Inflation Report

2019-I

Contents

1. Overview

The deceleration in global economic activity in the second quarter of 2018 persisted into the third quarter due to the simultaneous slowdown seen in the growth rates of advanced and emerging economies. Despite the favorable growth performance in the US and the UK, the ongoing deceleration in the Euro Area in particular became quite visible. Increased protectionist trends are anticipated to weigh on the global growth outlook in the upcoming period by exacerbating the uncertainty over global economic policies. Industrial metal prices continued to decline in the fourth quarter due to the price implications driven by the expectation that the US-imposed restrictions on international trade would curb demand. On account of lower crude oil prices, the headline inflation in advanced and emerging economies receded in the last quarter.

The gradual monetary tightening by central banks of advanced economies also persisted in the fourth quarter of 2018. In this period, the slowdown in global growth and increased uncertainty related to the global economy gave way to the expectation that the ongoing policy normalization in advanced economies would decelerate and led to a decline in bond yields (Chart 1.1). Due to the recently-strengthened expectation that the Federal Reserve's (Fed) monetary policy normalization process may proceed more slowly, portfolio flows towards emerging economies have somewhat recovered since September (Chart 1.2). Nevertheless, regional risk premiums of emerging economies rose due to heightened volatility in financial markets and weakened global risk appetite. Risk premiums of emerging economies, which have been volatile partly due to geopolitical risks, started to recede since January in tandem with the rise in the global risk appetite.

Chart 1.1: 10-Year Bond Yields (%)
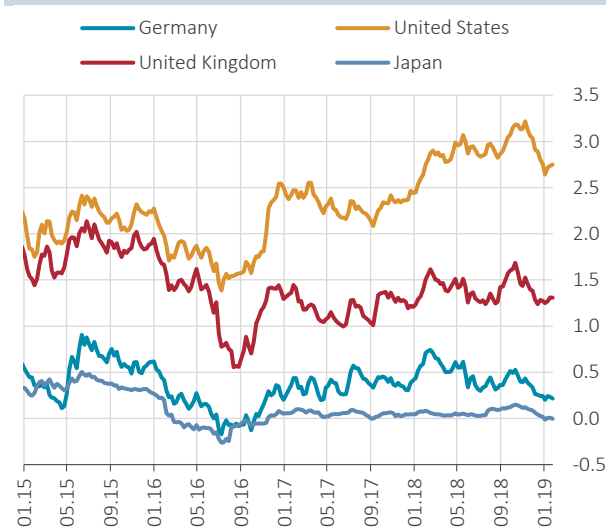
Source: Bloomberg.

Chart 1.2: Portfolio Flows to Emerging Economies (Billion USD, 4-Week Cumulative)
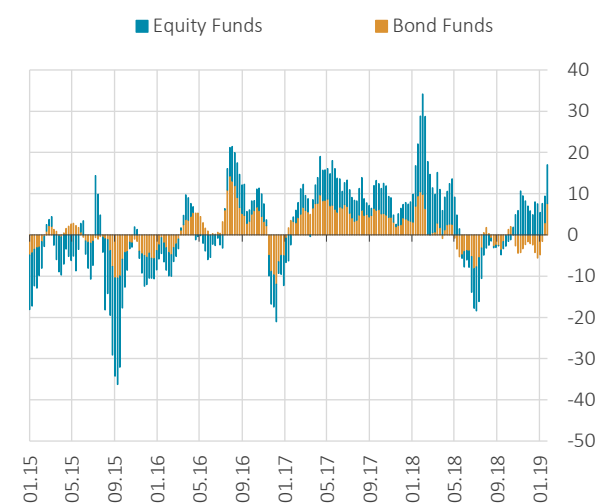
Source: EPFR.

Despite the geopolitical developments and global volatilities experienced during the period following the October Inflation Report, there has been a slight improvement in domestic financial indicators partly due to the Central Bank of the Republic of Turkey's (CBRT) maintaining of its tight monetary policy stance and the improving inflation outlook. In the period from November through to December 2018, the Turkish lira diverged positively from other emerging economy currencies, and the short- and medium-term market rates decreased, partly as a result of the fall in the country risk premium. Following the tightening seen in the credit market in the third quarter of 2018, the slowdown in loan growth rates became more discernible in the final quarter of 2018.

Consumer inflation receded to 20.3% at the end of 2018. The decline in oil and other commodity prices, the tax cuts in a number of products, and the weak domestic demand, as well as the tight monetary policy stance, were behind the disinflation in this period. Despite the fall in producer price inflation owing to the decline in exchange rates and energy prices, producer price-driven cost pressures on consumer prices remained strong. Economic activity decelerated in the third quarter of 2018 in line with the projections of the October Inflation Report. The volatility in financial markets and the tightening in financial conditions in this period led to a contraction in domestic demand driven by consumption and investment. Strong net exports backed by favorable external demand conditions and the cumulative depreciation in the real exchange rate restrained the domestic-demand driven deceleration in growth. Indicators related to this period signal that the contribution of aggregate demand conditions to disinflation became more pronounced.

1.1 Monetary Policy and Financial Markets

Following the strong monetary tightening it delivered in September to support price stability, the CBRT maintained its tight monetary policy stance in December and January, highlighting the risks to price stability. The entirety of CBRT funding has been provided via weekly repo auctions since the Monetary Policy Committee (MPC) meeting of September (Chart 1.1.1). Consequently, the average interest rate at the BIST Interbank Repo market, calculated excluding CBRT transactions, fluctuated around the one-week repo auction rate of 24% (Chart 1.1.2).

Chart 1.1.1: CBRT Funding (2-Week Moving Average, Billion TL)
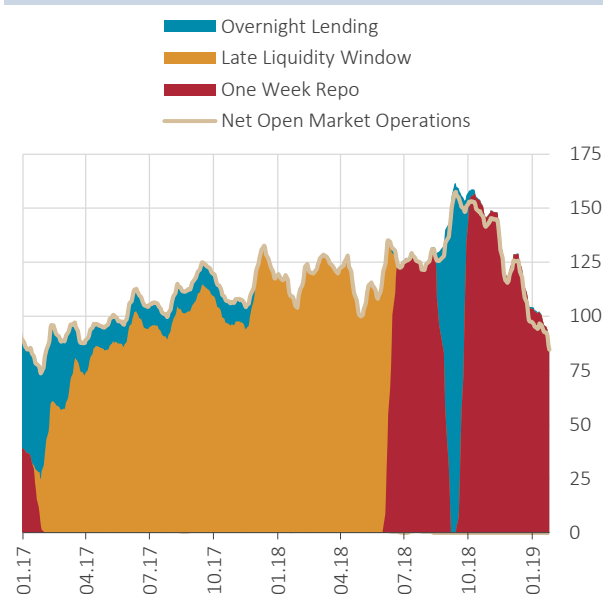
Source: CBRT.

Chart 1.1.2: Short-Term Interest Rates (%)
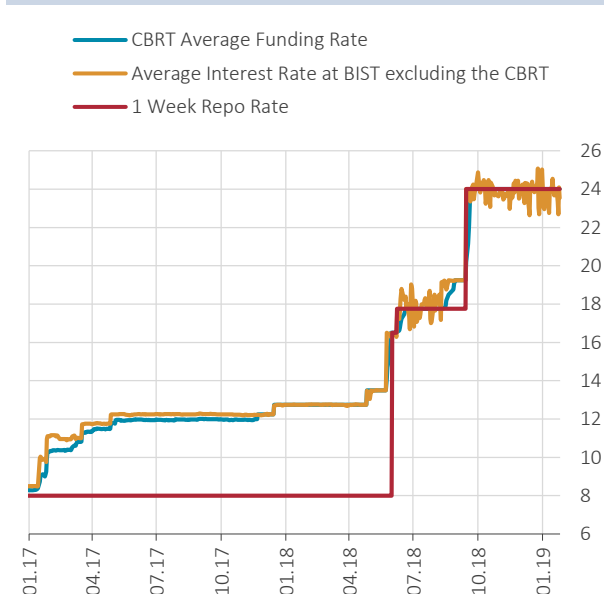
Source: BIST, CBRT.

Due to the strong monetary tightening in September and the decline in the country risk premium, currency swap rates have decreased across all maturities since the previous reporting period. In response to the maintenance of the strong tightening, short-term currency swap yields continued to hover above the yields on long-term currency swaps (Chart 1.1.3). The implied volatility of the Turkish lira has declined (Chart 1.1.4).

