Consumer Prices

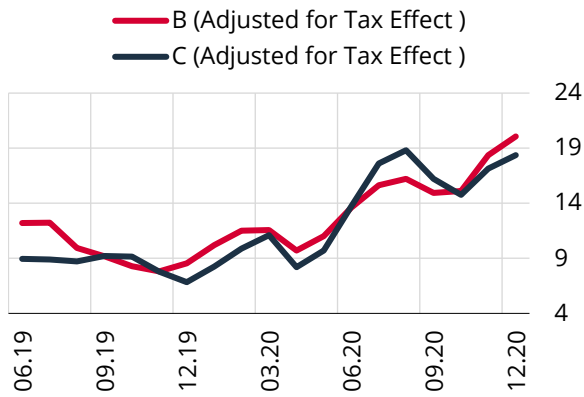
	Quarterly % Change (Seasonally Adjusted)				Annual % Change			
	2020				2020			
	I	II	III	IV	I	II	III	IV
CPI	2.31	3.72	3.06	4.76	11.86	12.62	11.75	14.60
1. Goods	1.87	4.10	3.45	5.58	11.59	12.94	12.07	15.87
Energy*	-2.66	-0.43	4.34	4.45	9.81	9.12	6.77	5.64
Food and Non-Alcoholic Bev.	4.14	4.90	2.89	7.21	10.05	12.93	14.95	20.61
Unprocessed Food	5.51	7.27	2.05	9.30	3.33	12.29	17.47	26.34
Processed Food*	3.23	2.77	2.47	6.27	17.28	13.41	12.79	15.52
Core Goods	1.50	3.75	5.22	5.46	8.18	11.39	11.68	17.24
Clothing and Footwear	1.40	1.55	-0.51	-1.73	6.01	10.58	6.79	-0.57
Durable Goods (Excluding Gold)	1.19	7.12	8.04	11.14	11.39	15.54	17.38	30.40
Furniture	-4.08	4.30	8.58	8.32	8.61	12.26	10.58	18.08
Automobile	4.15	8.68	9.19	11.74	16.98	21.59	23.60	42.32
Other Durable Goods*	2.13	4.47	4.86	9.79	11.51	13.56	13.95	22.84
Other Core Goods*	1.44	2.80	2.88	5.45	5.84	6.57	8.09	13.12
Alcoholic Beverages, Tobacco and Gold*	1.79	4.98	5.62	0.25	38.86	26.91	12.86	13.14
2. Services	3.02	2.62	2.31	3.23	12.42	11.76	10.84	11.66
Rent	2.49	1.87	2.09	2.33	10.11	9.22	8.72	9.07
Restaurants and hotels	3.29	2.61	2.61	3.60	13.68	11.13	10.92	12.70
Transport	2.90	4.05	2.99	3.18	16.66	19.70	8.62	8.65
Communication	1.04	1.17	1.78	1.23	5.48	5.48	7.21	4.87
Other Services	3.81	3.03	3.57	3.88	13.17	12.68	13.66	15.14

Sources: CBRT, TURKSTAT.

* No seasonality.

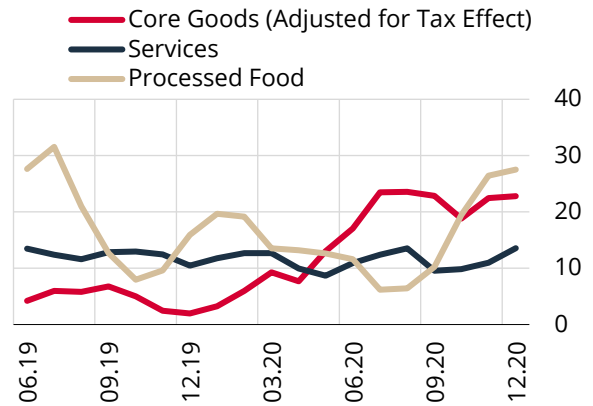
Annual inflation rates and trends of core indicators remain high (Chart 2.4.3). While remaining high in core goods, the inflation trend has increased gradually in services, and deteriorated significantly in processed food (Chart 2.4.4). According to seasonally adjusted data, the strong course of core goods inflation in the third quarter has continued at full speed in the last quarter (Table 2.4.1). The main determinant of this outlook has been demand-side factors due to the lagged effects of the strong credit impulse, exchange rate developments and durable goods affected by international industrial metal prices (Zoom-In 2.4). Although pandemic-driven effects led to a differentiation across subcategories, inflationary pressures also increased slightly in the services sector in the last quarter. In fact, annual inflation increased in food and exchange rate-sensitive restaurants-hotels and other services in this period. Effects of international food price hikes, particularly in wheat, maize, oils and soya beans, and the weak course of the Turkish lira were apparent in the processed food group, and the underlying trend in this group increased significantly (Chart 2.4.4).

Chart 2.4.3: Indices B and C (Seasonally Adjusted, Annualized 3-Month Average % Change)



Sources: CBRT, TURKSTAT.

Chart 2.4.4: Sub-Groups of B Index (Seasonally Adjusted, Annualized 3-Month Average % Change)



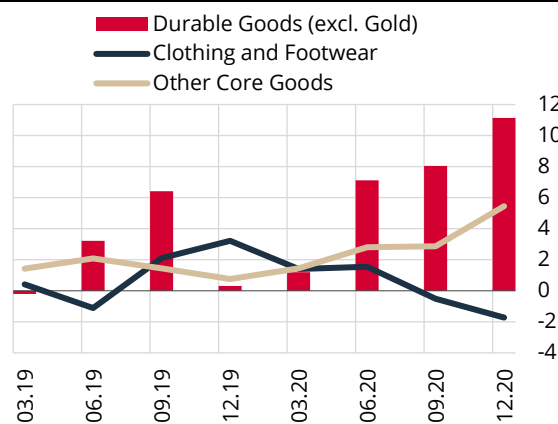
Sources: CBRT, TURKSTAT.

Zoom-In 2.4

Drivers of Core Goods Inflation

The main driver of core goods inflation was the increase of prices in the durable goods group due to demand conditions on the back of the strong credit impulse, cumulative exchange rate effects and increasing international metal prices. Durable consumption goods prices posted a significant quarter-on-quarter increase of 11.14% on account of exchange rate developments, demand-side factors arising from the rapid credit growth and increases in international metal prices (Table 2.4.1, Chart 1). While the acceleration of quarterly price increases in durable goods, posting an annual inflation of 30.40%, spread across subcategories, the 11.74% quarterly increase in automobiles stood out (Chart 2). In the automobile sector, where prices surged in response to the depreciation of the Turkish lira and the tax hike, domestic sales were also buoyant in the last quarter. On the other hand, in the clothing and footwear group, disinflationary effects of the sectoral demand conditions that remained weak due to the outlook for tourism and unemployment prevailed in the last quarter, and prices dropped below the previous year level. In this period, the inflation trend gained momentum in core goods, where the exchange rate pass-through was observed with more lag.

Chart 1: Core Goods Prices* (Quarterly % Change, Seasonally Adjusted)



Sources: CBRT, TURKSTAT.

* No seasonality has been detected in other core goods.

Chart 2: Selected Core Goods Prices* (Quarterly % Change, Seasonally Adjusted)

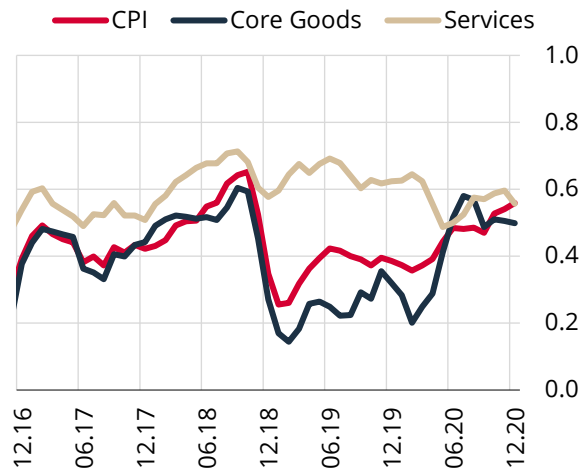


Sources: CBRT, TURKSTAT.

* No seasonality has been detected in other core goods.

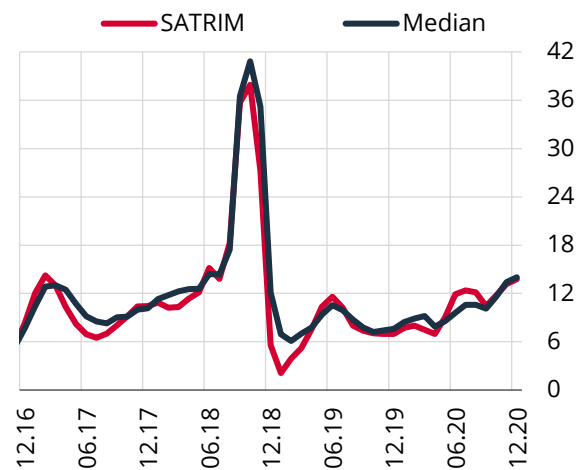
While the tendency to raise prices became widespread, alternative inflation indicators confirm the rise in the inflation trend. According to a comparison by quarter-ends, diffusion indices, which rose throughout the last quarter of 2020, remained above their long-term averages in the core goods and services groups, and increased in the CPI. Thus, diffusion indices signaled that the tendency to raise prices was strong and widespread (Chart 2.4.5). Core inflation indicators SATRIM and Median also confirmed the rise in the trend of inflation (Chart 2.4.6).

Chart 2.4.5: Diffusion Indices of CPI and Main Spending Items (Seasonally Adjusted, Quarterly Average % Change)



Sources: CBRT, TURKSTAT.

Chart 2.4.6: Core Inflation Indicators SATRIM* and Median** (Annualized, Quarterly Average % Change)



Sources: CBRT, TURKSTAT.

* SATRIM: Seasonally adjusted, trimmed mean inflation.
** Median: Median monthly inflation of seasonally adjusted 5-digit sub-price indices.

In addition to exchange rate developments, the rise in international agricultural commodity prices and supply-side factors associated with shifting seasons had an adverse effect on the outlook for food. Food inflation continued to rise across subcategories. The seasonally adjusted quarterly increase of food and non-alcoholic beverages inflation that decelerated slightly in the third quarter subsequently increased significantly, rising by 7.21% in the last quarter (Table 2.4.1). While both the unprocessed and processed food groups played a role in the rise of annual food inflation, the increase in the unprocessed food group was more pronounced (Chart 2.4.7). On the unprocessed food front, seasonally adjusted data pointed to a noticeably high quarterly increase in the prices of both fresh fruits-vegetables and other groups. In addition to the supply-side factors associated with seasonality, this is attributed to, in addition to the supply-side factors associated with seasonality, the cumulative depreciation of the Turkish lira and international food prices, (Chart 2.4.8). In this period, both the weak course of the Turkish lira and sharp increases in international prices of key imported inputs such as soya bean led to an increase in the prices of egg and white meat in particular. On the processed food front, the increase in international wheat and oil prices, as well as exchange rate effects were noteworthy. While the duration of customs tariff cuts on wheat, maize and barley products was extended in this period to limit the effects of increasing international commodity prices on domestic prices, tax cuts were introduced for some products (rice, unshelled rice, red lentil, and sunflower-seed). However, the ongoing increases in agricultural commodities keep inflationary pressures alive in the food group (Zoom-In 2.5). Additionally, due to the adjustment in the raw milk reference purchase price in the first quarter of 2021, price increases will be seen in milk and dairy products.

Zoom-In 2.5

Food Inflation and International Commodity Prices

International agricultural commodity prices trended upwards by the end of 2020 due to drought-related supply problems, local food policies, a strong demand for some products and the depreciation of the US dollar.

In the first half of January, the Goldman Sachs Agriculture Index increased by 11% compared to the December average. Thus, the cumulative increase after September reached 25%. In the recent period, price hikes have gained pace primarily in maize, soya bean and wheat. The increase in international prices seems likely to persist in the upcoming months due to pandemic measures, which keeps the inflationary pressures in the food group alive.

In the following section examining recent developments and risks related to food prices, a composite indicator is constructed for food inflation excluding fresh fruits and vegetables. Accordingly, food inflation excluding fresh fruits and vegetables is forecast using the FAO international food prices, the exchange rate of the US dollar, the output gap, the real unit labor cost, the portion of food manufacturing producer prices adjusted for international price and exchange rate pressures (as an indicator of producer-driven domestic price pressures), and milk producer prices. The analysis is based on annual inflation data at quarterly frequency. (Table 1).

Table 1: Dependent Variable: Food Inflation (excl. Fresh Fruits and Vegetables, 2005 – 2020)

	Constant	FAO Food Inflation	Exchange Rate of USD	Output Gap	Real Unit Labor Cost	Milk Producer Inflation	Food Manufacturing Inflation ^a
Forecast	6.1***	0.12***	0.21***	0.34***	0.12**	0.17***	0.33***

Note:***, **, * denotes significance levels of 1%, 5%, and 10%, respectively.

^a D-PPI food manufacturing inflation adjusted for international food prices and exchange rate effects.

The composite indicator constructed using forecast values can capture the general trend of food inflation excluding fresh fruits and vegetables (Chart 1). According to the findings, an increase of 10% in the FAO international food prices pushes domestic food inflation up by 1.2 points. Moreover, a pass-through coefficient of 21% indicates a more significant exchange rate effect on domestic food prices. This is an indication that the depreciation of the Turkish lira has played an important role on the rise of food inflation over the last one-year period. An estimation based on coefficient forecasts signals that food inflation excluding fresh fruits and vegetables may increase somewhat more in the first quarter. Despite the downward effect of the appreciation of the Turkish lira, the course of the FAO international food prices, the increase in real unit costs due to the minimum wage rise, and the uptrend in the raw milk reference purchase price point to a likely increase in the food inflation excluding fresh fruits and vegetables in the first quarter. On the other hand, the recent adjustments in customs tariffs for some food products and other measures may change this outlook.

Chart 1: Food Inflation Excluding Fresh Fruits and Vegetables and Model Forecasts (%)

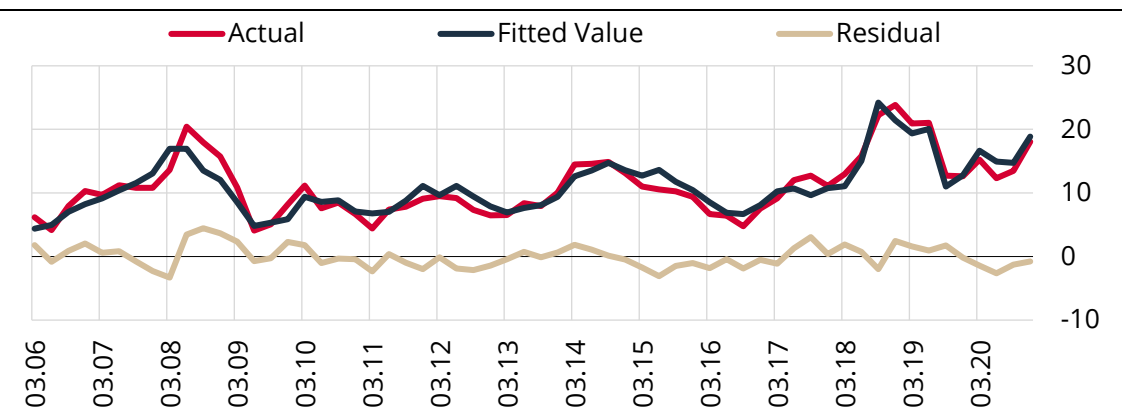
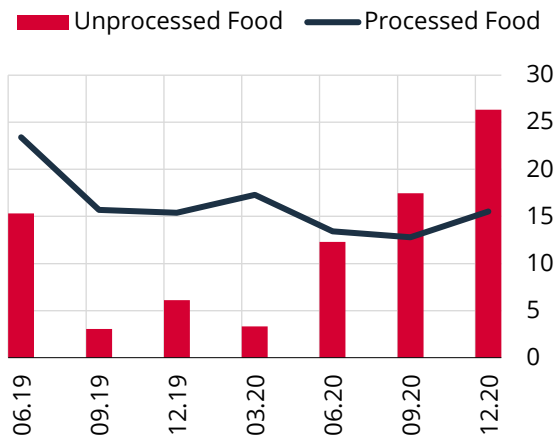
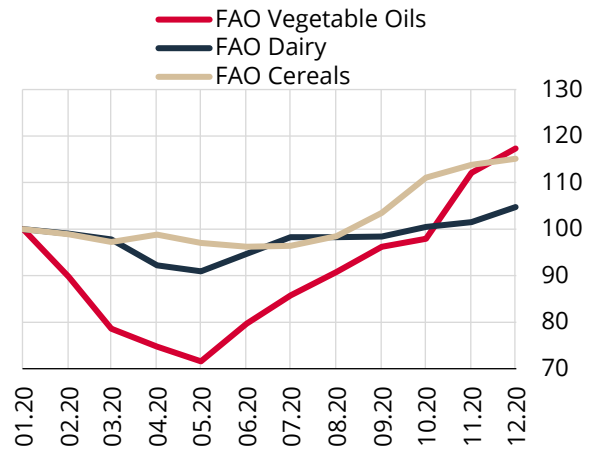


Chart 2.4.7: Food Prices (Annual % Change)



Source: TURKSTAT.