Chart 1.1.3: Swap Yield Curve (%)

- 31 October 2018
- 31 Oct-25 Jan Average
- 25 January 2019

Maturity (Month)
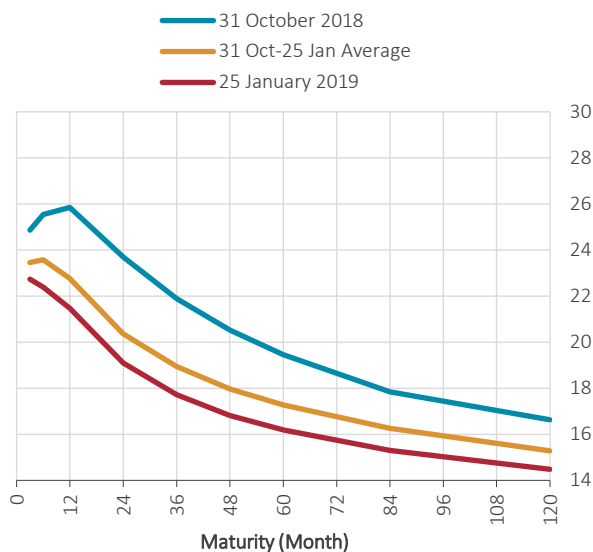
Source: Bloomberg.

Chart 1.1.4: Implied FX Volatility (1-Month Ahead, %)

Turkey

Emerging Economies*

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

The downward trend in credit growth driven by the subdued credit demand due to tightening credit conditions of banks and the slowdown in economic activity in the third quarter of 2018 became more significant in the last quarter (Chart 1.1.5). All financial components of the Financial Conditions Index (FCI) contributed in the tightening direction in the last quarter, yet at a relatively limited rate compared to the previous period (Chart 1.1.6).

Chart 1.1.5: Annual Loan Growth (Adjusted for Exchange Rates, YoY % Change)

- Commercial
- Total
- Consumer
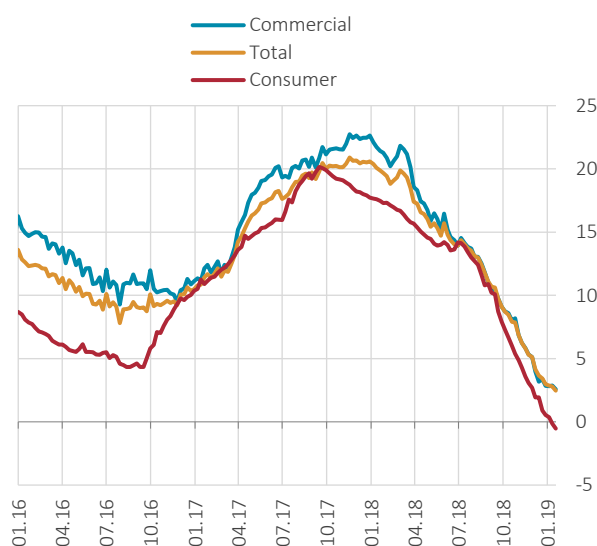
Source: CBRT.

Chart 1.1.6: Contributions to FCI*

- EMBI
- Credit Rate
- Yield Curve Slope
- Exhange Rate
- Benchmark Rate
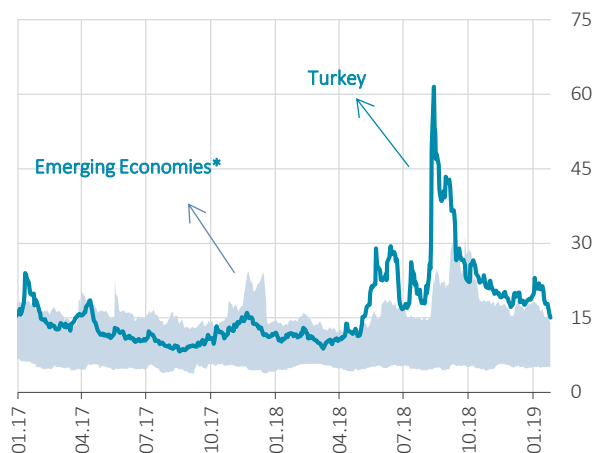- Credit Standards
- Stock Return

1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4
2010 2011 2012 2013 2014 2015 2016 2017 2018
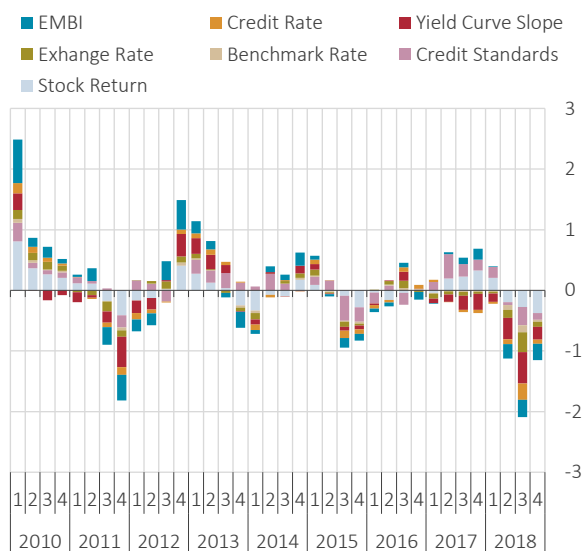
Source: CBRT.
* For further details on measuring the FCI, see the CBRT Working Paper No. 15/13.

1.2 Macroeconomic Developments and Main Assumptions

Inflation

Consumer inflation decreased by 4.2 points from the end of the third quarter to 20.30% in the last quarter of 2018, a level below the October Inflation Report forecast (Chart 1.2.1). A similar pattern was also observed in the forecast for the CPI excluding unprocessed food, energy, alcohol-tobacco and gold (Chart 1.2.2). The fall in inflation was driven by the appreciation in the Turkish lira, the decline in commodity prices, the tax cuts on certain durable consumption goods, and the weak course of demand conditions.

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

Source: 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 * (%)
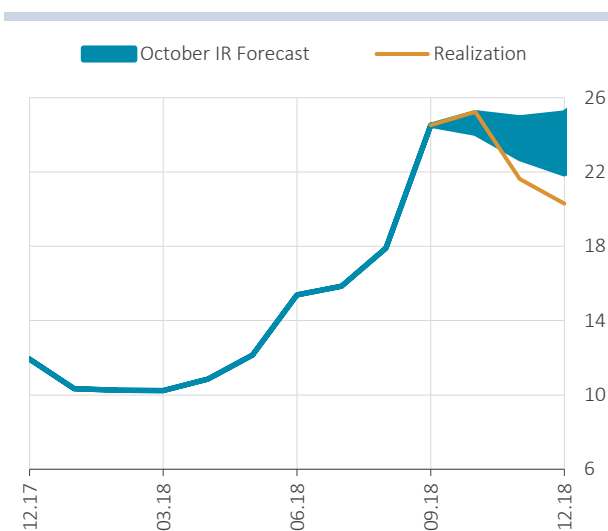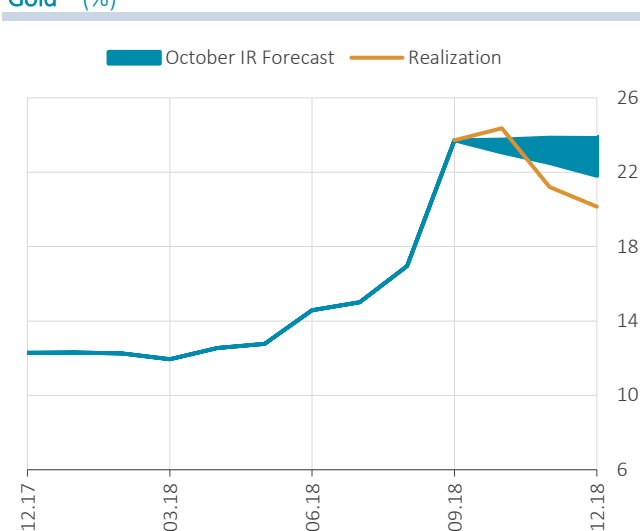

Source: CBRT, TURKSTAT.

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

Core goods and energy were the main drivers of the decline in annual inflation through the final quarter of the year. Both the recovering Turkish lira and the tax cuts on automobiles, furniture and home appliances since November had a significant impact on core goods. The energy group, on the other hand, benefited from lower international oil prices. Annual food inflation remained high. Meanwhile, annual services inflation continued to climb due to the cumulative increase in costs (Chart 1.2.3).

Although PPI inflation fell in the fourth quarter, costs continue to put strong upward pressure on consumer prices. On the other hand, with weak domestic demand remaining a drag on inflation, the pricing behavior has seen some improvement after having deteriorated dramatically in the third quarter. As suggested by diffusion indices, economic agents seem less inclined to hike prices than in the previous quarter and the median inflation rate is back to its second-quarter level (Chart 1.2.4). However, trend and pricing behavior-related indicators are still historically high.

Chart 1.2.3: Prices of Core Goods and Services (Annual % Change)

Core Goods ——— Services
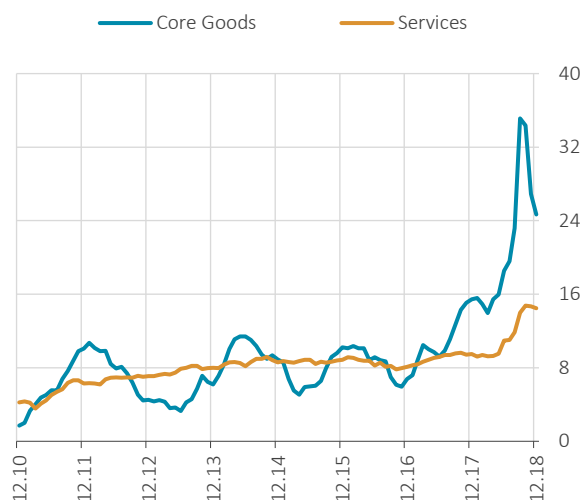
Source: TURKSTAT.

Chart 1.2.4: Diffusion Index and Median Inflation (Seasonally Adjusted 3-Month Average)

——— Median Inflation*
——— CPI Diffusion Index (Left Axis)**
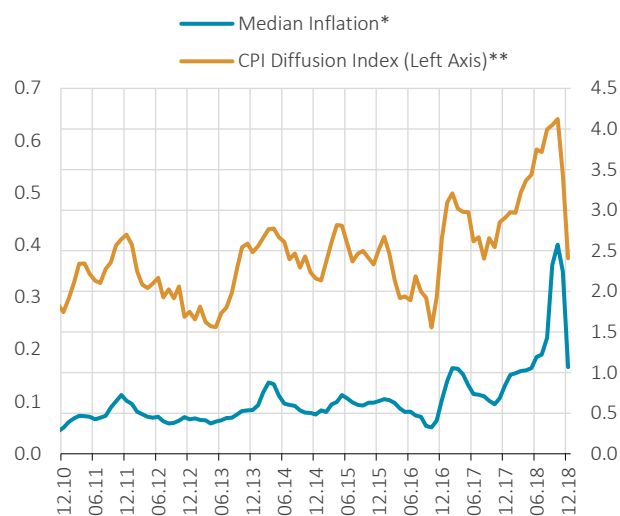
Sources: CBRT, TURKSTAT.

Supply and Demand

Economic activity slowed in the third quarter of 2018 as projected in the October Inflation Report, and the rebalancing process became more significant (Chart 1.2.5). In this period, the gross domestic product (GDP) narrowed by 1.1% quarter-on-quarter but grew by 1.6% year-on-year. The strong third-quarter contribution from net exports limited the negative effects of the domestic-demand-contraction on growth (Chart 1.2.6). This was largely due to the robust, tourism-led exports of goods and services as well as the declining import demand caused by the exchange rate developments and lower domestic demand.

Chart 1.2.5: GDP and Domestic Demand (Real, Seasonally Adjusted, 2009=100)

——— GDP ——— Final Domestic Demand
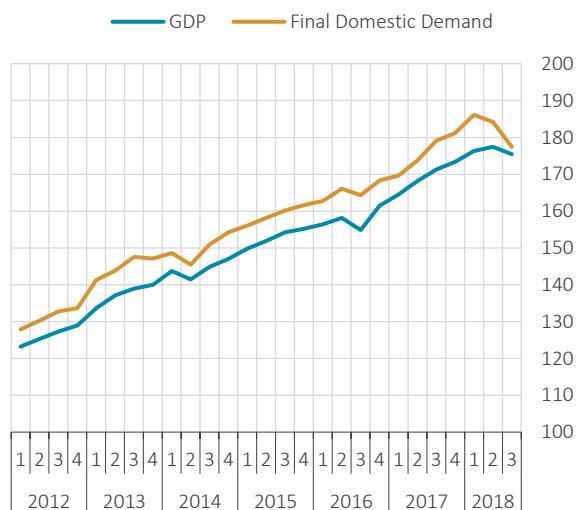
Sources: CBRT, TURKSTAT.

Chart 1.2.6: Contributions to Annual GDP Growth by Expenditure (% Points)

Net Exports ▬ Other
Final Domestic Demand ▬ GDP
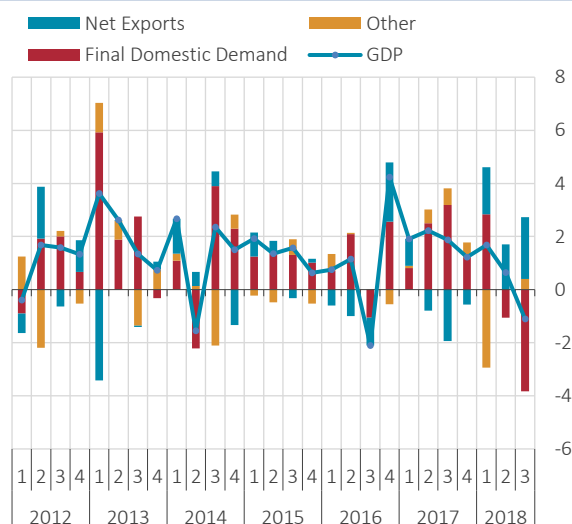
Sources: CBRT, TURKSTAT.

* Other includes changes in inventories and statistical discrepancy due to the use of chain-linked index.

Demand composition saw a more marked rebalancing in the fourth quarter of 2018. Tax incentives available for durable goods since November and other measures somewhat mitigated the decline in domestic demand. However, the partial recovery of the private consumption demand was largely met by drawing down inventories, thus limiting the effect on production.

In the fourth quarter, net exports continued to make a large contribution to growth. Despite signs of slowing global growth, external demand remains robust. Firms' orientation towards external markets amid sluggish domestic demand and the cumulative real exchange rate depreciation, and their flexibility in market diversification continue to stimulate exports of goods. In addition, while the course of revenues from tourism and other services remained favorable, import demand continued to shrink due to weak domestic demand and the depreciation of the Turkish lira. Hence, the current account balance improved rapidly in the last quarter (Chart 1.2.7). Meanwhile, the slowdown in the economic activity affected the labor market (Chart 1.2.8).

In sum, the economic rebalancing that started in the second quarter continued into the third quarter and became more significant in the fourth quarter. While financial conditions are expected to support a mild recovery of the domestic demand amid the improving inflation outlook and the declining country risk premium, the contribution of net exports to growth is expected to continue as well in 2019.

Chart 1.2.7: Current Account Balance (CAB) (Seasonally Adjusted, 3-Month Moving Average, Annualized, Billion USD)
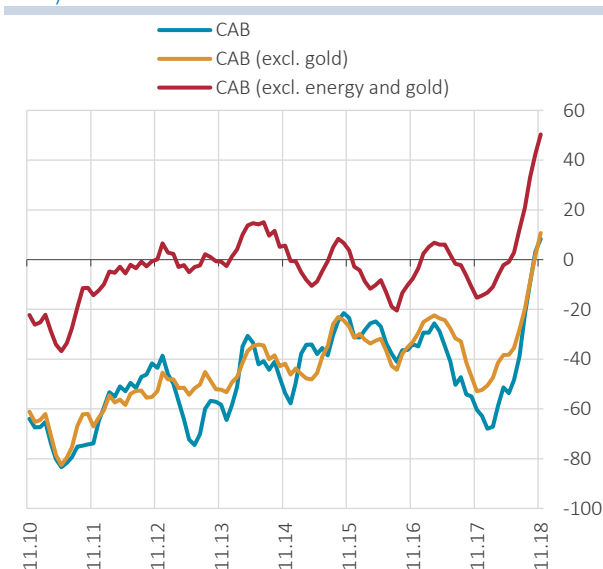
Source: CBRT.