Chart 2.4.8: FAO Food Price Indices (2020 January = 100)



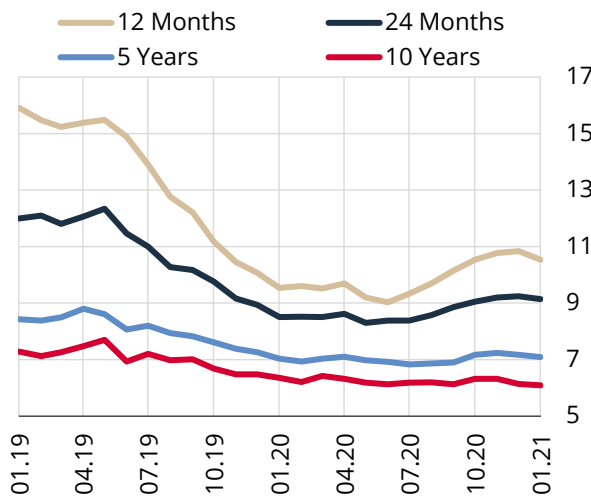
Source: FAO.

Drivers of Inflation

High levels of inflation expectations continue to adversely affect pricing behavior and the inflation outlook.

The deterioration in inflation expectations ended in January, following the monetary policy tightening. In January, the 12 and 24-month-ahead inflation expectations were almost at the levels prevailing during the October Inflation Report period (Chart 2.4.9). The increase in inflation compensation obtained from market data was also replaced by a flat course in line with the survey data (Chart 2.4.10).

Chart 2.4.9: Inflation Expectations* (%)



Source: CBRT.

* Results of the CBRT Survey of Expectations that polls corporate sector and financial sector representatives as well as professionals.

Chart 2.4.10: Inflation Compensation* (% , 5-Day Moving Average)



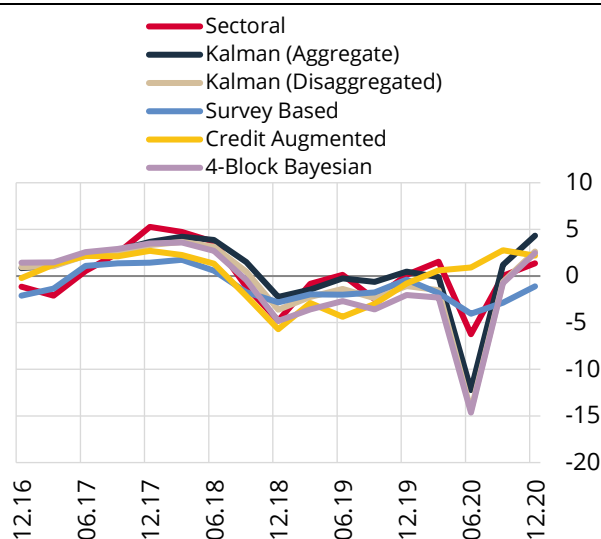
Source: Bloomberg.

* Calculated by the yield spread between nominal and inflation-indexed Treasury bonds with same maturities.

Due to the cumulative effects of the rapid credit growth, demand conditions remained strong in the second half of the year, and output gap indicators reached inflationary levels contrary to the framework laid out in the October Inflation Report. National income data for the third quarter pointed to a stronger-than-expected recovery in economic activity. In this period, the private consumption demand, driven by durable goods in particular, rose well above its past trends, recording a significant increase in its share in

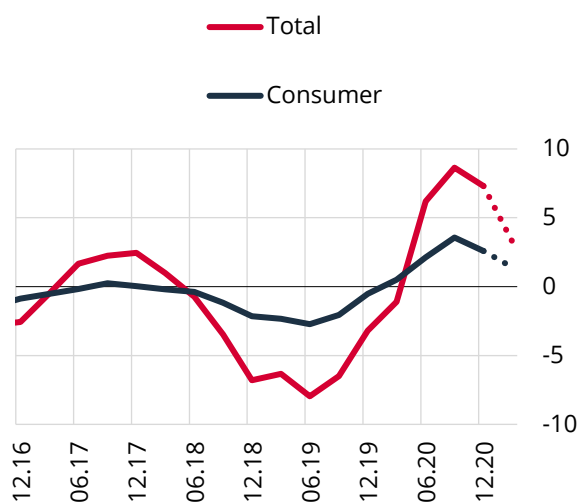
GDP (Zoom-In 2.6). Despite the elevated levels of unemployment, domestic demand strengthened further in the last quarter on the back of the increased credit growth. In this period, the export of goods also pulled the total demand up. As suggested by the indicators that take particular account of credit developments, the output gap shifted into positive territory in the third quarter and increased somewhat more in the last quarter (Chart 2.4.11). While the net credit use has started to recede from its peak in the third quarter, it continued to support domestic demand in the last quarter (Chart 2.4.12). The differentiation of demand between the credit-sensitive durable goods sector and other sectors such as semi-durable/non-durable goods and services was also mirrored in inflation dynamics. Credit-sensitive items reflected a rapid exchange rate-price pass-through and diverged negatively with high price hikes. On the back of the monetary policy tightening, the credit utilization has weakened since November, and this weakening became more apparent in January. Given the inflationary effect of the strong credit impulse in the second half of 2020, it is anticipated that the current trend in the credit market will curb the pace of inflation over both demand and the current account balance through the exchange rate (cost) channel.

Chart 2.4.11: Output Gap Indicators (%)



Source: CBRT.

Chart 2.4.12: Net Credit Utilization*
(Difference from Historical Average, %)



Source: CBRT.

* Ratio of year-on-year change of exchange rate-adjusted credit utilization to annualized GDP. GDP figures for the fourth quarter of 2020 and the first quarter of 2021 are estimations. January data is used for the first quarter of 2021.

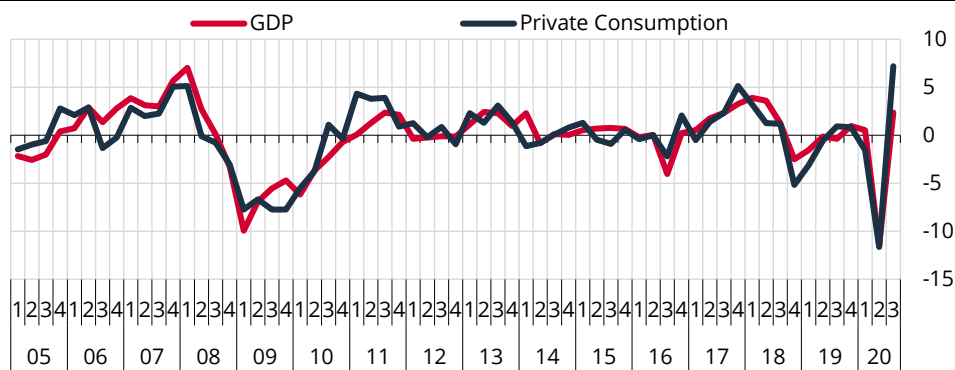
The implications of the rapid recovery in domestic demand for the current account balance and reserves caused an adverse loop involving the risk premium, expectations and exchange rates, playing an important role in the increase of inflation. On the back of communication that has placed a stronger emphasis on monetary policy tightening and price stability since November, the trend of depreciation in the Turkish lira has reversed. However, the quarterly depreciation continued, albeit at a subdued pace, and coupled with the lagged effects, the exchange rate turned inflationary (Chart 2.4.13). Much of the annual inflation throughout 2020 can be attributed to the depreciation of the exchange rate (Box 2.5). While exchange rate developments affected consumer prices through the imports, expectations and balance sheet channels, these effects differed across subcategories depending on the level of openness to international trade and sectoral demand conditions. The core goods group came to the forefront with a high inflation rate as expected, while durable consumption goods in this group diverged negatively. In the services sector that has lower sensitivity to exchange rate developments, miscellaneous health services, along with the maintenance and repair of transport vehicles posted high price increases. Meanwhile, exchange rate developments also affected negatively the food and non-alcoholic beverages group. While the costs of imported inputs had a negative impact on the sector, primarily on items such as chicken and egg, items with a high share of imported products in total supply, such as fats and oils, and pulses diverged due to significant price hikes.

Zoom-In 2.6

Cyclical State of the Economy: Some Evaluations

Although economic activity has registered a rapid recovery, sectoral divergences due to both the pandemic and the policy mix are leading to a differentiation of demand-side effects on inflation. In the third quarter, the private consumption demand materialized significantly above the GDP growth due to the improvement in financing conditions and the postponed demand, thus standing as the component of expenditure that made the largest contribution to growth. While the deviation of the Hodrick-Prescott (HP)-filtered private consumption expenditures from the trend reached a high level, the divergence between GDP and private consumption also became pronounced (Chart 1). This divergence was mainly driven by the strong course in expenditure groups stimulated by the rapid credit expansion, despite the curbing effect of the weak course in severely pandemic-hit tourism and services-related sectors on the aggregate output gap.

Chart 1: Percentage Deviations of GDP and Private Consumption from the Trend*



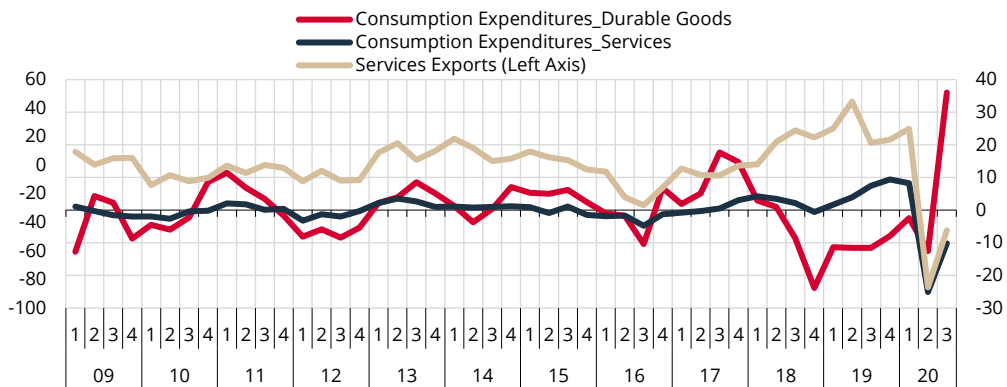
Sources: CBRT, TURKSTAT.

* Trends of series have been calculated for the 2005Q1-2020Q3 period using the HP filter.

Selected subcomponents of the output gap indicators calculated above point to a significant heating up of durable consumption demand and a below-trend weak course in services expenditures.

Besides the sharp decline in tourism and transport revenues, pandemic-hit services items also pull down the aggregate output gap (Chart 2). This compositional change in growth has led to significant differences between the inflation rates in items such as durable goods, clothing and footwear, accommodation, recreation and culture. Due to pandemic-specific sectoral divergences, an indirect approach to the evaluation of the aggregate output gap by components of expenditure will increase the success of predictions of the effect of demand conditions on inflation.

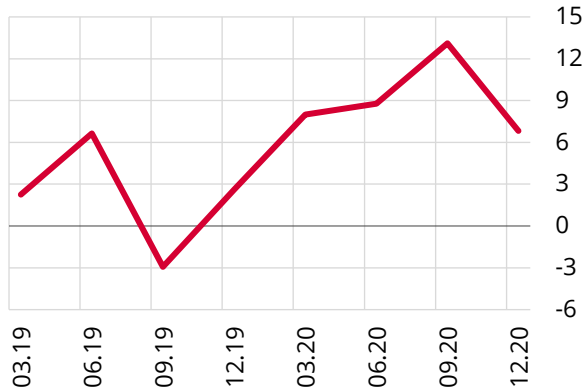
Chart 2: Percentage Deviations of Consumption Items and Services Exports from the Trend*



Sources: CBRT, TURKSTAT.

* The trends of consumption expenditures on durable goods and services have been calculated for the 2009Q1-2020Q3 period using the HP filter while the trend of services revenues has been calculated for the 2005Q1-2020Q3 period.

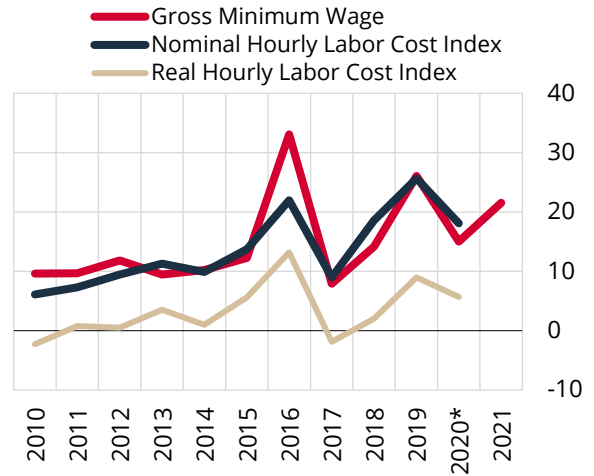
Chart 2.4.13: Currency Basket*
(Quarterly % Change)



Sources: CBRT

* Equal weights of the US dollar and euro.

Chart 2.4.14: Index of Labor Cost per Hour**
(Non-Farm) and **Gross Minimum Wage**
(Annual % Change)



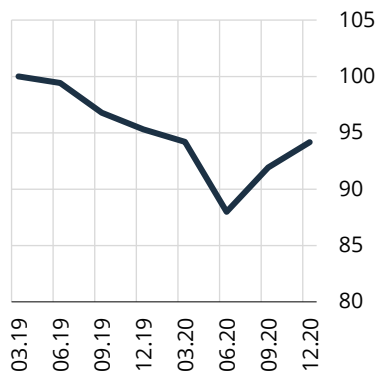
Sources: Ministry of Family, Labor and Social Services (MFLSS), CBRT, TURKSTAT.

* Labor cost indices cover data as of the third quarter.

** Deflated by the CPI.

Real labor costs decreased in the third quarter on the back of the rapid economic recovery. The rapid improvement achieved in economic activity following the normalization steps enabled a decline in real labor cost-driven pressures. Yet, it is estimated that labor costs made an upward contribution to inflation throughout 2020 (Chart 2.4.14). It is assessed that the rise in the minimum wage for 2021 will affect inflation adversely through the channels of services prices and increasing inflation rigidity in particular, due to its role as a significant reference for wages in the overall economy as well as its impact on inflation expectations (Box 2.6).

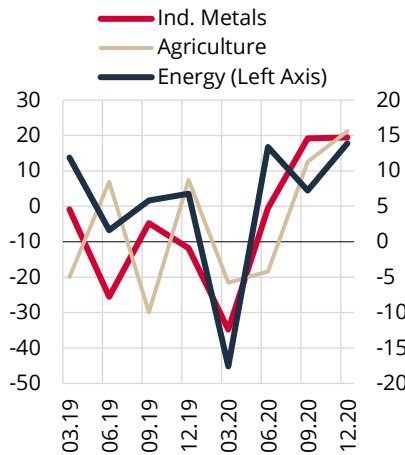
Chart 2.4.15: Import Unit Value Index* (2019Q1=100)



Source: TURKSTAT.

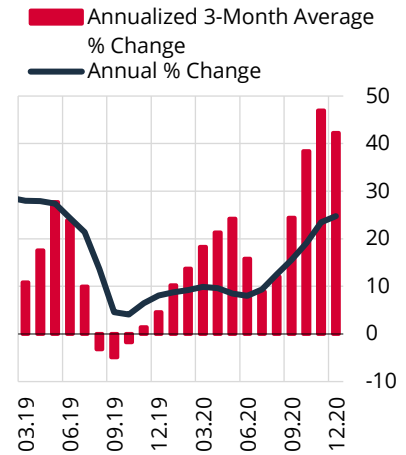
* Q4 data is the average of October and November.

Chart 2.4.16: Goldman Sachs Commodity Price Indices
(Quarterly % Change)



Source: Bloomberg.

Chart 2.4.17: Manufacturing Prices Exc. Petroleum and Base Metals



Sources: CBRT, TURKSTAT.