Chart 1.2.8: Unemployment Rates (Seasonally Adjusted, %)
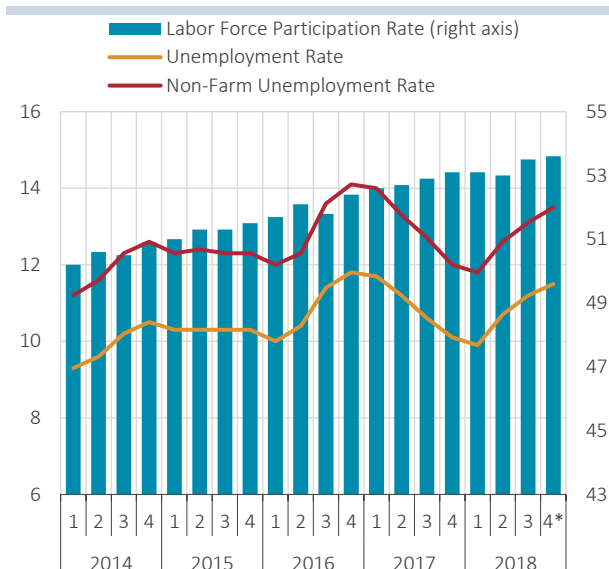
Source: TURKSTAT.
* October period.

Oil, Import and Food Prices

The downtrend in crude oil prices accelerated in recent months. Thus, actual prices were lower than the assumptions made in the October Inflation Report. Given the recent fall in crude oil prices on spot and futures markets and assessments of future crude oil prices, the October assumption of 80 USD/bbl is revised down to 63 USD/bbl for 2019 (Chart 1.2.9). The assumption for the average annual increase in USD-denominated import prices for 2019 is also revised downward, albeit by a much smaller margin than the oil price assumption (Chart 1.2.10).

Despite ending the fourth quarter of 2018 below the October forecast, unprocessed food inflation remained high at 27.1%. The year-end food inflation forecasts are kept unchanged at 13% and 10% for 2019 and 2020, respectively.

Chart 1.2.9: Revisions to Oil Price Assumptions (USD/bbl)
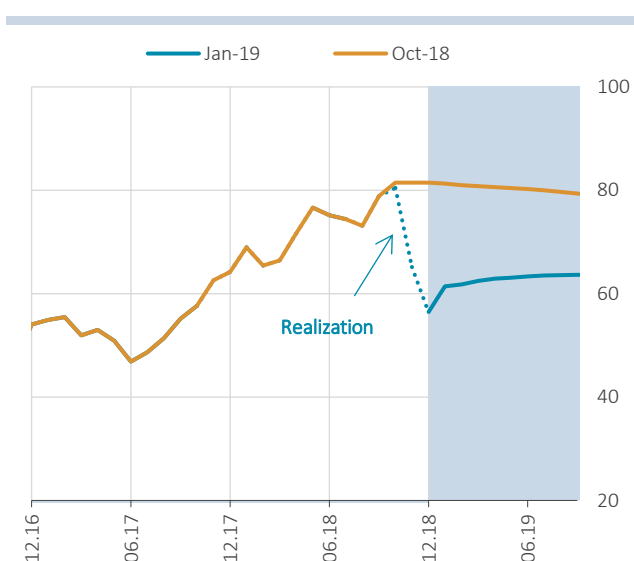
Sources: Bloomberg, CBRT.
Shaded area denotes the forecast period.

Chart 1.2.10: Revisions to Import Price Assumptions (Index, 2010=100)
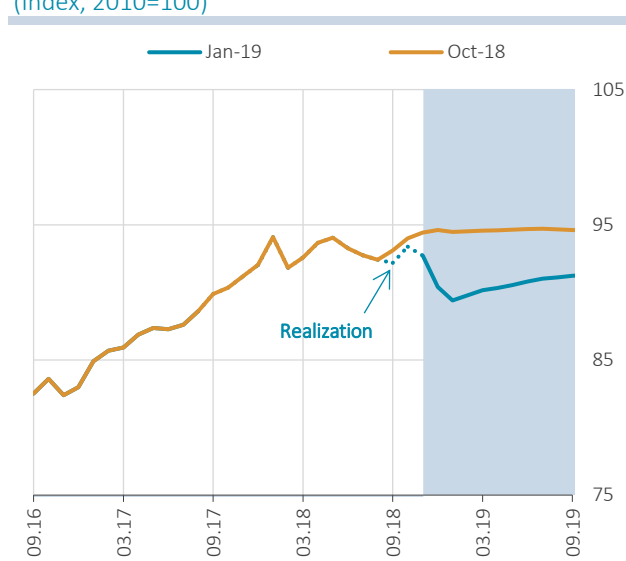
Sources: Bloomberg, CBRT.
Shaded area denotes the forecast period.

Fiscal Policy and Tax Adjustments

Fiscal policy contributed to the rebalancing process in economic activity in the fourth quarter, in line with the forecasts of the October Inflation Report. The early-January electricity and natural gas tariff cuts, as well as the lessened need to make upward revisions to energy prices thanks to the stable exchange rates and lower oil prices, prompted a substantial downward revision to the energy inflation assumption for 2019 compared to the previous reporting period. The SCT change for tobacco products increased the tobacco-driven upside risks to inflation. Medium-term projections are based on an outlook where macroeconomic policies are determined with a medium-term perspective and in a coordinated manner with a focus on bringing inflation down. In this context, the current projections are based on the assumption that fiscal policy will remain supportive of economic rebalancing in 2019 and that the administered prices will be set to support disinflation.[1] The strong policy coordination to lower inflation and achieve macroeconomic rebalancing is envisaged to gradually improve the risk premium and reduce the perception of uncertainty.

1.3 Inflation and the Monetary Policy Outlook

Under a tight policy stance and enhanced policy coordination focused on bringing inflation down, inflation is projected to converge gradually to the target. Accordingly, inflation is projected to be 14.6% at the end of 2019 and then fall to 8.2% at the end of 2020 and 5.4% at the end of 2021, before stabilizing around 5% over the medium term. Thus, with a 70% probability, inflation is expected to be between 11.9% and 17.3% (with a mid-point of 14.6%) at end-2019 and between 5.1% and 11.3% (with a mid-point of 8.2%) at end-2020 (Chart 1.3.1).

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[1] Box 7.2 presents a theoretical perspective on the role of fiscal policy in lowering the output gap and inflation volatility.

Chart 1.3.1: Inflation and Output Gap Forecasts*
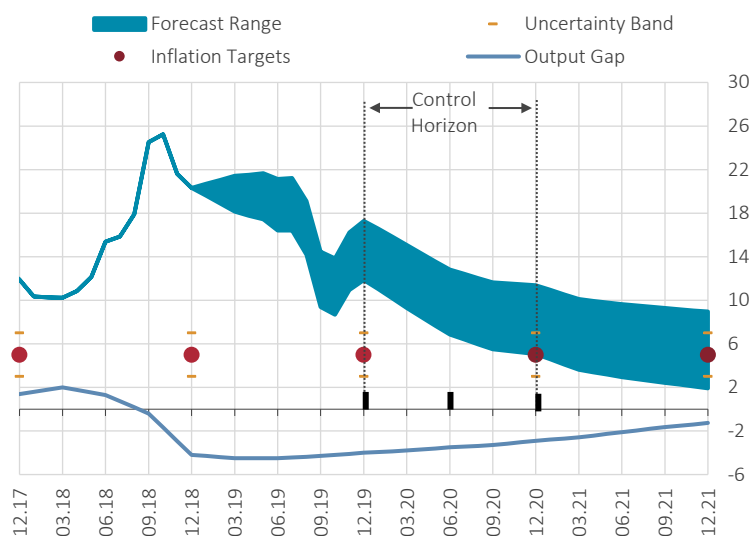
Source: CBRT, TURKSTAT.
* Shaded area denotes the 70% confidence interval for the forecast.

After the October Inflation Report, import prices in Turkish liras decreased on the back of the appreciation of the Turkish lira and the drop in crude oil prices, and the underlying trend of inflation decelerated owing to tax cuts in some goods and the subdued domestic demand. The increased contribution from demand conditions to disinflation, the deceleration in the underlying trend of inflation as well as the significant decrease in oil and import prices assumptions together played an important role in the downward revision in inflation forecasts for 2019.

The inflation forecast for end-2019 has been revised downwards to 14.6% from 15.2%. The decline in the assumption for import prices in terms of Turkish liras had a decreasing impact of 0.5 points on the end-year inflation forecast. The 3.2-point-lower consumer inflation realization in the final quarter of 2018 than previously forecast in the October Inflation Report and the decline in the underlying trend of inflation excluding the tax-cut effect reduced the end-2019 inflation forecast by 0.4 points. Moreover, the revision in the assumptions for the tax adjustments and administered prices had an upward effect of 0.2 points on the year-end inflation forecast. The output gap, which is expected to make a greater contribution to disinflation in the upcoming period, was forecasted to have a 0.3-point downward impact on the inflation forecast for end-2019. Nevertheless, unit labor costs are expected to exert an upward impact of 0.4 points to end-year inflation forecast. Consequently, the end-2019 inflation forecast has been revised downwards by 0.6 points compared to the October Inflation Report.

Meanwhile, the inflation forecast for 2020 has been decreased to 8.2% from 9.3%. Of the 1.1-point revision in the inflation forecast compared to the previous report period, 0.4 points came from the downward revision in the 2019 inflation forecast and the expected improvement in the underlying trend of inflation. Demand conditions, which from the second quarter of 2019 onwards are expected to be weaker compared to the October Report, are likely to be disinflationary throughout 2020. Accordingly, the revision in output gap forecasts brings down end-2020 inflation forecast by 0.4 points compared to the previous report period. Assuming that oil prices will continue to decrease and the appreciation in Turkish lira will continue, import prices in terms of Turkish liras are estimated to draw down the end-2020 inflation forecast by 0.3 points.

The above-mentioned forecasts are based on a framework in which there would be no additional deterioration in the global risk appetite and the recent recovery in the country risk premium would continue moderately. Projections rely on an outlook in which decisive implementation of a tight monetary

policy stance would continue, and the monetary policy will focus on bringing down inflation to single digit figures in the second quarter of 2020 and ultimately to the 5% target. The tight monetary policy stance coupled with the rebalancing process expected to continue in the current account deficit would contribute to the improvement in the country risk premium, thereby containing exchange rate volatility.

Accordingly, the determinants of the fall in inflation in 2019 are judged to be the moderation of cost pressures driven by a modest appreciation trend in the real exchange rate and the expected slowdown in domestic demand. Under a tight monetary policy stance and strengthened policy coordination, it is forecasted that consumer inflation will come down to single-digit figures in the second quarter of 2020 and come closer to the 5% target by the end of 2021 (Chart 1.3.1). Breaking the backward-indexation behavior with the support of the stable course of exchange rates and strengthened macro-policy coordination targeting disinflation, and pulling medium-term inflation expectations to levels consistent with forecasts and targets are crucial for the success of the disinflation efforts.

1.4 Key Risks to Inflation Forecasts and the Likely Monetary Policy Response

The outlook underlying the medium-term projections presented in the Inflation Report is based on the Monetary Policy Committee's judgments and assumptions. Nevertheless, various risks to these factors may affect the inflation outlook and necessitate changes in the monetary policy stance envisaged in the baseline scenario.

The major macroeconomic risks that have the potential to change the outlook of the baseline scenario are as follows:[2]

- Uncertainties over pricing behavior and rigidity in expectations;
- Risks to the coordination between monetary and fiscal policies (administered prices, tax adjustments);
- Uncertainties pertaining to backward-indexation behavior;
- Possible volatility in food prices;
- The course of capital flows towards emerging market economies;
- Supply-side tightening in bank loans;
- Volatility in international crude oil prices.

Recently released data show that the real adjustment in economic activity continues and rebalancing has become more noticeable. The impact of weak demand conditions on inflation has become stronger and is likely to support disinflation throughout 2019; nevertheless, several factors such as the elevated level of inflation expectations, volatility in exchange rates and deferred cost pressures keep upside risks to the inflation outlook in place.

The recent fall in inflation is attributed to the weakened aggregate demand and tightened monetary policy as well as the tax cuts of the last quarter of 2018 that are projected to expire in the first quarter of 2019 and some transitory factors that appeared in the short term. The outlook for the short-term inflation path to emerge while these temporary effects are taken back will be largely dependent on the firms' pricing behavior.

The impact of the surge in inflation on wage increases in 2019 remains as a risk factor for the medium-term inflation outlook. Wage increases in 2019 may push inflation up through the aggregate demand channel. However, it is projected that further state subsidies to employers would limit potential cost pressures to some extent. Despite the alleviating effect of the slowdown in economic activity and weak

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[2] Evaluations of how and through which channel these risks will affect inflation forecasts are summarized in Table 7.3.1.

employment opportunities on wages other than the minimum wage, the strong backward-indexation behavior in wages may slow the decline in inflation.

Elevated levels of inflation and inflation expectations remain as risk factors to the inflation outlook through the pricing behavior channel. Economic agents have not yet fully attributed the recent improvement in inflation to the medium-term trend of inflation.[3] These developments in expectations sustain the upside risks to the inflation outlook through the channels of wage adjustments and the pricing behavior.

In addition to the support that the macroeconomic rebalancing process offers to inflation, a decline in the indexation to past inflation in administered pries, taxes and wage adjustments that would weaken the backward-indexation mechanisms by anchoring expectations is significant to achieving a permanent fall in inflation.

Due to the persisting risks to price stability despite the partial improvement in recent months, the CBRT decided to maintain the tight monetary policy stance until the inflation outlook records a significant improvement. The essential element to shape the monetary policy decisions in the short term will be a trend of decline in inflation that can be considered as permanent.

There are also risks stemming from global monetary policies and risk appetite developments that may reduce capital flows towards emerging economies and feed into exchange rate volatility. In the last quarter of 2018, expectations became stronger that the subdued global growth and increased uncertainties regarding the global economy may lead to a normalization path in monetary policies of advanced economies that implies less tight policy stances compared to the previous period. This indicates that portfolio flows towards emerging economies may follow a more favorable course in 2019. However, blurred global economic policies, high volatility in financial markets of advanced economies, and persisting geopolitical problems keep downside risk to portfolio flows to emerging economies brisk.

In the case of excessive market volatility due to fluctuations in global liquidity conditions and the risk sentiment, the CBRT may use liquidity measures intended for providing the market with the needed FX liquidity in a timely, controlled and effective manner. In addition, it may introduce additional tightening in monetary policy to contain the impact of these risks on inflation and inflation expectations.

Following a significantly stronger tightening than historical averages due to increased risk premiums in the third quarter of the year, credit conditions have registered a gradual easing since October. The rate and extent of this normalization are important to the prospects for economic activity. As cash flows and balance sheets of firms have been adversely affected by the increase in exchange rates and loan rates as well as the slowdown in economic activity, conducting the necessary assessments and analyses related to the asset quality of firms will have a role in shaping the credit market. Therefore, establishing coordination between the financial sector policies that restrict the balance sheet effects of the corporate sector and the monetary policy that focuses on inflation are crucial to prevent financial conditions from being caught in an inefficient tightening cycle.

The recent deceleration in economic activity driven by domestic demand indicates the presence of downside risks to inflation as well. Recently-mounting uncertainties over monetary policies of advanced economies and the prospects for global economic activity pose a downside risks to growth through the capital flows and foreign trade channels.

A weaker coordination between the monetary policy and the fiscal policy than envisaged in the baseline scenario is regarded as a risk with respect to disinflation and macroeconomic rebalancing. The fiscal policy outlook, on which the medium-term projections in the Inflation Report are based, incorporates a policy stance that focuses on disinflation and macroeconomic rebalancing and is coordinated with the

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[3] Developments in indicators of perceived inflation uncertainty are analyzed in Box 3.1.

monetary policy in line with the New Economy Program announced in September. Accordingly, the projections rest on an outlook where the fiscal policy implements a tight fiscal discipline, as envisaged in the New Economy Program. Moreover, it is assumed that administered prices and tax adjustments will be formulated in a way that will help reduce the backward-indexation behavior. If the fiscal policy significantly deviates from this framework leading to an adverse impact on the medium-term inflation outlook, the monetary policy stance may be revised.