Cumulative cost effects - particularly through exchange rates -, increasing international commodity prices, and supply constraints that became more pronounced in certain sectors affect the inflation outlook adversely. While the import unit value index assumed an upward trend in the second half of the year, it took a value that is close to its pre-pandemic level (Chart 2.4.15). A significant factor in this

development is that crude oil prices remained below their pre-pandemic level although they assumed an uptrend due to supply-side measures and increased global demand. On the other hand, international food and industrial metal prices posted significant increases in the second half of the year (Chart 2.4.16). As of year-end, the industrial metal commodity index was up by 44% from its trough level in April and by 21% from its level in December 2019. Likewise, the agricultural commodity index is 31% higher than its trough level in May and 16% higher than its level in December 2019. The current outlook of commodity prices causes the rise in producer inflation to continue despite the appreciation in the Turkish lira (Chart 2.4.17, Zoom-In 2.7). In addition, considering the worldwide supply problems and rises in freight costs, it is assessed that supply-side risks to consumer prices have increased.

Adjustments to administered prices remain important for the inflation outlook. Electricity tariffs were increased by 5.8% for all consumer groups in October while other administered prices followed a mild course in the last quarter of the year. On the other hand, VAT cuts, which were introduced to alleviate the cost pressures heightened by the pandemic and previously announced to remain in effect until the end of the year, were extended to the end of May 2021. Temporary cuts on customs duty introduced at end-December to contain the impact of the rising agricultural commodity prices on domestic prices, and the extensions of durations thereof stand as another important development. While the six-month increase in producer prices was not reflected in specific and minimum specific SCT items in tobacco products in January 2021, the ad valorem SCT rate was reduced (from 67% to 63%). These positive developments notwithstanding, there are administered prices-related factors that will drive inflation up in the first quarter of the year. Unlike the case in tobacco products, the rise in producer prices of alcoholic beverages registered in the second half of the year was reflected in the SCT. Electricity, natural gas and municipal water prices increased in January, with a more moderate rise in natural gas prices. On the other hand, the effects of the rise in the raw milk reference price became visible on the related unprocessed and processed food items. In the first quarter of 2021, medicine prices will post an increase based on their periodic euro reference price while there is also a price adjustment risk in products such as tea and sugar. In this respect, administered prices stand as another factor that will be effective in the elevated course of inflation in the short term.

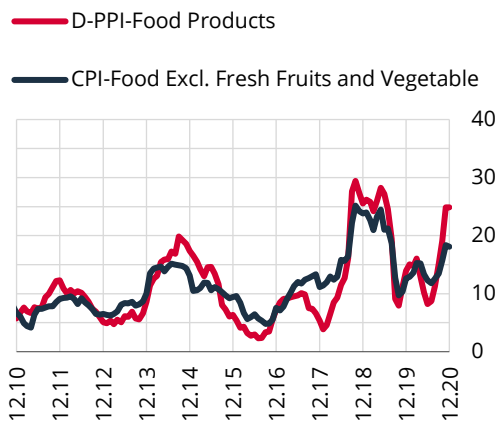
Zoom-In 2.7

Why Do Producer Inflation and Consumer Inflation Differ?

Although producer prices serve as an indicator of cost pressures on consumer prices, the two prices may differ significantly and the pass-through between them is not one-to-one most of the time. Yet, the historical averages of producer inflation and consumer inflation converge in the long run. Actually, the January 2004 – December 2020 average of the annual change in the D-PPI is 10.2% while the same value is around 9.6% in the CPI.

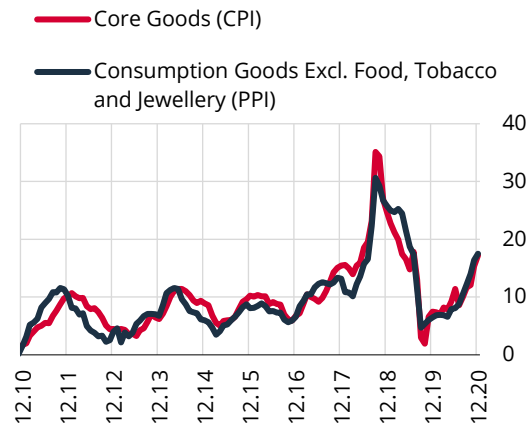
The first reason for the short-run differentiation between producer and consumer prices is that the D-PPI compiles the tax-excluded selling prices of domestically produced items whereas the CPI compiles tax-included final prices. Hence, items such as fuel and tobacco where the specific tax accounts for a large portion of the price explain the differentiation between producer and consumer prices in part. The second factor is related to the coverage. For example, services prices that have an approximately 30% share in the consumption basket are not included in the D-PPI where the producer inflation reflects the developments in goods prices. The degree to which producer and consumer prices are affected by external factors is another factor that explains the price differentiation. While producer prices stand in the early stages of the supply chain, consumer prices stand in its final stage. Therefore, producer prices give a faster and stronger response to international price and exchange rate developments. In product groups with close definitions, the relation between producer and consumer prices gets stronger (Charts 1 and 2).

Chart 1: Selected CPI and D-PPI Food Groups (Annual % Change)



Sources: CBRT, TURKSTAT.

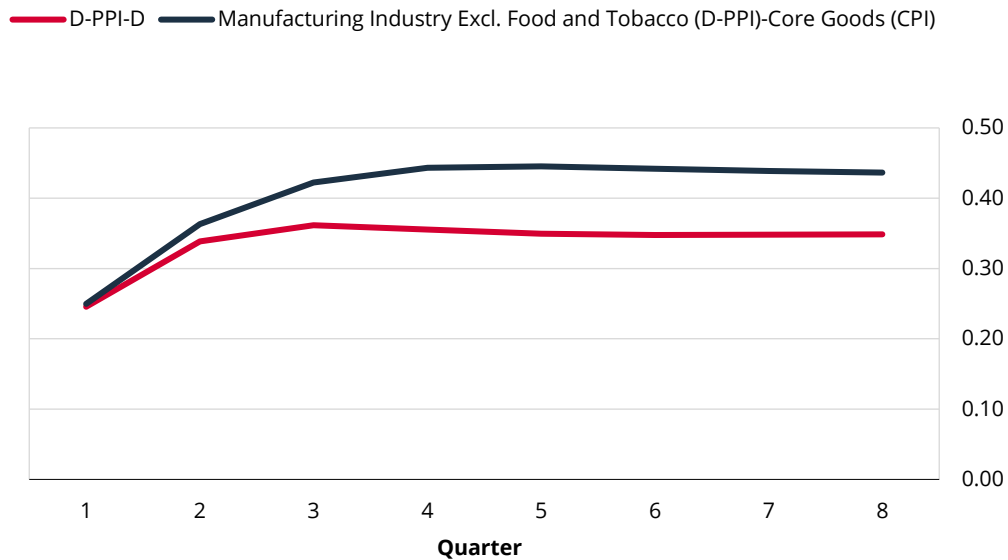
Chart 2: Selected CPI and D-PPI Goods Groups (Annual % Change)



Sources: CBRT, TURKSTAT.

Pass-through estimates via vector autoregression models indicate that the cumulative pass-through from producer prices to the D index under the CPI has amounted to 35% on average over a year. As the index definition narrows, the pass-through from producer prices to consumer prices increases. Accordingly, the cumulative pass-through from manufacturing prices excluding food and tobacco to core goods prices is estimated to be around 43% (Chart 3). To sum up, considering the pass-through from producer inflation to consumer inflation, it is assessed that producer prices-driven pressures on consumer inflation will also continue to be visible in the first quarter of the year and start to decrease in the second quarter.

Chart 3: Cumulative Pass-Through on a Quarterly Basis (% Point)



Source: CBRT.

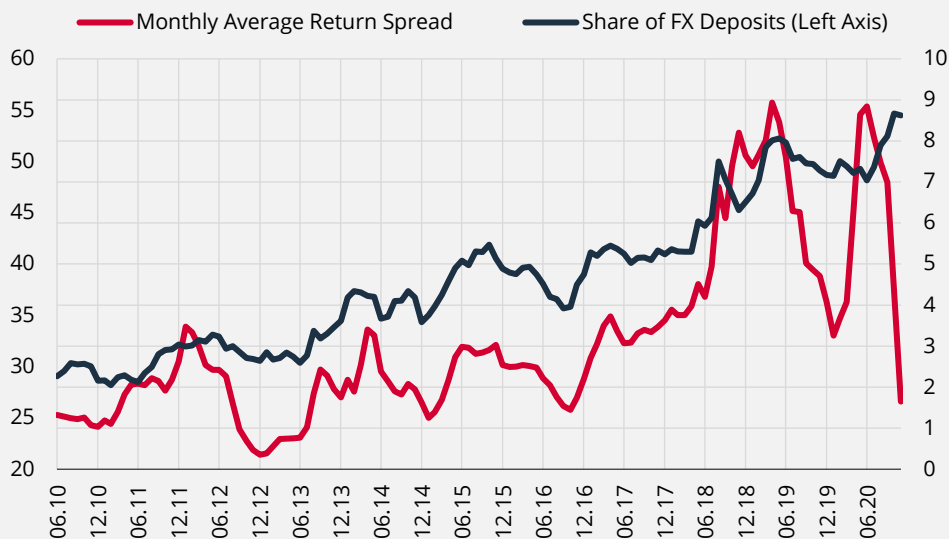
Box 2.1

Factors Affecting Deposit Dollarization

Deposit dollarization can be expressed as an increase in the weight of foreign currency (FX) in residents' savings. The emergence of a pronounced trend towards FX deposits in the preferences of savers weakens the monetary policy transmission mechanism and can threaten price stability and financial stability by exerting pressure on the exchange rate. This box discusses the rigidity of residents' FX deposit preferences and factors that prevent reverse currency substitution, despite recent capital inflows through direct portfolio investments and swap transactions.

Deposit dollarization is closely related to deposit rates and exchange rate expectations, which are among the fundamental elements of monetary transmission. Analyses show that deposits are a stable funding source for banks, and this causes rigidity in deposit rates (Driscoll, 2013; Drechsler et al, 2017). On the other hand, when both TL and FX deposits are an option for investors, relative returns become important in investment preferences. In order to examine the possible effect on deposit preferences, a relative return series has been created, which includes the TL deposit return, FX deposit return, and exchange rate expectations. According to this analysis, which is based on the covered interest rate parity condition (CIP), the return on TL deposits with a maturity of three months has been compared with the return on US dollar deposits to be obtained in TL at maturity, protected by a foreign exchange forward sale contract. This approach has allowed us to examine the relative return of an investor who preferred TL deposits against the risk of depreciation, and found that the relative return spread is significant in explaining the dollarization trend.

Chart 1: Monthly Average Return Spread (FX-TL) and Share of FX Deposits in Total Deposits (%)



Sources: Authors' calculations, BRSA, CBRT.

Chart 1 shows that the monthly average TL return spread between two different investment preferences and the dollarization trend are closely related. The dollarization trend accelerated in the post-2018 period when the return spread increased significantly in favor of FX depositors. For this reason, it seems that expectations of depreciation in the TL play an important role in TL deposit preferences. A vector autoregression (VAR) model has been established to include other factors affecting the dollarization trend in the analysis. Through the impulse-response functions, it is possible to compare the effects of the determinants of the change in FX deposits in terms of size and permanence.

VAR Model

Although the factors affecting the savings preferences of residents differ between legal and real persons, some variables come to the fore in academic studies and international organizations' reports. While such studies place inflation expectations and exchange rate expectations as leading factors, they also list the real return on local currency deposits. However, it is difficult to determine the explanatory power of a single variable due to the fact that these financial variables are not independent of each other. In this context, variables prominent in international literature and practices are modeled within the VAR framework and the effect of shocks to each variable on FX deposits is observed through impulse-response functions. Setting different VAR models for legal and real persons helps obtain more reliable results.

Chart 2 shows the variance decomposition results of VAR equations modeled for legal and real persons. The expectation of depreciation in the TL has been found to be significant in explaining the FX deposit preferences of both legal and real persons. The decrease in the loan-deposit spread has been found to be a factor that increases deposit dollarization for both groups. However, the FX deposit interest rate, which is included in the relative return account and is affected by financial conditions, has not been found significant on its own. Considering the distinction between legal and real persons, the legal person VAR model is affected by the commercial loan-deposit spread, imports, exports, and FX-denominated liabilities, while the consumer loan-deposit spread is found to be an important explanatory factor for real persons. In addition, while legal persons' FX deposits are affected more by inflation expectations, real persons' FX deposits are more sensitive to actual inflation. The results show that the FX-denominated commercial transactions play an important role in legal persons' FX deposit account size, while depreciation in the TL and inflation expectations are the main determinants of FX savings tendency of real persons.

Chart 2: Components of the Variation in Total FX Deposits (%)

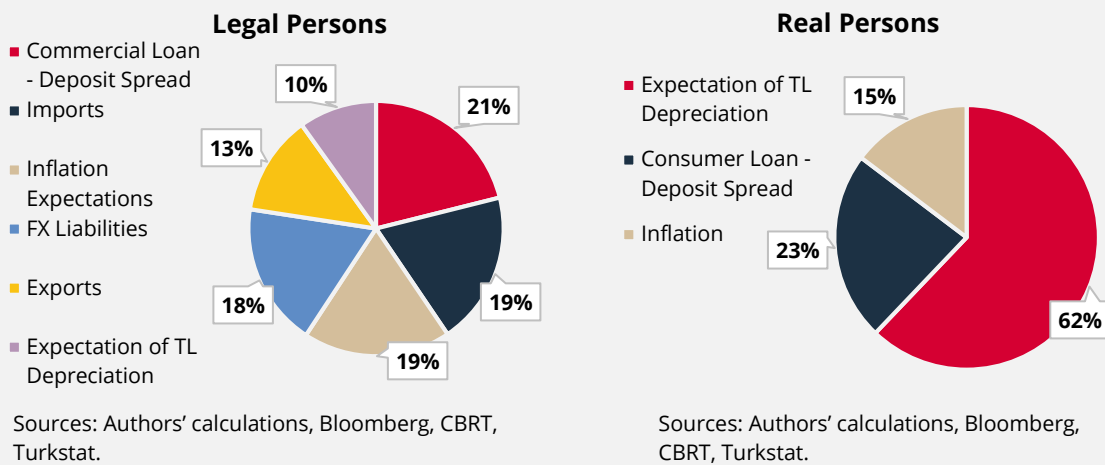
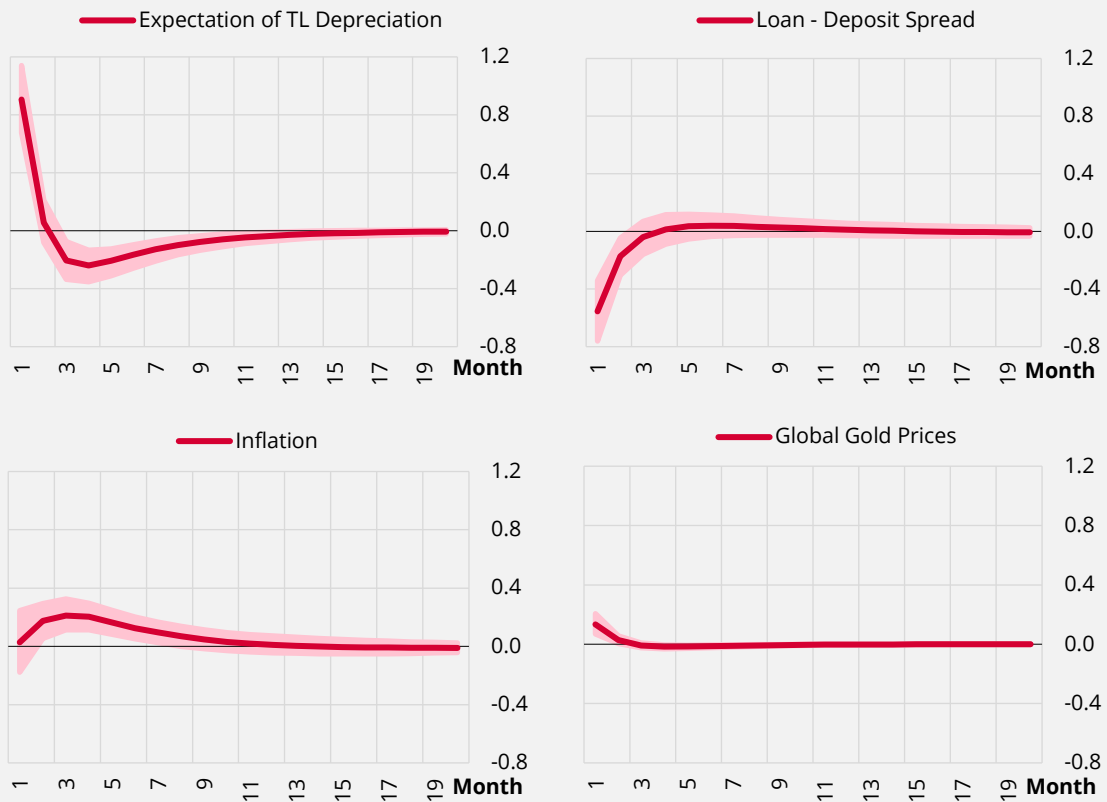


Chart 3 reflects the impulse-response functions obtained from the VAR models presented above. The charts showing the response of changes in real persons' FX deposits to the relevant variables also include international gold prices used as an exogenous variable. When the impulse-response functions are examined, the expectation of depreciation in the TL stands out compared to other factors. Another factor that has a large impact is the loan-deposit spread, which is considered to constitute credit conditions. When this spread, which is interpreted as an indicator of monetary and financial conditions in general and more specifically as the ease of access to loans by residents, is smaller, it has an increasing effect on FX deposits. By contrast, an increase in this spread is considered to limit the conversion of loans to deposits by making it difficult to access loans. One standard deviation shock to inflation does not have a significant effect in the first month, but increases FX deposits consistently for approximately 12 months. In this respect, the cumulative effect of inflation realizations may be larger than all other factors. Finally, global gold prices have also been included in the model due to the precious metal accounts that have recently gained a significant share in FX deposits of real persons, and such global prices are found to be significant in affecting total FX deposits, albeit to a limited extent.