The course of prices of crude oil and other commodities also constitute risks to inflation in the upcoming period. Although crude oil prices have recently plunged, the sustained sharp uptrend in the US shale oil production coupled with projections for muted global economic activity pose a downside risk to crude oil prices. Meanwhile, geopolitical developments as well as the persisting volatility in global financial markets is an upside risk factor for crude oil prices. On the other hand, increased protectionism in global trade stands out as a downward risk factor for commodity prices due to its possible adverse effect on global growth. If the trade negotiations between the US and China yield a positive outcome in the upcoming period, crude oil, some industrial metals and agricultural prices may register an upside movement due to the increased demand from China. Accordingly, the monetary policy response will be determined in such a way to curb a possible deterioration in inflation expectations and pricing behavior, taking into account the direct and secondary effects of respective risks on inflation.

2. International Economic Developments

The global economic slowdown of the second quarter of 2018 continued into the third quarter. This downturn was driven by the simultaneous slackening of momentum across advanced and emerging economies. Slowing Euro Area and Japanese growth dragged down growth rates on the advanced economies front, despite buoyant US and UK economies. In particular, the ongoing slowdown in Euro Area growth has become quite evident. On the emerging economies front, growth rates were down across Asia and Eastern Europe. Rising protectionism heightened the uncertainty surrounding global economic policies and increased the downside risks to the global growth outlook for the upcoming period. Thus, after weakening through the second half of 2018, the global economy is likely to remain sluggish in 2019.

In the final quarter of 2018, commodity prices were largely affected by the US policy actions. Industrial metal prices continued to decline as the assumption that the US barriers to foreign trade would dampen demand passed through into prices. Meanwhile, headline inflation was down in advanced and emerging economies due to falling crude oil prices. The ongoing US shale oil boom and expectations of sluggish economic activity across the globe pose downside risks to crude oil prices, whereas geopolitical tensions and volatile international financial markets pose upside risks to crude oil prices.

The gradual monetary tightening by major central banks continued into the fourth quarter of 2018. The Fed ended the year with four rate hikes as expected, while the ECB announced the end of its asset purchase program in December. In this period, the sluggish global growth and the increased uncertainty over the global economy led to the expectation that the pace of policy normalization in advanced economies might decelerate, causing sovereign bond yields to decline. As many believe that advanced economies are poised for a less tight path of monetary policy normalization than in the previous period, portfolio flows to emerging economies may rebound in 2019. In fact, portfolio flows to emerging economies have been stable since September while both equity and bond markets have seen recovery since early January. However, it should be noted that the uncertainty over global economic policies, the high volatility in financial markets in advanced economies and ongoing geopolitical tensions can reverse this prediction.

Historically low unemployment rates, on-target inflation rates, financial risks caused by low interest rates and the desire to create more room for policy maneuver prompt central banks across advanced economies to normalize their policies. Nevertheless, the mounting uncertainty over the global growth outlook, the global financial market fluctuation and the volatile growth despite long-standing quantitative easing programs in advanced economies make it difficult for central banks to make policy decisions. Accordingly, a slower process of policy normalization in advanced economies is expected to bring country risks down for emerging economies. However, as this loss of momentum is caused by financial volatility and has adverse effects on the risk appetite, emerging market central banks may also find little room to take any action. Therefore, to reduce vulnerabilities, it is important that macroeconomic policies be implemented not only effectively and in a coordinated manner but also be supported by structural reforms and appropriate trade policies.

2.1 Global Growth

Global economic activity continued to lose momentum in the third quarter. This deceleration was driven by the subdued pace of growth across both advanced and emerging economies, with global growth posting a quarter-on-quarter drop in the third quarter of 2018 (Chart 2.1.1). Despite an upbeat growth outlook for the US and the UK, slowing Euro Area and Japanese growth put downward pressure on the growth rate of advanced economies. The slowdown was particularly marked in the Euro Area. Meanwhile, emerging economies grew at a slower pace compared to the previous quarter (Chart 2.1.1). By region, the pace of growth was down for Asia and Eastern Europe but slightly up for Latin America (Chart 2.1.2).
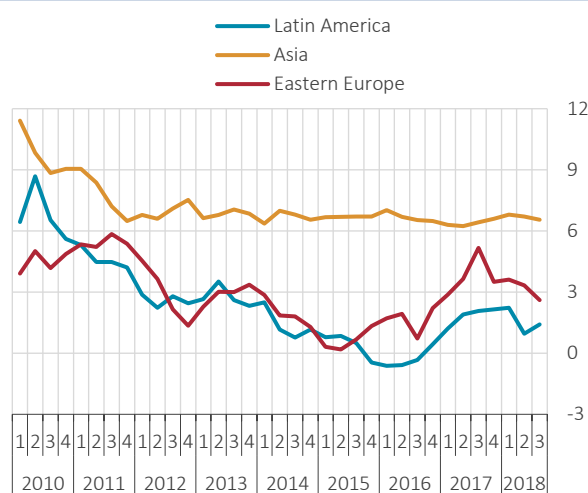
Chart 2.1.1: Global Growth Rates* (YoY % Change)

Chart 2.1.2: Regional Growth Rates for Emerging Economies* (YoY % Change)
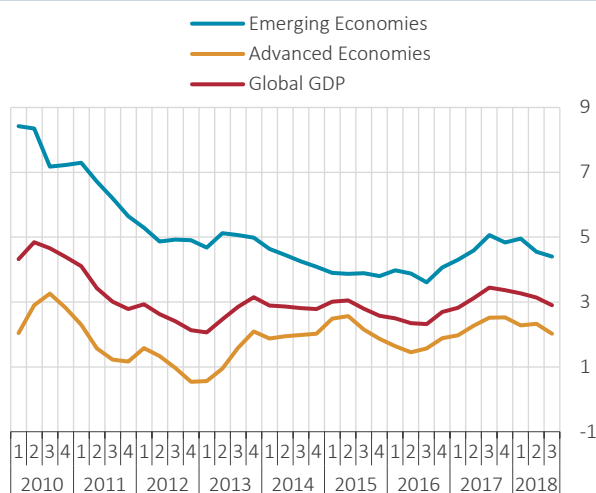
Sources: Bloomberg, CBRT.
* Weighted by each country's share in global GDP.


Sources: Bloomberg, CBRT.
* Weighted by each country's share in regional GDP.

Global PMI data for the last quarter of 2018 indicate a more negative growth outlook, particularly for the manufacturing industry, compared to previous periods (Chart 2.1.3). In this period, US and Euro Area manufacturing PMI declined significantly (Chart 2.1.4), which shows that both economies grew at a slower rate in the fourth quarter than in the previous quarter. In addition, the year-on-year contraction of 1.7% in industrial production in November implies a sharper slowdown in Euro Area growth during the last quarter. On the other hand, Japan's manufacturing PMI remained virtually unchanged from the previous quarter. However, the annual growth rate of industrial production was significantly down as of November while unemployment was slightly higher. Therefore, the Japanese economy is expected to deliver a weaker growth performance in the fourth quarter compared to the previous quarter. In sum, in the final quarter of 2018, growth is predicted to have continued to lose momentum across advanced economies, largely due to the slowing Euro Area economy, and fallen below the quarter-ago level.

Emerging market(EM) PMI shows a fall in manufacturing industry for the fourth quarter, and signals that the outlook for services is no longer upbeat as in the previous quarter (Chart 2.1.5). EM bond markets saw further outflows amid volatile financial markets and a worsening risk appetite driven by the monetary policy normalization in advanced economies. Meanwhile, concerns over heightened US foreign trade barriers, Middle East-led geopolitical risks and fluctuating oil prices added to the uncertainty. In short, leading data and indicators suggest that emerging economies recorded slowing economic activity for the third consecutive quarter in the last quarter of 2018.
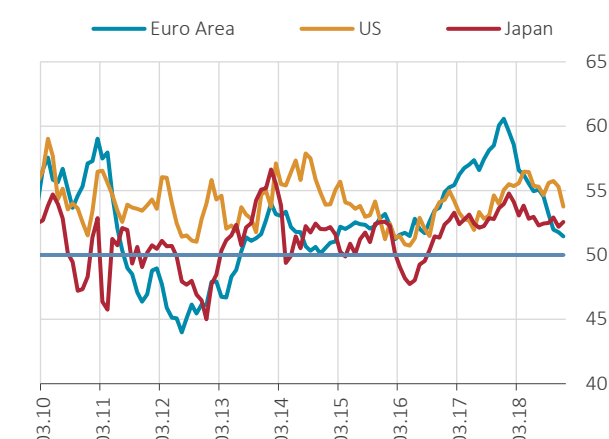
**Chart 2.1.3: Global PMI**
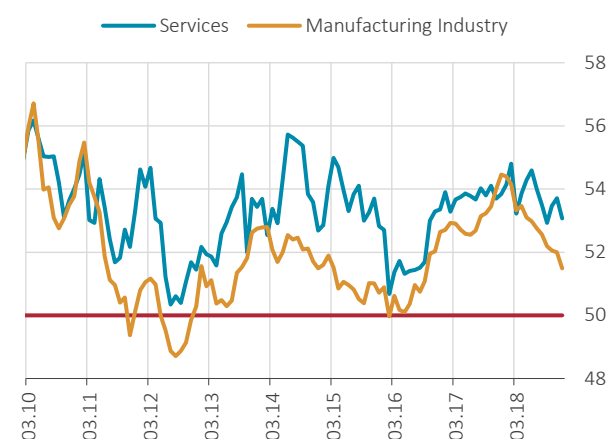
Source: IHS Markit.

Chart 2.1.4: Manufacturing Industry PMI in Advanced Economies


Source: IHS Markit.

All in all, the global economy is expected to slow further in the fourth quarter of 2018 due to both advanced and emerging economies, depicting roughly the same pace of the previous quarter. This is backed by the global growth forecast for 2018 that was left unchanged from the previous reporting period in January's Consensus Forecasts (Table 2.1.1).

Chart 2.1.5: Emerging Markets PMI
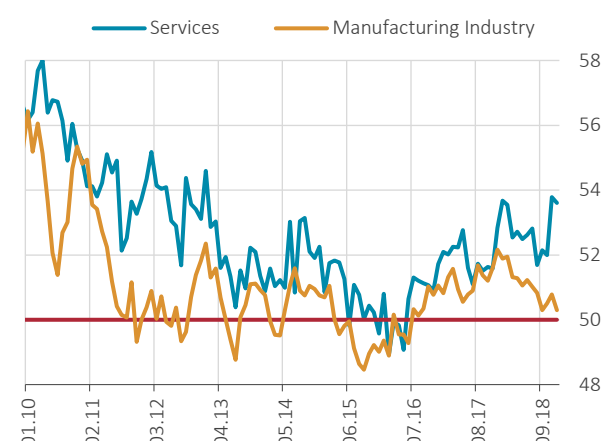
Source: IHS Markit.

Chart 2.1.6: Export-Weighted Global Production Index*
(Annual Average % Change)
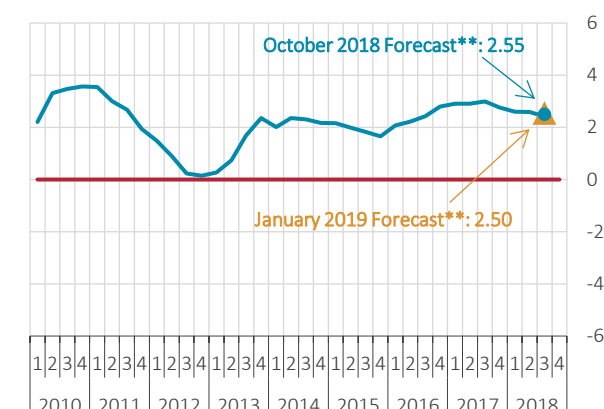
Sources: Bloomberg, CBRT.
* Weighted by each country's share in Turkey's exports.
** Average growth forecast for 2018.

Among advanced economies, Consensus growth forecasts for 2018 were revised downward only for the Euro Area and Japan in January. On the emerging economies front, the end-2018 growth forecast was revised down for Asia but kept unchanged for Latin America and Eastern Europe (Table 2.1.1). Thus, the annual growth rate of the export-weighted global production index went slightly down compared to the October reporting period (Chart 2.1.6). This deceleration was primarily due to the downward revision to the year-end growth forecast for the Euro Area. Against this background, it is possible to say that Turkey's external demand outlook remained solid despite some weakening compared to the previous reporting period. On the other hand, the global growth forecast for 2019 issued in January's Consensus Forecasts was 0.2 points lower than in the previous reporting period. Growth forecasts for 2019 were revised down for the US, Euro Area and Japan on the advanced economies side; and Asia, Latin America and Eastern Europe on the emerging economies side. This shows that the global economic downturn of the second half of 2018 will likely continue into 2019.

Table 2.1.1: Growth Forecasts for 2018 and 2019 (Annual Average % Change)

	October		January	
	2018	2019	2018	2019
Global	3.2	3.1	3.2	2.9
Advanced Economies				
US	2.9	2.6	2.9	2.5
Euro Area	2.0	1.8	1.9	1.5
Germany	1.9	1.7	1.5	1.4
France	1.6	1.6	1.5	1.5
Italy	1.1	1.1	0.9	0.5
Spain	2.7	2.2	2.5	2.2
Japan	1.1	1.2	0.8	1.0
UK	1.3	1.5	1.4	1.5
Emerging Economies				
Asia Pacific	5.9	5.6	5.8	5.5
China	6.6	6.3	6.6	6.2
India	7.4	7.5	7.3	7.3
Latin America	1.4	2.1	1.4	1.9
Brazil	1.3	2.4	1.3	2.4
Eastern Europe	3.1	2.2	3.1	2.1
Russia	1.8	1.6	1.7	1.5

Source: Consensus Forecasts.

2.2 Commodity Prices and Global Inflation

The upsurge in the headline commodity price index reversed in the second half of 2018 and the index recorded a quarterly drop of 6% in the fourth quarter. The main driver of the decline was the weakening uptrend in energy prices. Accordingly, in the final quarter, energy and industrial metal prices fell by 9.7% and 2.5% quarter-on-quarter, respectively, while agricultural and precious metal prices rose by 1.6% and 0.8% quarter-on-quarter, respectively (Chart 2.2.1).

US trade and foreign policies continued to dominate commodity prices in the fourth quarter of 2018. The pass-through of the assumption that the US barriers to international trade would dampen demand and the US-China trade dispute that feeds into the environment of uncertainty caused industrial metal prices to remain on the decline in this period. The trade barriers that the US imposed on China also put pressure on agricultural prices throughout the year as China ranks first in worldwide agricultural output.
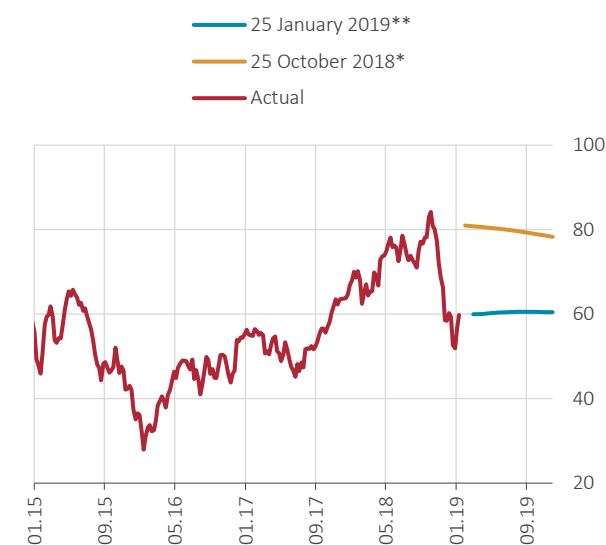
Crude oil prices were on a downward trend. Despite OPEC's larger-than-expected output cut in December, oil prices collapsed further due to booming US production and OPEC members refusing to commit to previous production quotas.

Chart 2.2.1: S&P Goldman Sachs Commodity Index (January 2014=100)
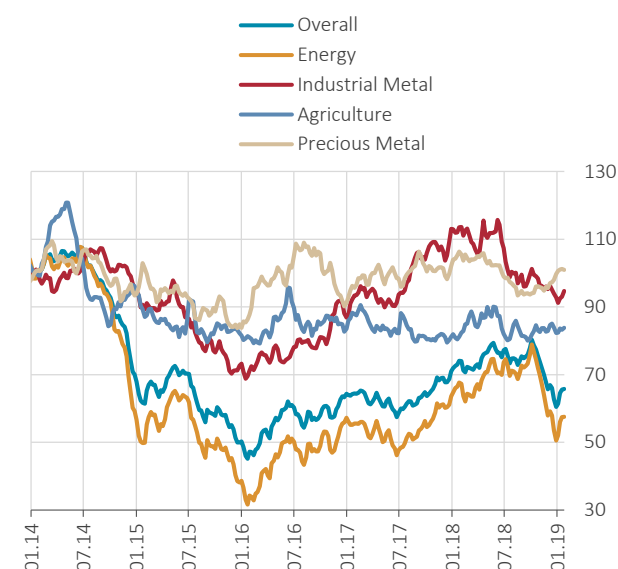
Source: Bloomberg.