Chart 3: Effect of 1 Standard Deviation Shock to Model Variables on the Change in Real Persons' FX Deposits



The findings contain important information about the rigidity of the dollarization trend despite the recent appreciation of the Turkish lira and the tightening credit conditions. Inflation increased significantly in November and December due to the deterioration in inflation expectations and the cumulative exchange rate effect. Effects of the monetary policy tightening on inflation are expected to be observed with a lag. In this respect, inflation, which has been on the rise in recent months, continues to be the main driver of the dollarization trend, and also limits the dollarization-lowering effect of the exchange rate and credit conditions due to its cumulative effects.

Reversal of the upward trend in FX deposits will be possible through a combination of the main determinants summarized above. Despite the improvement in other factors, inflation and inflation expectations support the dollarization trend. In this respect, decisively maintaining the tight stance in monetary policy and restoring the disinflation process will play a key role in reverse dollarization. All in all, maintaining a tight monetary policy focused on price stability is critical for all factors – inflation, inflation expectations and exchange rate expectations in particular – that affect the preference for FX deposits.

References

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Box 2.2

Effects of the Covid-19 Pandemic on Firms' Liquidity

The lockdowns imposed in the second quarter of 2020 and the policy measures taken in the following period to reduce the impact of the Covid-19 pandemic significantly affected the turnover and liquidity of firms. Various monetary and financial measures have been taken to overcome the cash flow and payment problems that many firms face due to the decrease in sales. In addition, firms have been supported financially by decreasing loan rates and loosening of loan standards. This box presents a firm-based liquidity estimation by using firm balance sheets, income statements and turnover indices. Thus, a prediction can be made about the number of firms with insufficient liquidity and the number of employees in these firms at the sectoral level. The study also examines how firms with insufficient liquidity benefited from the credit expansion in the second and third quarters of the year and their short, medium and long-term risks with respect to loan repayments.

Methodology

In order to measure the liquidity needs of the firms, we make use of their balance sheet and income statement information for 2019 obtained from the Revenue Administration (RA) in addition to the two-digit NACE Rev. 2 classification turnover indices for 2020 by quarters.¹ To estimate liquidity needs of firms, the method used in Schivardi *et al.* (2020) and Demmou *et al.* (2020) has been applied.^{2,3} Accordingly, the liquidity of the firm in the current period is defined as the sum of its liquidity in the previous period and its cash flow in the current period. The "liquid assets item" on the balance sheet has been used as a liquidity indicator in the analysis. The cash flow of the firm has been calculated by subtracting items such as raw material and operating expenses, wage payments, and debt and tax payments from sales revenues. Nevertheless, starting from the second quarter of 2020, firms have been given the opportunity to postpone loan repayments and tax payments in order to eliminate cash shortages. Therefore, tax and debt payments have been excluded from the cash flow equation. In the cash flow equation, "cost of sales" and "operating expenses" have been used as expenses, and wage payments of firms are included in these items. Sales revenues in the cash flow equation are defined as the estimation of sales revenues in the previous period using the monthly change in nominal turnover indices. While the cost of sales and operating expenses are subtracted from sales revenues, the elasticity of these items to sales has been taken into account. As a result of the regression results and evaluations, the elasticity of cost of sales and operating expenses to sales have been assumed as 0.80 and 0.05, respectively. In this framework, the liquidity estimation has been made at the firm level, but the sales growth figures used in the forecasts have been used at the two-digit sector level.

Findings

There are different approaches to measuring the impact of pandemic lockdown measures on firms. This study excludes the bankruptcy of firms and focuses only on firms with insufficient liquidity (negative liquidity). Firms with insufficient liquidity are defined as firms whose operating cash flow is lower than their fixed costs (Guerini *et al.* 2020).⁴

¹ Firms that pay corporate tax are included in the study. Agriculture, fisheries, forestry, mining, public, education and social services sectors were excluded, and sectors coded 10-82 in two-digit turnover data were included in the analysis. The number of firms included in the analysis after data cleaning is 663,295.

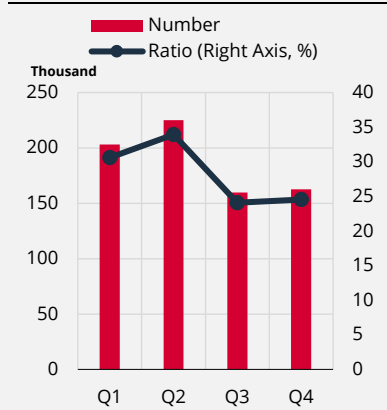
² Schivardi, F. and Romano, G. (2020). A simple method to compute liquidity shortfalls during the COVID-19 crisis with an application to Italy. <https://www.oecd.org/global-forum-productivity/webinars/SchivardiLiquidityOECD.pdf>. Demmou, L., Franco, G., Calligaris, S. and Dlugosch, D. (2020). Corporate sector vulnerabilities during the Covid-19 outbreak: Assessment and policy responses. <http://www.oecd.org/coronavirus/policy-responses/corporate-sector-vulnerabilities-during-the-covid-19-outbreak-assessment-and-policy-responses-a6e670ea/#biblio-d1e970>.

³ As a robustness check, firms' 2018 liquidity was estimated using 2017 balance sheet, 2018 turnover data and following the same methodology. There is an 85% correlation between the 2018 liquidity forecast and its realization.

⁴ Guerini, M., Nesta, L., Ragot, X. and Schiavo, S. (2020). Firm liquidity and solvency under the Covid-19 lockdown in France. OFCE Policy Brief No. 76.

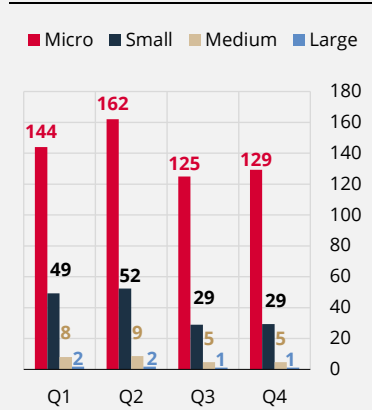
According to forecasts, the number of illiquid firms increased in the second quarter of 2020, declined in the third quarter, and increased slightly in the October-November period again (Figure 1). It is observed that the negative effects of the pandemic differ across firm sizes and the number of illiquid firms increases as the firm size become smaller. (Figure 2).

Chart 1: Number of Illiquid Firms and their Ratio to the Number of Total Firms



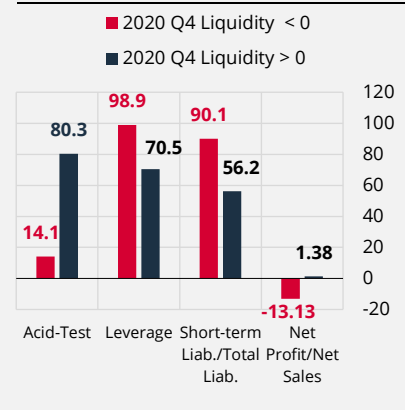
Sources: Authors' calculations, CBRT, RA.

Chart 2: Number of Illiquid Firms By Size (Thousands)



Sources: Authors' calculations, CBRT, RA.

Chart 3: Median of Selected Ratios (%)

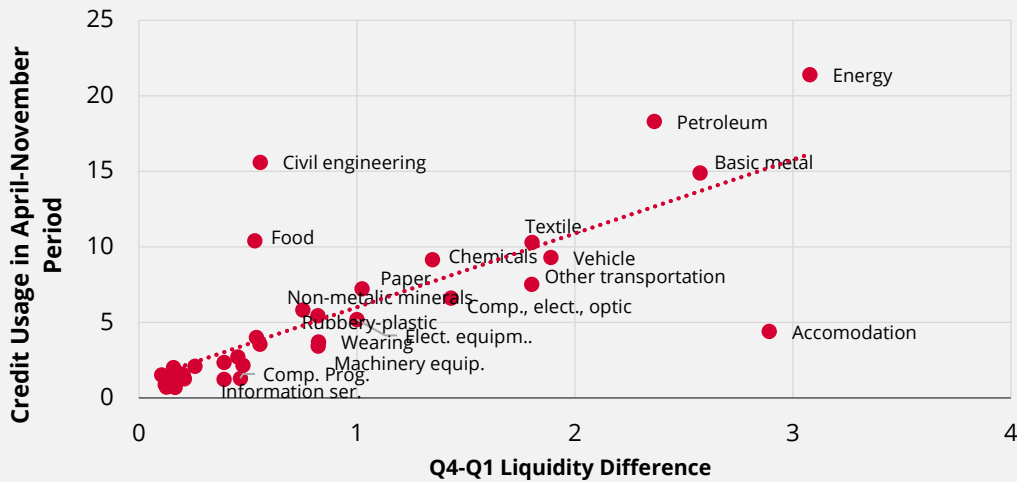


Sources: Authors' calculations, CBRT, RA.

Illiquid firms are more common in services sectors such as construction, trade, transportation, and accommodation and food, while manufacturing sectors perform relatively better. The services sector has the highest ratio of illiquid firms to total number of firms. In November, the number of employees working in illiquid firms was around 1 million 198 thousand and constituted 12% of the total number of employees in the sample.⁵ The sectors with the highest ratio of the number of employees in illiquid firms to the total number of employees in the sector were the construction and service sectors. An analysis of various ratios taken from 2019 balance sheets of illiquid firms in November reveals that the liquidity of these firms was lower, their total and short-term debt ratios were higher and they were in net loss (Figure 3). In the second and third quarters of 2020, loan facilities were expanded within the scope of monetary and financial measures introduced to support the cash flow of firms, and commercial loans increased significantly. Total commercial loans that were not adjusted for exchange rate effect increased by 14% and 7%, respectively, on a quarterly basis in the second and third quarters, while the growth rate slowed down slightly in the final quarter. Although credit expansion spread across sectors during the epidemic period, the third quarter-to-first quarter loan growth rate of illiquid firms in the second quarter of 2020 was approximately 9 percentage points below the general averages. In order to understand to what extent loans used by firms compensated their liquidity deficits, the liquidity of firms and loans they used in the April-November period were analyzed. The liquidity increase in sectors such as accommodation, vehicle, other transportation, computer-optics, wearing, machinery-equipment etc. was greater than the increase implied by their credit growth (Figure 4). On the other hand, in sectors such as food, non-building construction, petroleum products and energy, the increase in liquidity remained limited despite high credit utilization.

⁵ Total number of employees working in the firms included in this analysis is reported as 9,716,400 in 2019 balance sheets. According to the Household Labor Force Survey (HLFS) 2019 data, the total number of employees in the sectors covered in this study is 16,664,750. Some of this difference is attributed to unregistered workers included in the HLFS but not included in the RA data. In fact, according to the Social Security Institution records, the total number of employees of the sectors covered by the study in 2019 is 11,255,662.

Chart 4: Firms' Liquidity and Loan Utilization in April-November Period *
(Sectoral Averages, Million TRY)

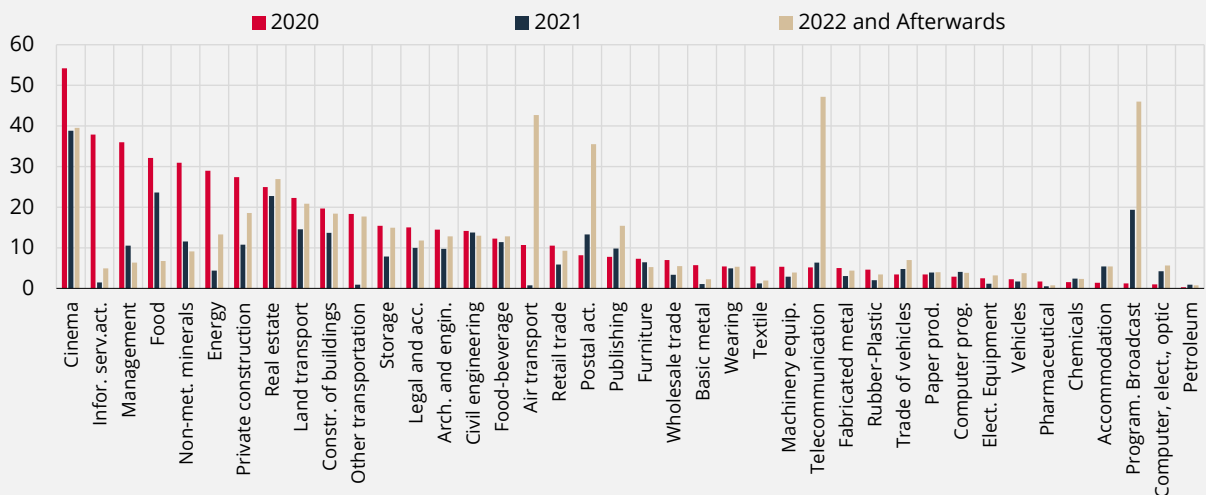


Sources: Authors' calculations, CBRT, RA.

* The loan amount is weighted by the ratio of firms' sales to the sector total.

Finally, loan repayment projections of illiquid firms in November have been analyzed. Cinema, information service activities, administrative activities, food, non-metallic minerals, energy, construction, real estate, transportation, food and beverage and professional activities sectors have been the ones that experienced the most short-term vulnerabilities (Figure 5). The ratios of term loans to total loans in these sectors in 2020 and 2021 are higher compared to other sectors. The share of long-term loans is higher in the airline transport, postal, telecommunications and program broadcasting sectors.

Chart 5: Ratio of TL Loans to Total Loans of Illiquid Firms in November 2020 (By Maturity Breakdown, %)



Sources: Authors' calculations, CBRT, RA.

As a result, credit expansion in the second and third quarters of 2020 provided financial support to a significant range of firms. The number of illiquid firms, which increased in the second quarter, declined in the third quarter and increased slightly again in the October-November period. Tightening of lockdown measures due to the epidemic in the November-December period will adversely affect the cash flow of many firms, particularly those in transportation, accommodation-food and related sectors. Designing selective and targeted support programs for the most vulnerable sectors and firms most severely affected by the epidemic is important with respect to financial stability and price stability.

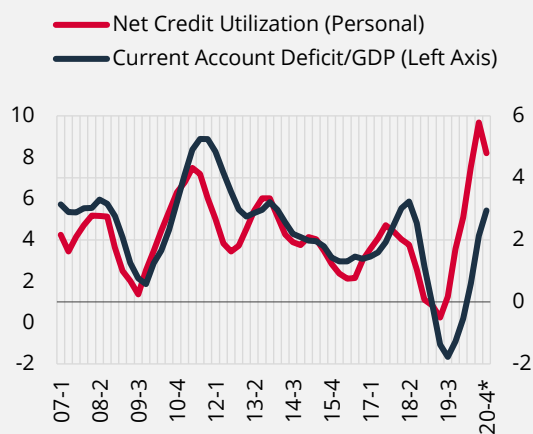
Box 2.3

The Role of Bank Lending in the Current Account Deficit

Falling tourism revenues due to the pandemic, rapid recovery led by domestic demand and increasing gold imports alongside dollarization were the causes of the deterioration in the current account balance in 2020. In this context, direct and indirect effects of the strong credit impulse played a significant role in the recovery in import demand (Chart 1). The direction of these forces will shape the evaluations on the dynamics of the current account balance in 2021. This box analyzes the impact of the expansion in credits on imports in 2020.

Credits affect imports through personal loans and imported inputs for production purposes (Chart 2). In recent years, in tandem with the depreciation in the real exchange rate, imports of intermediate goods have displayed lower growth compared to industrial production. However, it is seen that this trend reversed or stalled in 2017 and 2020, when the credit impulse strengthened. In periods of eased financial conditions (such as reduced interest rates and extended maturities), demand for imported goods increased, despite a depreciation in the real exchange rate.

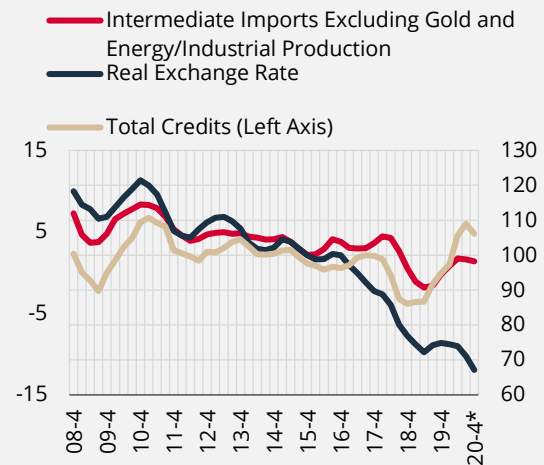
Chart 1: Net Credit Utilization ¹ (Personal), **Current Account Deficit/GDP** (12-Month, Cumulative, %)



Sources: CBRT, TURKSTAT, BRSA.

* 2020 Q4 value for the Current Account Deficit/GDP is forecast.

Chart 2: Intermediate Inputs Utilization, Real Exchange Rate and Total Credits ²



Sources: CBRT, TURKSTAT, BRSA.

* Values for imports and industrial production are October-November averages.

In the short term, the import demand depends on credit developments as well as relative prices and the current income, represented by variables such as GDP and industrial production. In those periods of loose financial conditions, domestic demand strengthens due to extended maturities and increased debt service capacity. In such periods, the import demand is higher than that implied by the GDP growth (income) and relative price (real exchange rate) channels, and standard demand equations underestimate imports. As a matter of fact, credit developments are mostly consistent with deviations from the long-term relationship of imports estimated by income and relative prices (Charts 3 and 4).³

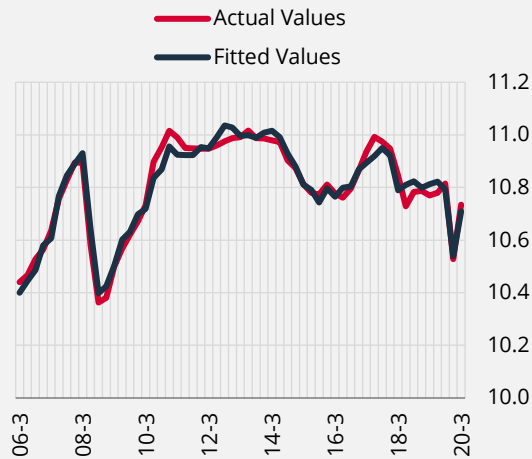
¹ $Net\ Credit\ Utilization = 100 * \{[Nominal\ Credit_t - Nominal\ Credit_{t-4}] / [\sum_{i=4}^t Nominal\ GDP]\}$

² In the chart, intermediate input utilization is seasonally adjusted, 4-week moving average and 2015=100; real effective exchange rate is CPI-based, 4-week moving average and 2015=100; total credits are adjusted for the exchange rate effect, 4-week moving average and quarterly percentage change.

³ In the model, imports excluding gold in USD is the dependent variable, real GDP, CPI-based real effective exchange rate and import prices are independent variables. The model is estimated by using the variables in logarithmic form for the 2005Q1-2020Q3 period.

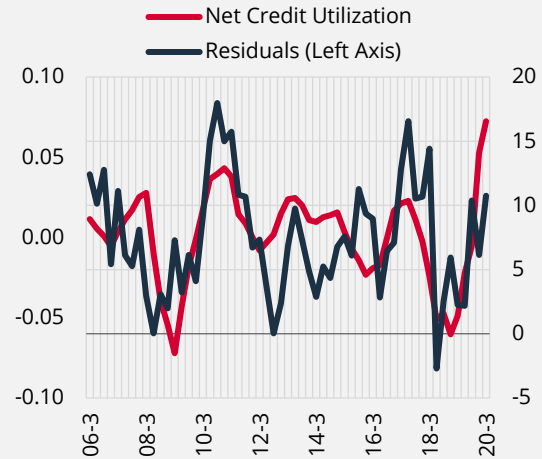
In addition to financing shocks, income shocks may also cause the relationship between imports and income to diverge. Consumer loans stand out as a tool to finance expenditures when employment opportunities weaken and household income falls. Therefore, access to credit creates a compensation mechanism that enables consumption to be kept at the desired level against fluctuations in the current income. Thus, in the absence of credit constraints, the relationship between consumption demand and the current period income exhibits a change.

Chart 3: Imports Excluding Gold: Actual and Fitted Values (Log)



Sources: BRSA, CBRT, TURKSTAT.

Chart 4: Residuals and Net Credit Utilization (%)



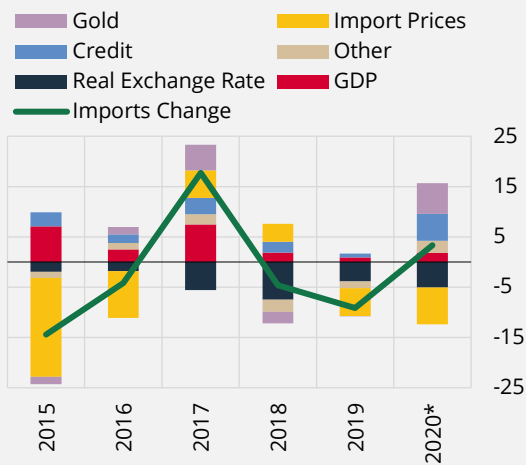
Sources: BRSA, CBRT, TURKSTAT.

Two methods are employed in quantifying the impact of credit developments on imports. Firstly, numerical accounting of macro determinants of import growth is made by using the method in Çelgin et al. (2019) (Chart 5).⁴ The decomposition exercise indicates that credits contributed by 5.3 points to import growth in 2020. Accordingly, it is calculated that strong credit growth had an effect of adding approximately USD 10.2 billion to imports in 2020. Moreover, it is seen that the demand for gold, which was quite high compared to previous years, played an important role in the increase in imports.⁵ It is estimated that import prices and real exchange rates restricted the import demand.

⁴ The method is based on an error correction model, in which nominal imports excluding gold is the dependent variable and real GDP, real effective exchange rate, import prices and real credit adjusted for exchange rate are independent variables. In case of decomposition of the effect of any independent variable on the dependent variable, other independent variables are assumed to be constant until the end of the sample period.

⁵ According to Special Trade System the average annual nominal gold imports were approximately USD 13 billion between 2017 and 2019. In 2020, it is estimated to be around USD 23.6 billion.

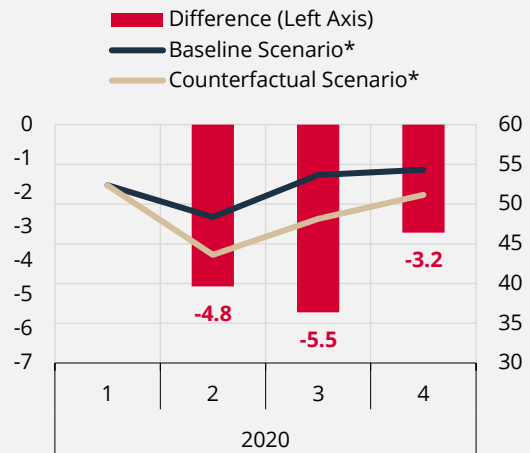
Chart 5: Imports Accounting (Contribution Points)



Source: Authors' calculations.

* The value for the 2020 Q4 of GDP is an estimate, as is the value for import prices for December 2020.

Chart 6: Imports Excluding Gold Under Alternative Growth and Credit Scenarios (USD Billion)



Source: Authors' calculations.

* Scenario details are given in footnote 7.

As a second method to measure the direct and indirect effects of the expansion in credit on imports a multi-equation framework, taking into account dynamic relations is used rather than a demand equation in reduced form.⁶ Through this model, an answer is sought to the question of how imports would be in a counterfactual scenario in which credits move close to their pre-shock trend. While the baseline scenario is based on realizations of credits and GDP, the alternative scenario is built around a weaker bank lending, following the pre-pandemic trend, and a GDP growth consistent with that.⁷ The difference between the conditional forecasts of imports for the 2020Q2-2020Q4 period under two scenarios reflects the effect of additional credit growth. Accordingly, a gap of USD 13.4 billion appears between the base scenario and counterfactual scenario as of 2020Q2 (Chart 6).

In conclusion, considering the “additional” imports excluding gold due to rapid credit expansion in 2020 and high gold imports with dollarization tendency, there is a significant room for improvement in the current account balance in the range of USD 20-25 billion that can be controlled by macro policies. A tight stance focusing on price stability in monetary policy will positively affect the external balance and macrofinancial stability through both demand and expectation channels.

References

Çelgin A., Gökcü M., Özel Ö. (2019). Decomposition of Income and Relative Prices in Exports and Imports. CBRT Research Notes in Economics, No:19/05.

⁶Estimations are based on 6-variable Bayesian Vector Auto-Regression (BVAR) model using global growth (exogenous), real effective exchange rate, real interest, credit adjusted for exchange rate, GDP and import volume index excluding gold. In the VAR framework variables are ordered as listed above and Cholesky method is used to identify individual shocks.

⁷ In the baseline scenario (counterfactual scenario), annual GDP growth is 6.7% (-0.3%) as of the 3rd quarter of 2020, and the annual credit growth adjusted for exchange rate is 22.9% (11%) as of the end of 2020.

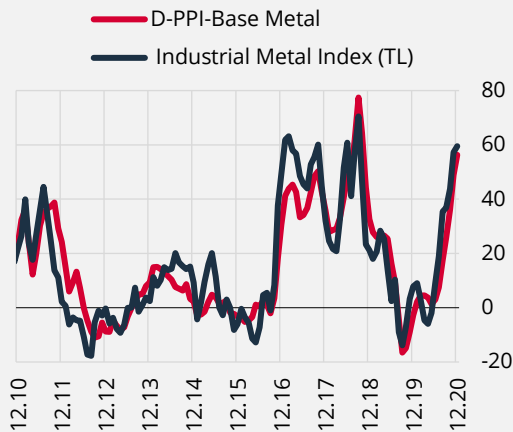
Box 2.4

Determinants of Producer Inflation and Risks

Domestic producer price (D-PPI) inflation, which was 5.53% in May 2020, soared in the second half of the year in response to the developments in exchange rates and international commodity prices and reached 25.15% in December. Despite the relative stability in exchange rates recently, sharp increases in international commodity prices weigh on inflationary pressures in many manufacturing industries as main input providers. Developments in agricultural commodity, oil and metal prices pose significant risks to consumer prices through the food, energy and core goods channels. This box discusses the risks to the inflation outlook in the coming period within the framework of the determinants of producer prices.

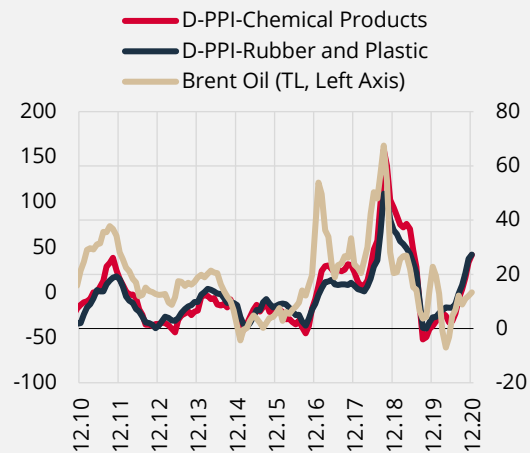
Considering the dynamics specific to Turkey's economy, most of the movements in producer prices may be said to reflect external cost factors such as exchange rate and import prices. By their nature, producer prices are more sensitive to exchange rate and import price shocks than consumer prices. In general, Turkish lira-denominated import prices are highly reflected in producer prices; in some intermediate goods sectors, the commodity price pass-through may approach one-to-one (Chart 1 and Chart 2).

Chart 1: D-PPI Base Metal and International Metal Prices (Annual % Change)



Sources: Bloomberg, TURKSTAT.

Chart 2: D-PPI Selected Items and Brent Oil Price (Annual % Change)



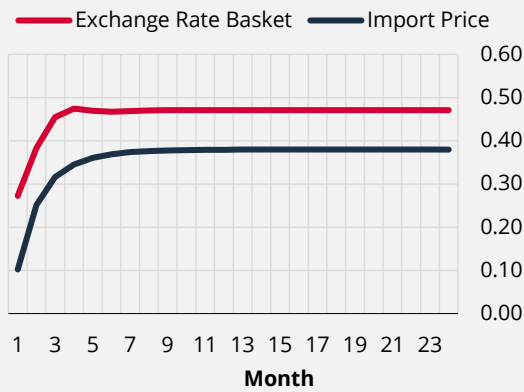
Sources: Bloomberg, TURKSTAT.

Studies show that domestic producer prices are more likely to be exposed to exogenous shocks as the use of imported inputs increases. However, the pass-through from import prices and exchange rates to producer prices differs in terms of size and speed¹. Estimations show that the 1% increase in the basket exchange rate change producer inflation by around 0.47 points on average and the pass-through is completed in approximately two quarters². A 1%-increase in import prices causes a 0.38 point-rise in producer inflation (Chart 3).

¹ See, Ertuğ, Özlü and Yüncüler (2018), Yüncüler (2011), Kara and Öğünç (2012), Özmen and Topaloğlu (2017).

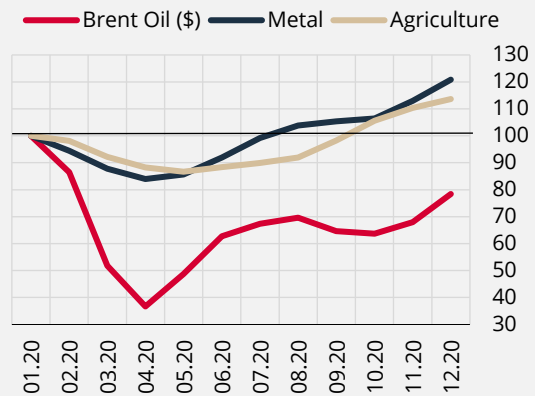
² The exchange rate pass-through is based on the impulse-response analyses obtained from various VAR models using variables such as exchange rate basket, import price index in US dollars, output gap, minimum wage and domestic producer prices.

Chart 3: Cumulative Currency Pass-Through to Producer Prices (% Point)



Source: CBRT.

Chart 4: International Commodity Prices (January 2020=100)



Sources: Bloomberg, Goldman Sachs.

Despite the recent appreciation in the Turkish lira, the strong upward trend in international commodity prices leads to a continued rise in producer inflation through the import prices channel (Chart 4). In order to evaluate the risks of these developments to producer prices, an inflation equation is estimated for the period of 2012-2020 on a monthly frequency. The variables in the equation are expressed as monthly percentage change, and only the output gap variable (deviation from the trend of industrial production) is included as percentage points.

Table 1: Model Results³

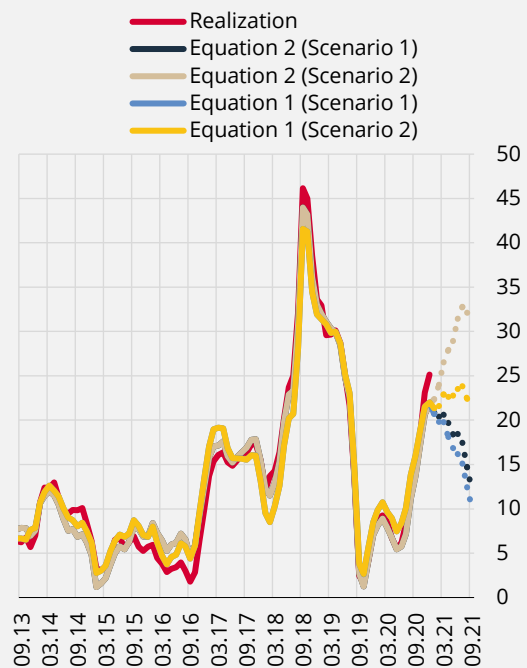
Sample: 2012M1 - 2020M12	Equation 1	Equation 2
Constant	0.19***	0.12**
D-PPI (t-1)	0.36***	0.25***
Dollar (t)	0.29***	0.25***
Brent Oil (t)	0.01***	0.02***
Industrial Metal (t)	0.03***	0.04***
FAO Food Price Index (t)	0.09***	0.06***
FAO Food Price Index (t-1)	0.07**	0.06***
Paper	-	0.15***
Minimum Wage	-	0.05***
Output Gap	-	0.03***
Dummy 09-2018	5.10***	4.54***
Dummy 11-2012	-	1.89***
Adjusted R²	0.88	0.91

Sources: CBRT, TURKSTAT.

** Statistically significant at 5 % level.

*** Statistically significant at 1% level.

Chart 5: D-PPI and Composite Indicator (Annual % Change)



³ Dummy variables are used for September 2018 in Equation 1, and for September 2018 and November 2012 in Equation 2.

Estimation results confirm that the exchange rate and international commodity prices have a significant effect on producer inflation (Table 1). A significant part of the cost effect in producer inflation, which stood at 25.15% as of December, can be attributed to the exchange rate. The upward trend in international commodity prices in the second half of the year also played a major role in the recent developments. However, increases in international food, oil and metal prices fall short of explaining the course of producer inflation in recent months (Equation 1) and pandemic-specific sectoral price shocks, such as paper products, also exert an additional upward pressure (Equation 2). In order to quantify the possible effects of the upward trend in commodity prices on producer inflation, two different scenario analyzes have been conducted by using these equations. In Scenario 1, where exchange rate and commodity prices remain constant at their current levels, producer inflation is estimated to decline from the beginning of the second quarter. In Scenario 2, where the exchange rate remains constant and foreign prices continued the recent up trend, producer inflation is expected to increase further reaching quite high levels, depending on the course of paper products in particular (Chart 5).

In sum, the news flows regarding the course of the pandemic have a significant impact on expectations regarding the global growth outlook, and especially on energy and metal commodity prices. In addition, global drought and food policies adopted by countries against the pandemic have recently caused sharp increases in agricultural commodity prices. All these developments keep the upside risks to the producer inflation outlook alive despite the relative stability in exchange rates. These supply-side factors affect consumer inflation through the energy, core goods and food prices channels.

References

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Özmen, M. U., and Topaloğlu, M. (2017). Disaggregated evidence for exchange rate and import price pass-through in the light of identification issues, aggregation bias and heterogeneity. The Central Bank of the Republic of Turkey, Working Paper Series, No. 17/08.

Yüncüler, Ç. (2011). Pass-through of external factors into price indicators in Turkey. Central Bank Review, 11(2), 71-84.

Box 2.5

Main Macro Determinants of Inflation in 2020

Consumer inflation, which was 11.84% at the end of 2019, fluctuated around 12% throughout 2020, accelerated in the last quarter and ended the year at 14.60%. In this box, inflation developments of 2020 will be discussed in terms of basic macro determinants by estimating a reduced-form time varying parameter Phillips Curve model.¹

Table 1: Contributions to Consumer Inflation⁽¹⁾ (% Points)

	CPI	Constant Term	Unprocessed Food ⁽²⁾	Exchange Rate	Import Prices	Output Gap	Real Unit Labor Cost	Taxes	Other ⁽³⁾
2018	20.3	5.5	2.0	8.6	0.2	0.5	-0.2	-1.0	4.7
2019	11.8	5.7	0.4	1.5	-0.6	-1.4	0.9	1.7	3.6
2020	14.6	5.6	2.1	6.2	0.0	-0.4	0.8	0.0	0.3

Sources: CBRT, Turkstat.

⁽¹⁾ It should be noted that the contributions to consumer inflation depend on the estimated model; some effects, especially the constant term, may differ depending on the model description and sample size.

⁽²⁾ Refers to the contribution of unprocessed food inflation adjusted for the exchange rate effect. The exchange rate effect on unprocessed food prices is included under the heading "exchange rate".

⁽³⁾ The term "Other" includes the contribution of alcohol-tobacco products except tax adjustments, administered price adjustments for producer prices such as electricity and natural gas, and estimation errors in the equation.

In 2020, demand-side effects due to strong credit momentum were determinant on inflation through direct and indirect channels. The depreciation of the Turkish lira led by the effects of the rapid recovery achieved in the economy with credit expansion on current account balance, reserves, risk premium, dollarization and inflation expectations had an important role in the rise in inflation. Although the model findings indicate that the highest contribution to 2020 year-end inflation comes from the exchange rate, it is possible to associate this with strong domestic demand and the external imbalances it causes rather than a cost-driven external increase in inflation.

This linear equation, in which the pass-through of the depreciation and appreciation of the Turkish lira to inflation are symmetrical by definition, is considered to underestimate the exchange rate effect. The appreciation observed in the last two months of the year following the long-term depreciation trend passed through into inflation to a relatively limited extent, given the exchange rate volatility in that period. Therefore, the measured effect can be interpreted as a lower bound.

The second important point regarding the exchange rate pass-through is the effects arising from the interaction of demand. Considering the annual average in 2020, the currency basket depreciated by 25%, which had implications for many groups, especially durable goods. Time-varying parameter estimates indicate that the exchange rate pass-through is around 20%² (Chart 1). However, there were differences in the exchange rate pass-through that overlapped with sectoral divisions. In 2020, the

¹ This method was previously used in Kara, Ögünç and Sarıkaya (2017) and Koca and Yılmaz (2018). The D index (CPI excluding unprocessed food and alcohol-tobacco) is employed as a dependent variable whereas the lagged value of inflation, import prices in US dollar, the currency basket (the USD / TRY and EUR / TRY average), the output gap and the real unit labor cost are used as independent variables. The equation is estimated using quarterly data. In addition, the direct impact of changes in taxes on consumer inflation is also taken into consideration. Quarterly contributions to consumer inflation are calculated by multiplying the value of the relevant variable by the value of its time-varying coefficient in the respective period. Annual contributions are obtained via the aggregation of quarterly contributions.

² The long-term exchange rate pass-through is obtained by dividing the sum of the exchange rate coefficients (current period and lag of two) by the coefficient of past inflation subtracted from one.

exchange rate pass-through was high in items with strong sectoral demand, particularly durable goods, due to the strong credit momentum. On the other hand, the depreciation of the TL had a more limited impact on clothing and some services items due to the weak demand.

Another component that makes a high contribution to inflation is the constant term that changes over time but exhibits rigidity. Although this variable seems to be the part of inflation that cannot be explained by macro factors, it reflects the historical average movement of these macro factors (eg. average wage increase) and its effect on inflation. Therefore, the constant term in the equation that changes over time is essentially closely related to the inflation trend and expectations. Although it is a variable that changes rarely in the short term and shows inflation rigidity, it is considered as a component under the control of monetary policy since it is affected by the steady decreases and increases in inflation and thus in expectations. As a matter of fact, this variable, which has settled on a higher plateau since the second half of 2018, draws a picture in line with the persistence of inflation in double digits and the course of expectations (Chart 2).

Chart 1: Long-Term Exchange Rate Pass-through (%)

Chart 2: Constant Term (Annualized)



Source: CBRT.

Source: CBRT.

Unprocessed food prices come forward recently as a component with an inflationary effect that is above its historical average. While the depreciation in the Turkish lira was among the factors behind this development, even when the exchange rate effect is excluded, the contribution of unprocessed food was at the level of 2018 with 2.1 points. This was because of the pandemic-driven increase in demand, international agricultural commodity prices and adverse supply conditions caused by weather conditions and the seasonal transition, and annual unprocessed food inflation ended the year 2020 at a remarkable 26.34%, led by prices of fresh fruits and vegetables.

Another variable that drove inflation upwards in 2020 was the real unit labor cost. During periods of production decline, adjustment in the labor market may be slower and more limited compared to the goods and services market, in which case per capita production (partial labor productivity) decreases. As a result of sticky wages and their inability to adjust quickly, this loss of productivity causes an increase in real unit labor costs.³ In fact, in the second quarter when economic activity contracted sharply, the hourly real labor cost rose significantly. Although it declined in the third quarter, it is estimated that its contribution to inflation throughout the year was positive. However, it should be noted that the divergence across sectors during the pandemic, the significant differentiations between employment and hours worked, the prohibition on dismissals, and the implementation of a short-term employment allowance all make it difficult to measure unit labor costs.

³ Box 3.1, Inflation Report 2020-III.

Reflecting aggregate demand conditions, the output gap somewhat limited inflation in 2020. Demand conditions affected the inflation outlook positively, especially in the first half of the year. While clothing and footwear was the group with the most pronounced demand-driven disinflationary effects, inflation remained relatively weak in services items that were hit the hardest by the pandemic, such as accommodation, package tours, education, entertainment and culture. On the other hand, the strong credit momentum in the second half of the year led to a significant increase in demand-side inflationary pressures on some groups, durable goods in particular (Zoom-in 2.6).

As for import prices, with COVID-19 becoming a pandemic, there was a sharp decline in brent oil prices , however other commodity prices, such as industrial metal, food and gold prices, did not decline at the same rate. In the second half of the year, import prices increased along with the partial recovery in the global economy. In this context, US dollar-denominated import prices fluctuated in 2020, making almost no contribution to inflation throughout the year.

In 2020, the contribution of the tax component to inflation was also close to zero. In this period, VAT reductions in furniture and some services items contributed downwards, while the tax base and SCT changes in automobiles had an upward effect.

In sum, the main determinant of the increase in inflation in 2020 was the depreciation of the Turkish lira. However, since the analysis is based on an equation in a reduced form, it does not fully reflect the interaction between macro variables, which prevents a clear inference about the economic reasons for the depreciation of the exchange rate and thus the rise in inflation. Considering the macro dynamics, it can be said that the rapid credit expansion and the domestic demand-led strong recovery were determinant on inflation through direct and indirect channels. The rapid recovery achieved in the economy with credit expansion had a significant effect on exchange rates through the external balance, inflation, expectations and risk premium channels. Therefore, although the effect of aggregate demand conditions on inflation seems limited, it is considered that the rapid growth in the second half of the year played an important role in the negative decoupling of the Turkish lira from other developing countries. Therefore, it is critical that the tight stance in monetary policy be maintained with determination and that loans and domestic demand take to a moderate path in the upcoming period, limiting inflation pressures through demand, cost and expectation channels.

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Koca, Y. K. and Yılmaz, T. (2018). A Closer Look at Core Inflation Dynamics with a Historical Perspective. Central Bank of the Republic of Turkey, Research Notes in Economics, No: 18/07.

CBRT (2020). An Evaluation of Recent Unit Cost Developments. Inflation Report 2020-III, Box 3.1.

Box 2.6

Wage Distribution and Effects of Wages on Inflation in Turkey

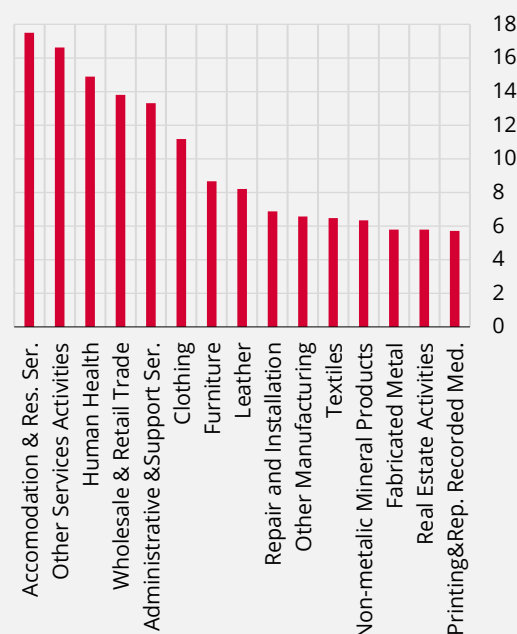
One of the most important indicators that are monitored in terms of wage developments in Turkey is the minimum wage. In addition to demand inflation, the minimum wage also affects cost-driven inflation. Additionally, it also acts as a reference for private sector wage increases. This box discusses the sectoral distribution of minimum wage earners and the effect of wages on inflation.

Household Labor Force Survey (HLFS) micro data are used to draw a general picture of the wage distribution in Turkey for wage and salary employees. For the HLFS, individuals are asked about their total net cash income they earned from their main job of the last month (in addition to benefits in cash, bonuses and premiums, etc.).

Table 1: Proportion of Employees on Minimum Wage or Below by Selected Sectors, and Labor Intensity (% , 2017-2019 Average)

	Proportion of Employees on Minimum Wage or Below *	Personnel Cost/ Production Value
Non-Farm Sectors	42.8	13.0
Industry	50.0	8.9
Manufacturing Ind.	51.7	9.4
Textiles	58.9	11.0
Clothing	72.2	15.5
Leather	67.1	12.2
Furniture	54.4	15.9
Food Products	64.7	7.8
Petro. Products**	19.4	-
Motor Vehicles	24.0	7.1
Other Transport	18.7	13.4
Construction	53.9	9.1
Services	39.1	20.4
Wholesale&Ret.Trade	63.8	21.6
Transpo.&Storage	45.3	12.2
Accomo.&Rest. Ser.	71.6	24.4
Public Admi.**	5.1	-
Education	9.3	53.1
Finance&Insur.**	11.8	-

Chart 1: Sensitivity to Minimum Wage (Personnel Cost/Production Value x The Proportion of Employees on Minimum Wage or Below %, 2017-2019 Average)



Sources: CBRT, TURKSTAT HLFS Micro Data 2017-2019, Annual Industry and Service Statistics 2017-2019.

* The data are filtered at an occupational and sectoral level. Those who work in the neighborhood of 10% below and above the minimum wage are accepted as minimum wage earners, while those working with a wage more than 10% below the minimum wage are considered to earn below the minimum wage.

** Personnel cost/production value could not be calculated due to the lack of data.

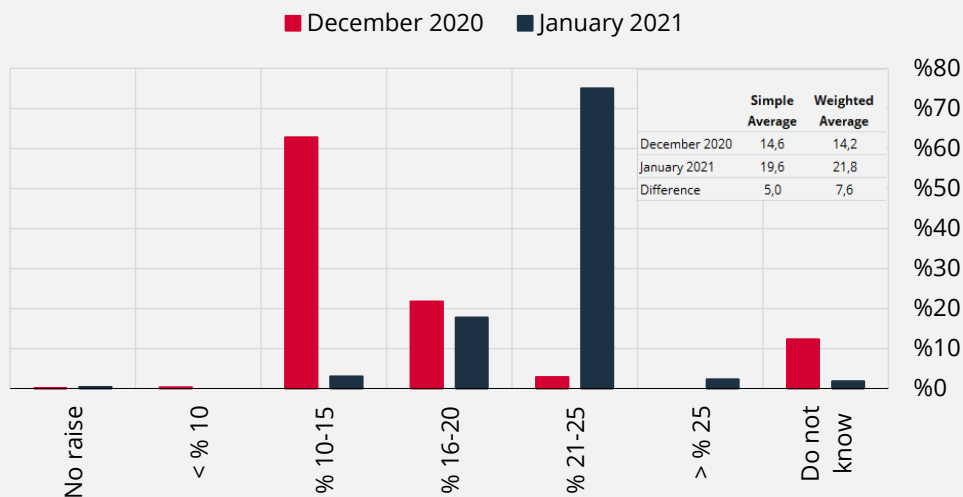
The 2017 to 2019 data for this question reveal that approximately 42.8% of the wage earners working in non-farm sectors are on the minimum wage or below (Table 1). This rate is calculated as 50.0% in the industrial sector, 53.9% in construction and 39.1% in the services sector. While the ratio of those earning the minimum wage or less is relatively low in the services sector compared to other

main sectors, the sub-sectors differ significantly. For example, while this ratio reaches 72% in accommodation and restaurant services, and 64% in the wholesale and retail trade sector, sectors such as public services, education, finance-insurance services and information-communication services limit the total share of the services sector employees earning minimum wage or below the minimum wage. In the manufacturing industry, this ratio is higher for the clothing, textiles, food and leather sectors.

Another point that should be taken into consideration regarding the sensitivity to the minimum wage when evaluating possible cost-side inflation pressures is the labor intensity of the sectors. As an indicator of labor intensity, personnel cost/production value ratio is calculated from the TURKSTAT Annual Industry and Service Statistics data (Table 1). Later, in order to show sensitivity to the minimum wage, an index is created by multiplying the minimum wage share by the personnel cost/production rate. According to this index, the most sensitive sectors to the minimum wage in Turkey are accommodation and restaurant services, other service activities, human health services, wholesale and retail trade, administrative and support service activities, clothing, furniture and leather sectors (Chart 1).

The minimum wage is an important reference for economy-wide wage increases.¹ In addition to the minimum wage, past inflation and the cyclical state of the economy have a significant effect on non-farm sector wage increases (Coşar & Yavuz, 2018). According to CBRT survey interviews with businesses, firms' planned wage raises for 2021 were updated upwards after the minimum wage was set (Chart 2). When the companies interviewed are weighted by the number of employees, it indicates a growth to 21.8% in the average planned wage rise in January from its level at 14.2% in December.

Chart 2: Planned Wage Growth Weighted by Number of Employees (%)



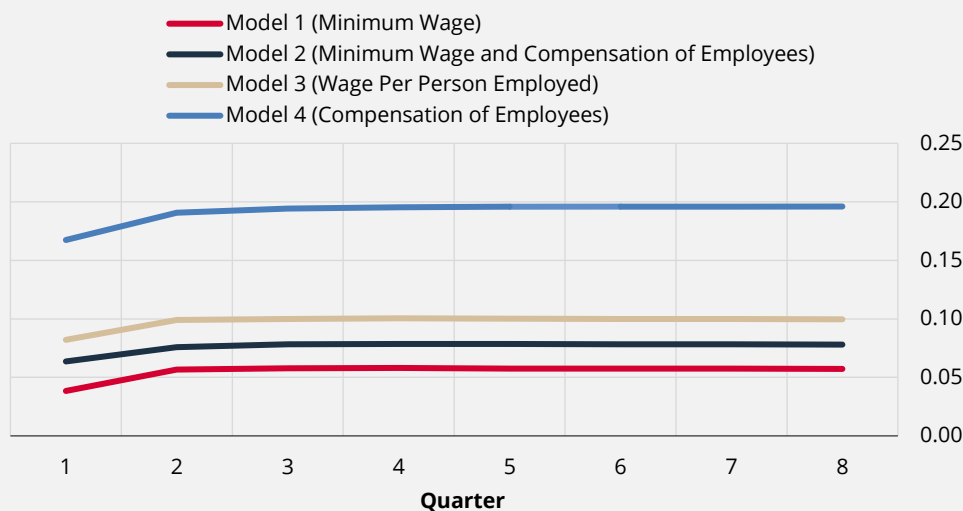
Source: CBRT.

To evaluate the possible impacts of wage growth on inflation, impulse-response analyses using Bayesian VAR models are made under several wage definitions. The models, which are estimated on a quarterly basis for the post-2005 period, contain the variables Brent oil price in US dollars, import prices in US dollars, exchange rate basket (0.5*US dollar+0.5*Euro), GDP growth, producer prices, consumer inflation expectations for the next 12 months, wages and the consumer price index excluding unprocessed food and alcohol-tobacco (D index). Under this structure, four different models are estimated by using different wage definitions. Chart 3 shows the cumulative impact of a

¹ Başkaya and Özmen (2013) found that the increase in the employer cost of the minimum wage increases producer prices more in sectors with a larger number of unskilled workers. Similarly, according to the study of Gürçihan Yüncüler and Yüncüler (2016), the minimum wage increase may affect the wages of informal workers and wages up to twice the minimum wage in wage distribution.

1% positive wage shock on inflation. In terms of wage definition, Model 1 uses the net minimum wage, Model 2 uses net minimum wage along with the compensation of employees from national income calculated with income approach, Model 3 uses wage per person obtained from Labor Input Indices, and finally Model 4 employs compensation of employees. Each model also contains a global risk measure (EMBI-Global) and a variable constructed to account for the effect of tax changes on inflation as exogenous variables.

Chart 3: Cumulative Effect of 1% Wage Shock on Consumer Inflation
(Median Effect, % Points)



Source: CBRT.

The main findings based on median responses can be summarized as follows: A positive shock of 1% to the nominal minimum wage raises consumer inflation by around 0.06 to 0.08 points at the end of the year, and the effect is mostly completed within two quarters. Based on the definition of wage per person employed, the response of inflation to the 1% wage shock is estimated to be around 0.10 points. And an analysis by compensation of employees including both wage and employment effects suggests that a positive shock of 1 percentage point increases consumer inflation by 0.2 points at the end of a year.

The relatively high uncertainty on the estimates regarding the wage-inflation relationship requires a cautious stance in policy making. Sectoral divergences, the significant differentiation between employment and hours worked, dismissal prohibitions and the implementation of short time work allowance, all specific to the pandemic period, make it difficult to measure the wage-induced effects on inflation. Inflation remains relatively low in accommodation services and clothing sectors which are not only affected most adversely by the pandemic but are also sensitive to the minimum wage. Although the pandemic-specific demand conditions in such sectors limit the pass-through of costs to the prices, unit cost-based pressures may be effective especially in the services sector following the opening of the economy, as was the case in May and June last year. On the other hand, depending on the tourism outlook, the likelihood of a future cost-price pass-through in the clothing sector is one of the significant risk factors for the inflation outlook. In conclusion, considering that the minimum wage increase is an important reference for wage increases across the economy, recent developments are judged as a factor that may negatively affect the disinflation process envisaged for 2021.

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3. Medium-Term Projections

3.1 Current State, Short-Term Outlook and Assumptions

Changes in Key Forecast Variables

The Turkish economy posted a significant recovery in the third quarter due to the strong credit impulse, and economic activity was more robust than projected in the October Inflation Report. Accordingly, output gap forecasts for the third and last quarters of 2020 have been revised upwards from the previous reporting period (Table 3.1.1, Box 3.1). Although economic activity has lost some pace in the recent period due largely to pandemic measures and partially to the tightening in financial conditions, it followed a considerably strong course in the last quarter of 2020. The decelerating impact of the strong monetary tightening delivered in November and December MPC meetings on credits and domestic demand is expected to become more significant in the upcoming period.

In the final quarter of 2020, consumer inflation stood at 14.6%, materializing above the upper bound of the forecast range in the October Inflation Report. Inflation followed a higher-than-projected course due to the rapid recovery in domestic demand, cumulative cost effects – particularly through the exchange rate, and food price developments (Table 3.1.1). In this period, food inflation remained on the rise partly due to international prices. While demand and cost pressures on consumer prices increased in sectors where demand conditions were strong due to the credit expansion, costs had a more limited impact on inflation in sectors that are more sensitive to pandemic measures.

Table 3.1.1: Changes in Key Forecast Variables*

	2020-III	2020-IV
Output Gap	2.0	2.8
(%)	(-1.8)	(-0.9)
Consumer Inflation	11.7	14.6
(Quarter-end, Annual % Change)	(11.7)	(12.1)
B** Index Inflation	11.6	14.5
(Quarter-end, Annual % Change)	(11.6)	(12.4)

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

** B index is the CPI excluding unprocessed food, alcohol, tobacco, energy and gold.

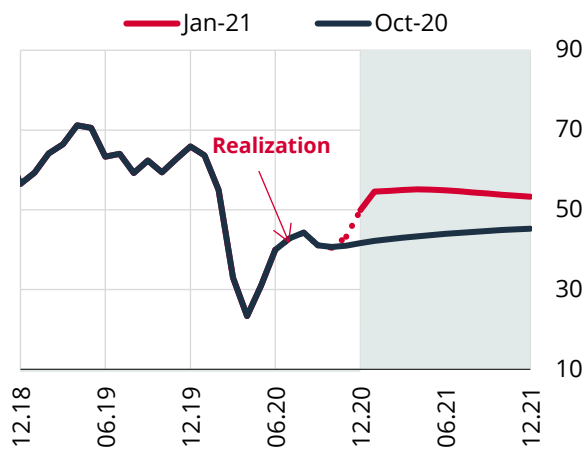
Assumptions for Exogenous Variables

The growth assumption for external demand has been revised upwards for 2020 while the recovery trend projected for 2021, excluding the base effect of this revision, has slightly increased, particularly for the second half of the year. While comprehensive restriction measures implemented by countries point to predominantly downside risks to the growth outlook in the fourth quarter, economic activity hovers below its pre-pandemic levels. Uncertainties surrounding recovery remain high depending on the course of the pandemic, the vaccination process, and the possible effects of economic policies.

Forecasts are based on a framework in which global expansionary policies would continue to support global financial conditions. Advanced and emerging economies maintain their expansionary monetary and fiscal stances. While long-term interest rates continue to hover at their historic lows in advanced economies, statements from central banks as well as market expectations suggest that the low-rate environment will persist for a long period of time.

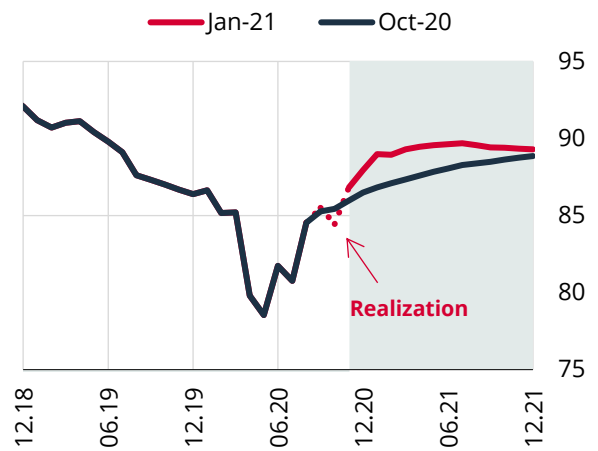
Assumptions for USD-denominated import prices have been revised upwards, most significantly for international crude oil prices. The average oil price assumption for 2020 remained consistent with the October Inflation Report at USD 42.3. Based on the recent rise in oil prices and the strengthened projections for a recovery in global economic activity, expectations for crude oil prices have also been revised upwards. The average crude oil price for 2021 implied by the 14-day average futures price curve until the forecast date of the Report is USD 54.4. Futures price curves suggest that crude oil prices will weaken somewhat in 2022 and drop to USD 52.1 on average (Chart 3.1.1, Table 3.1.2). Meanwhile, USD-denominated import prices point to a higher-than-projected course in prices of commodities such as industrial metal and agricultural products, as is the case in crude oil (Chart 3.1.2). Accordingly, assumptions for USD-denominated import prices for 2021 have been revised upwards from the October Inflation Report (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, 2010=100)



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

Considering the recent trends in unprocessed food prices, exchange rate developments and international prices, the food inflation assumption for 2021 has been revised slightly upwards. Annual inflation in the food and non-alcoholic beverages group rose by 5.67 points to 20.61% in the last quarter. The high course in food inflation was driven by exchange rate developments and international food prices. In addition to the outlook of agricultural commodity prices, cumulative cost effects-driven administered price adjustments and the minimum wage hike will exert upward pressure on this group's inflation in the first quarter of the year. Under a framework in which supply-side factors will prevail for a while and exchange rate effects will wane in the following period, the food inflation assumption has been revised up by 1 point compared to the October Inflation Report and set at 11.5% for 2021 (Table 3.1.2). The course of international prices and demand effects depending on the possible improvement in the tourism outlook during the year constitute the most significant upside risks to this assumption.

Table 3.1.2: Revisions to Assumptions*

	2020	2021	2022
Export-Weighted Global Production Index (Annual Average % Change)	-6.6 (-6.9)	4.7 (5.1)	4.3 (-)
Oil Prices (Average, USD)	42.3 (41.6)	54.4 (43.8)	52.1 (-)
Import Prices (USD, Annual Average % Change)	-6.0 (-5.9)	6.5 (5.0)	0.3 (-)
Food Price Inflation (Year-end % Change)	20.6 (13.5)	11.5 (10.5)	9.4 (-)

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

Medium-term projections rely on an outlook in which fiscal and financial policies will be determined in tandem with the monetary policy and in line with the projected disinflation path. The rise in real wages is expected to support domestic demand in the first quarter of the year but affect inflation adversely throughout the year particularly via the cost channel. The increase in inflation inertia in activity fields, particularly in the services sector, where the employees are predominantly minimum wage earners is considered a factor that may delay the disinflation process. Actually, as also stated in the January MPC decision, wage adjustments that remain important for the inflation outlook constitute one of the leading factors that require the tight monetary policy stance to be maintained for a longer period than projected earlier.

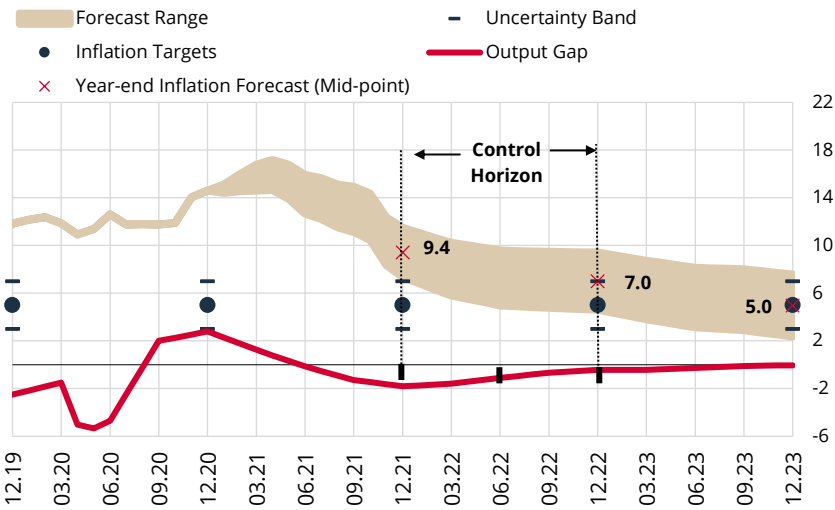
In the scope of policy coordination, credit developments stand as another factor that may be effective in the upcoming period. In order to contain existing macrofinancial risks driven by domestic and external imbalances and for the disinflation process to start, it is essential that loans – particularly personal loans – move towards a moderate path. Recent trends in the credit market are considered to be favorable in this regard. On the back of a strong coordination between monetary, credit and fiscal policies, determining the macro policy mix in a way that will support the disinflation process and the current account balance is crucial for maintaining healthy and stable growth.

3.2 Medium Term Projections

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

Under the assumptions explained in Section 3.1 and short-term projections, inflation is projected to converge gradually to the targets. Accordingly, inflation is projected to be 9.4% at the end of 2021, and fall to 7% at the end of 2022 before stabilizing around 5% in 2023, which is the medium-term target. With a 70% probability, inflation is expected to be between 7.3% and 11.5% (with a mid-point of 9.4%) at the end of 2021 and between 4.6% and 9.4% (with a mid-point of 7%) at the end of 2022 (Charts 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.

The tightness of monetary policy stance towards the 5% inflation target will be determined as follows:

The level between the realized/expected inflation rate path and the monetary policy rate path will be set by aiming for a strong disinflationary balance until the 5% target is reached, and this balance will be preserved continuously. Besides the current information set, if any new information arrives pointing to the risk of inflation expectations and pricing behavior diverging from the medium-term target path, additional front-loaded tightening will be implemented.

Based on the revisions in the assumptions for the effects of the tight monetary policy stance to be maintained decisively until there are strong indicators that point to price stability and a permanent fall in inflation, forecasts of the October Inflation Report have been kept unchanged. Economic activity in the third and last quarter of 2020 proved stronger than projected in the October Inflation Report. Although credit growth has recently decelerated considerably, cumulative effects of the brisk credit growth in the pandemic period keep domestic demand buoyant. Despite the high level of Covid-19 cases, persisting uncertainties over the vaccination process and the global economy, exports maintain their upward trend. The uptrend in international food and commodity prices following the previous reporting period remain as an upside risk to the inflation outlook. The pandemic-driven supply constraints that appeared in certain sectors, cumulative exchange rate effects, revisions in unit labor costs and administered prices are other risk factors regarding inflation expectations and the inflation outlook. The strong monetary tightening implemented in November and December MPC meetings in view of these risks still has a tightening impact on financial conditions. This trend is expected to generate a more noticeable deceleration impact on credit and domestic demand in the future. Hence, the effects of demand and cost factors on inflation will wane gradually.

Under a policy framework of enhanced predictability and transparency, a price stability-oriented tight monetary stance and strong policy coordination will initiate the disinflation process and alleviate macrofinancial risks, hence make a downward contribution to the sovereign risk premium. The decision to sustain the tight monetary policy stance decisively for a long time coupled with the ongoing decline in the risk premium are projected to generate positive effects on inflation expectations. These developments are considered to help the strengthening of capital inflows to Turkey and accumulation of the CBRT's international reserves, in turn. Moreover, they will support reverse currency substitution by building an environment that enables a change in residents' portfolio preferences in favor of the Turkish lira.

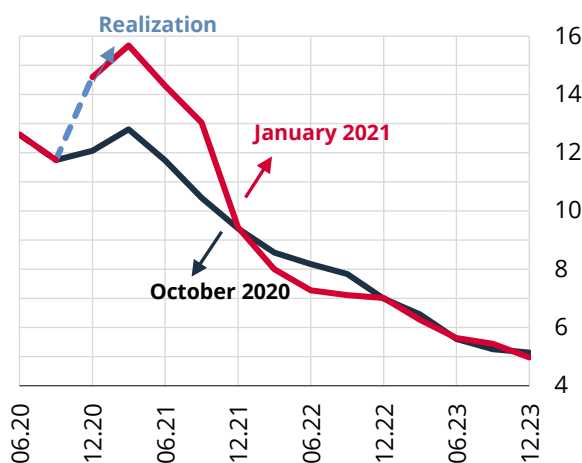
Table 3.2.1: Revisions to End-2021 Inflation Forecasts and Sources of Revisions

	2021
2020-IV (October 2020) Forecast (%)	9.4
2021-I (January 2021) Forecast (%)	9.4
Forecast Revision Compared to the 2020-IV Period	0.0
Sources of Forecast Revisions (% Points)	
Turkish Lira-Denominated Import Prices (Including the Exchange Rate, Oil and Import Prices)	-0.4
Food	+0.2
Administered Prices	-0.3
Unit Labor Cost	+1.0
Output Gap	0.0
Inflation Expectations	-0.5

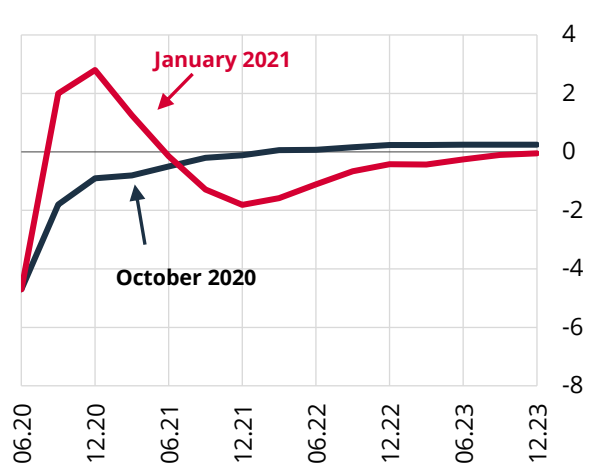
Source: CBRT.

Year-end inflation forecasts for 2021 and 2022 have been kept unchanged at 9.4% and 7.0%, respectively.

Compared to the previous reporting period, the revision due to Turkish lira-denominated import prices brought the inflation forecast down by 0.4 points, while unit labor costs drove the forecast up by 1.0 point due to the increased minimum wage for 2021. Meanwhile, higher-than-expected food prices pushed the inflation forecast up by 0.2 points while administered prices brought the forecast down by 0.3 points, largely due to adjusted tobacco taxes. Moreover, the likely improvement in inflation expectations prompted by the tight monetary stance is estimated to drive the year-end forecast down by 0.5 points (Table 3.2.1). Forecasts are produced under the assumption that monetary policy will be tight enough to ensure inflation remains in line with the forecast targets for 2021 and 2022.

Chart 3.2.2: Inflation Forecast

Sources: CBRT, TURKSTAT.

Chart 3.2.3: Output Gap Forecast

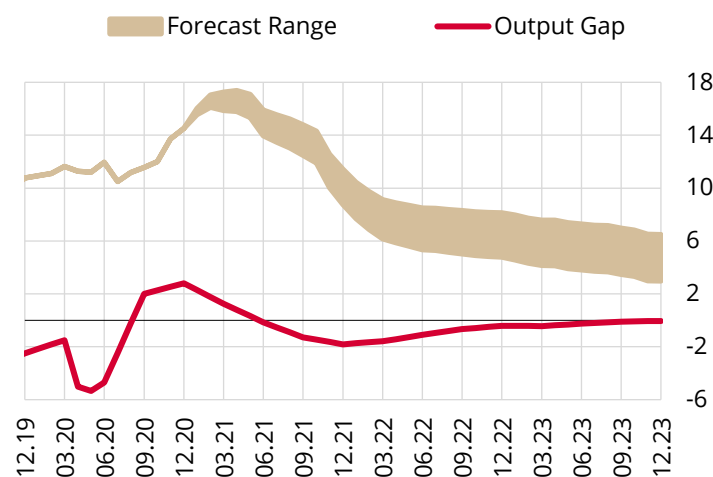
Source: CBRT.

Forecasts are based on the assumption that a pandemic-led shock will not arise in global growth as well as the external demand outlook, and the recovery in Turkey-specific risk perceptions will continue amid improvements in the global risk appetite. Intensified efforts to vaccinate against the Covid-19 virus accompanied by the expectations that advanced economies will maintain their expansionary monetary and fiscal stance increased the global risk appetite in the last quarter of 2020. Moreover, the low interest rate environment in advanced and emerging economies is expected to last for a long time. Projections rely on an outlook in which maintaining the tight monetary policy stance within a simple framework until there are strong indicators that point to price stability and a permanent fall in inflation will contribute further to the improvement in the country risk premium.

Economic activity is slowing down recently owing to the effects of pandemic-related measures and monetary tightening. Following the strong rebound in the third quarter of the year amid alleviated pandemic-related restrictions and the strong credit impulse, economic activity displayed a robust course in the last quarter as well. Although the lagged effects of the slowdown in credits are expected to become more significant in the upcoming period, annual inflation may continue to move upwards for a few more months due to the supply-side inflationary factors that are quite effective in the short run. Increasing commodity prices despite the appreciation of the Turkish lira, and supply constraints that became more evident in some sectors have combined to keep producer inflation on the rise. As for the administered prices, as opposed to the rises in electricity, natural gas and raw milk reference purchase prices; the tax adjustment in tobacco products played a role in the short-term inflation outlook. The additional inflation inertia to be caused by the revised minimum wage through the services prices in particular, necessitates an extended period of a tight monetary policy stance compared to past projections. The tight monetary stance will serve as a significant buffer against external and temporary volatilities in the context of inflation expectations, pricing behavior and financial market developments. Moreover, due to cumulative effects of the monetary stance on demand conditions, the output gap is expected to contribute to disinflation in the second half of the year.

Unpredictable price fluctuations in items beyond the monetary policy domain, such as unprocessed food, energy and tobacco products, are among the main factors that cause deviation in inflation forecasts. Core inflation indicators obtained by excluding these items contain more information as to the underlying trend of inflation. Therefore, forecasts for inflation excluding unprocessed food, energy, alcoholic beverages, tobacco products and gold (the B index) are also shared with the public. In this context, annual inflation in the B index is expected to slightly increase in the upcoming period, before assuming a downtrend following the first quarter of 2021 (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

The macroeconomic risks that may lead to a change the outlook underlying the inflation forecasts and the associated monetary policy stance are detailed in Chapter 1.2. Evaluations of the channels through which these risks may change inflation forecasts and the direction of this change are summarized in Table 3.2.2.

Table 3.2.2: Key Risks to Inflation Forecasts*

Key Risks	Indicators Monitored
<p>Cost Pressures</p> <ul style="list-style-type: none"> ▪ The uptrend that has recently become more evident in international food and other commodity prices led by global demand developments and the recovery in economic activity pose upside risks to the inflation outlook. Secondary effects of supply-side inflationary factors on expectations and their interaction with financial indicators will be monitored closely. 	<ul style="list-style-type: none"> ▪ Crude oil and supply-demand balance ▪ OPEC+ decisions ▪ Industrial metal prices ▪ Agricultural commodity prices ▪ Supply-demand balance in agricultural products
<p>Uncertainties Regarding the Monetary Policy Transmission</p> <ul style="list-style-type: none"> ▪ As the cumulative effects of the rapid credit growth of 2020 continue on domestic demand, the decelerating effects of monetary tightening may not be observed fast enough and this may delay the disinflation process. ▪ Residents' demand for FX/gold continues and sensitivity of portfolio preferences to negative news keeps the risks that may lead to a delay in the disinflation process alive. 	<ul style="list-style-type: none"> ▪ Course of demand and growth components ▪ Aggregate demand and credit composition ▪ Loan and deposit rates ▪ Credit conditions (Bank Loans Tendency Surveys) ▪ Dolarization indicators
<p>Sectoral Divergences During the Normalization Process</p> <ul style="list-style-type: none"> ▪ During the normalization process that will start once the effects of the pandemic wane on a global scale, the likely recovery in domestic demand and tourism may exert an upside pressure on inflation rates of certain goods and services items that were adversely affected by the pandemic such as clothing and footwear, accommodation, education, entertainment and culture, package tours etc. ▪ Sectoral divergences in demand conditions and closures, and measures introduced to maintain employment due to the pandemic make it harder to measure output gap and unit labor costs, and increase uncertainties with respect to inflation forecasting. 	<ul style="list-style-type: none"> ▪ Global course of pandemic ▪ Export, tourism and transportation developments ▪ Various demand and inflation indicators by sectors and subsectors ▪ Wage and labor cost indices ▪ Partial labor productivity per worker and hour
<p>Elevated Levels of Inflation Expectations</p> <ul style="list-style-type: none"> ▪ The short-term uptrend in inflation may adversely affect medium-term inflation expectations and pose a risk of slowdown in the speed at which expectations converge to forecast targets. 	<ul style="list-style-type: none"> ▪ Survey and market based expectations of inflation and exchange rates ▪ Indicators pertaining to backward indexation behavior in inflation expectations ▪ Inflation uncertainty indicators

Table 3.2.2: Key Risks to Inflation Forecasts*

<p>Risks to Monetary, Fiscal and Financial Policy Coordination</p> <ul style="list-style-type: none"> ▪ The disinflation process may be delayed, should the path of administered prices and tax adjustments significantly exceed the path envisaged in this Report due to the increase in public financing needs in relation to measures to contain the effects of the pandemic. ▪ Exogenous factors, which may push credit growth upwards particularly in retail loans and sub-items and curtail tight monetary stance transmission, may deteriorate the inflation outlook via total demand, current account balance and external financing, and risk premium channels. 	<ul style="list-style-type: none"> ▪ Adjustments to administered prices and taxes ▪ Developments in tax revenues and public expenditures ▪ Public wage policies ▪ Indicators for government budget and public debt stock ▪ Fiscal stance (structural budget balance)
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* Each risk row on the table presents evaluations on the channel through which inflation forecasts may change. Indicators used in monitoring the risks are listed in the right column

Box 3.1

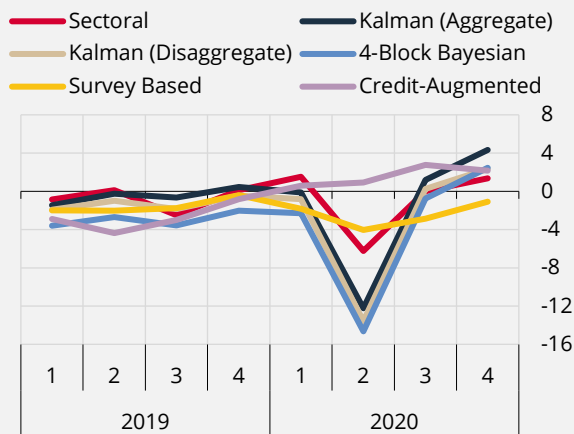
A Technical Assessment of Output Gap Estimates

Output gap indicators, showing the cyclical pattern of the economy, are used to monitor demand and capacity pressures on inflation. The output gap is defined as the difference between the level of economic activity and its non-inflationary potential level. The inflationary state of the total supply-aggregate demand balance during periods of overheating is referred to as a “positive” output gap. The contraction/cooling phases of business cycles are represented by the situations where the output gap is below zero and has a disinflationary effect.

The output gap has an important place in the “forecasting and policy analysis system” (FPAS), which is at the center of the technical background of the inflation-targeting regime. In this box, we compare the inflation forecasting power of output gap indicators monitored by the CBRT. In the light of growth and inflation developments in 2020, evaluations and policy implications are outlined regarding the relative advantages of these indicators.

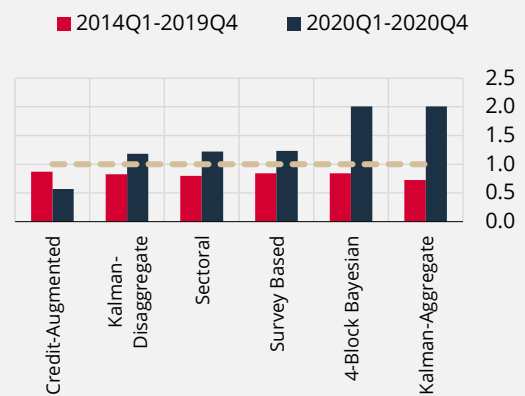
Output gap indicators estimated with different models and approaches are presented in Chart 1. Among these, the “survey-based” indicator is constructed by aggregating variables such as the capacity utilization rate and the airplane occupancy rate that directly point to the output gap by definition. Other indicators are estimated by filtering economic activity indicators. The credit-augmented indicator is calculated as the weighted average of the output gap based on the filtering of national income and the deviation of net credit use from its historical average.

Chart 1: Output Gap Indicators¹ (%)



Source: CBRT.

Chart 2: Forecasting Performance of Models Using Different Output Gap Indicators² (Forecast Errors Compared to the Model Excluding Output Gap)*



Source: Authors' calculations.

* Forecast errors are calculated separately for 2014Q1-2019Q4 and 2020Q1-2020Q4. The forecast error of the model excluding output gap is indexed as 1.

¹ Studies on the methods of output gap series included in the chart are as follows: Sectoral: Çelgin and Yılmaz (2019), Kalman(Aggregate): Koca (2021), Kalman(Disaggregate): Alp, Ögünç and Sarıkaya (2012), Koca and Kalafatçılar (2021), 4-Block Bayesian: Gökcü, M. (2021), Survey Based: Coşar, Kösem and Sarıkaya (2012), Coşar, Kösem and Sarıkaya (2013), Coşar (2018) and Credit-Augmented: October 2020 Inflation Report Box 2.3.

² The quarterly change in the Core-B index (adjusted for tax effects) is used as the dependent variable. The exchange rate (the euro and dollar basket) and commodity prices excluding energy are used as explanatory variables. Forecast performances are compared by adding different output gap indicators separately to the base model constructed with these explanatory variables. Forecasts are made for the period 2014Q1-2020Q4 with the out-of-sample forecast performance method for the next quarter. For example, the 2020Q2 forecast has been obtained by multiplying the coefficients obtained from the model regressed up to 2020Q1 with the 2020Q2 data of the explanatory variables. Then, the 2020Q3 forecast has been obtained with the coefficients obtained from a regression made until 2020Q2 and 2020Q3 values of the explanatory variables. A dummy variable for 2018Q3 is used in the models. The analysis of forecast errors is done excluding 2018Q3. In the chart, the root mean squared errors of forecasts are presented by normalizing this value for the model excluding the output gap.

Although the indicators seem to be compatible with each other in general, they can give quite different signals for the same quarter. During the pandemic period, when supply and demand shocks were seen together, the apparent divergence between indicators, especially in the second quarter of 2020, led to increased uncertainty regarding inflation forecasts. In this period, the sharp contraction in the economic activity caused a decline in national income-based output gap indicators, while the credit-augmented output gap started to show signs of heating due to the rapid credit expansion. With the significant recovery in the economy in the second half of the year, the agreement between indicators has increased. Most of the indicators for the last quarter signal overheating.

Such a large divergence among the indicators raises the question of which output gap indicator stands out in explaining inflation. In this context, we evaluated the one-quarter-ahead forecast performance of output gap indicators for the Core-B index. The results show that models using output gap in the 2014-2019 period made nearly 20% less mistakes than the model that did not use output gap (Chart 2). Due to their lagged effects on inflation, the forecast performance of the models using output gap indicators increases, as the forecast horizon gets longer.

Analyses made for the pre-2020 period indicate that none of the indicators is systematically superior in forecasting inflation. However, for 2020, using an output gap indicator in the forecasting model does not lead to an improvement in inflation forecasts, except for the model that uses the credit-augmented output gap indicator. When the credit-augmented output gap is used, an approximately 40% lower forecast error is made for 2020 compared to the base model that does not include the output gap. Factors such as supply shocks that have an important role in the decline of national income in the second quarter, the rapid credit expansion supporting consumption despite increasing unemployment, and the marked divergence in sectoral demand conditions all made it difficult to measure the output gap and its impact on inflation.

Past studies of the Turkish economy point out that (i) credit developments can provide additional information when used in conjunction with the output gap to predict inflation, (ii) items affected by credits are mostly in the core goods group, (iii) the effect of credits on inflation is more lagged compared to the output gap and (iv) as a credit indicator, the net credit use stands out as a functional indicator (Özmen and Sarıkaya 2014, Ögünç and Sarıkaya 2015, CBRT 2020). Credit data are published in a timely manner and hence become available earlier than GDP and unlike filter-based gaps net credit use is not revised with the data flow. These two factors can be considered as additional advantages of using credit data. Developments in 2020 have shown that the inflation forecasting performance can improve significantly if the financial cycle is also taken into account while evaluating the total supply-aggregate demand balance (output gap). However, since the inclusion of credits does not provide a systematic advantage valid for all periods, expert judgements are important in deciding when to give more weight to a certain indicator. When other determinants of inflation are also considered, aggregate demand conditions, which were stronger than previous projections in the second half of 2020, signal overheating in the economy, and a significant upward revision is made in the output gap estimates.

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