Chart 2.2.2: Brent Crude Oil Prices (USD/bbl)

Source: Bloomberg.
*The arithmetic average of price quotations on futures contracts between 1-25 October 2018.
**The arithmetic average of price quotations on futures contracts between 1-25 January 2019.

If US-China trade talks prove successful in the upcoming period, the uncertainty-driven slide in industrial metal prices might reverse and supply-side price pressures might become evident, particularly on aluminum and copper. Similarly, amid waning international trade tensions, agricultural prices may increase due to a China-led demand growth. In the event of ongoing uncertainty over global economic policies and a slower-than-expected monetary policy normalization across the world, gold prices may move higher.

Crude oil prices have been more volatile recently. Imminent upside risks to crude oil prices include: ongoing uncertainty and volatility in global financial markets, OPEC and Russia's commitment to agreed production quotas, and the success of US-China trade talks. On the other hand, the US shale oil boom and prospects of slowing global growth pose downside risks to crude oil prices. Thus, as suggested by the Brent crude oil futures contracts, crude oil prices are expected to average around USD 60 in 2019 (Chart 2.2.2).

In the fourth quarter of 2018, headline inflation was down in both advanced and emerging economies due to falling crude oil prices (Chart 2.2.3). In this period, core inflation inched up in advanced economies but fell across emerging economies (Chart 2.2.4). Inflation forecasts for 2019 have been revised downwards for advanced economies in the inter-reporting period (Table 2.2.1).

Although unemployment fell to a record low, wage growth is still sluggish in the US. Moreover, survey and market-based inflation expectations hover around the 2-percent inflation target. Meanwhile, lower crude oil prices caused headline inflation to be slightly down compared to the recent past. In the Euro Area, headline consumer inflation will likely converge to 2% due to the tightening labor market and rising wages in the 2019-2021 period. With inflation below 1% and inflation expectations largely unchanged, Japan might see its headline inflation rise modestly up to 2% in the medium term as long as the output gap remains positive and medium to long-term inflation expectations increase. On the other hand, the British pound that had been responding to any Brexit news and the wage growth that accelerated amid a tight labor market put upward pressures on UK headline inflation, which, however, was dragged below the 2-percent target by falling crude oil prices.

Chart 2.2.3: CPI Inflation in Advanced and Emerging Economies (YoY, %)
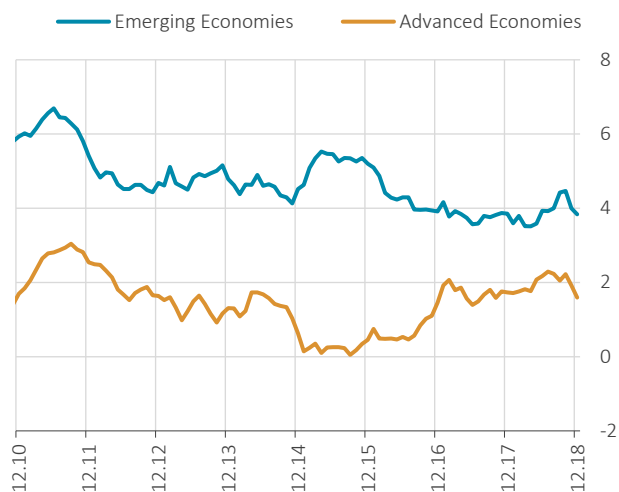
Sources: Bloomberg, CBRT.

Chart 2.2.4: Core Inflation in Advanced and Emerging Economies (YoY, %)
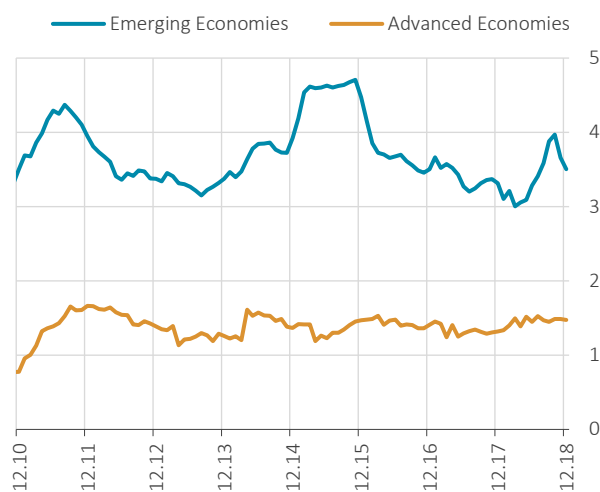
Sources: Bloomberg, Datastream, CBRT.

Given the monetary policy normalization in advanced economies, the upside risks to global headline inflation for the period ahead are the increased volatility in international financial markets affecting emerging market currencies through portfolio flows, and crude oil prices driven higher by US economic policies and geopolitical developments. In addition, the possible implications of tight labor markets for wage growth can be flagged as an upside risk to core inflation rates across advanced economies. Downside risks to global headline inflation may include the subdued global growth outlook caused by protectionist trade measures and thus the eased labor market pressures from advanced economies.

Table 2.2.1: Inflation Forecasts for 2018 and 2019 (Annual Average % Change)

	October	January
	2019	2019
Advanced Economies		
US	2.3	1.9
Euro Area	1.7	1.5
Germany	1.9	1.8
France	1.6	1.3
Italy	1.4	1.1
Spain	1.6	1.4
Greece*	1.1	0.9
UK	2.2	2.0
Japan	1.1	0.9
Emerging Economies		
Asia Pacific (excl. Japan)	2.6	2.4
China	2.3	2.2
India**	4.9	4.5
Latin America (excl. Venezuela)	6.9	7.1
Brazil*	4.2	4.1
Eastern Europe	7.0	6.7
Russia*	4.5	4.7

Source: Consensus Forecasts.
* Annual percentage change.
** Based on fiscal year.

2.3 Global Monetary Policy

The sluggish global growth and the increased global economic uncertainty of the last quarter of 2018 sparked concerns that the ongoing policy normalization in advanced economies might lose pace as well. With gradual tightening ongoing, surveys point to an uptick in median expectations for policy rates in both advanced and emerging economies for 2019 and 2020 (Charts 2.3.1 and 2.3.2). Nevertheless, the projected paths of policy rates of four major central banks, the Fed in particular, are significantly revised downwards. Current market pricing also implies a lower policy rate hike for 2019 by these banks compared to the previous reporting period (Table 2.3.1).

The Fed made its fourth rate hike of 2018 while the ECB concluded its bond purchases as previously announced in December. However, the weakening growth momentum in the Euro Area pushed back prospects of an ECB rate hike. The mounting Brexit uncertainty causes the Bank of England to tone down its policy response to rising inflation. Central banks of other advanced economies continue with gradual rate hikes but the Fed's much tighter stance among the four major central banks sends the US dollar soaring and puts downward pressure on the US growth outlook.
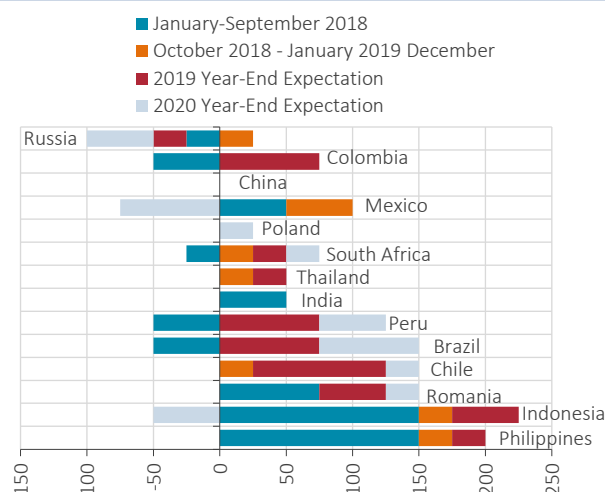
Chart 2.3.1: Policy Rate Changes and Year-End Policy Rate Expectations in Advanced Economies (January 2017 – December 2020* Basis Points)

■ January-September 2018
■ October 2018 - January 2019 December
■ 2019 Year-End Expectation
■ 2020 Year-End Expectation
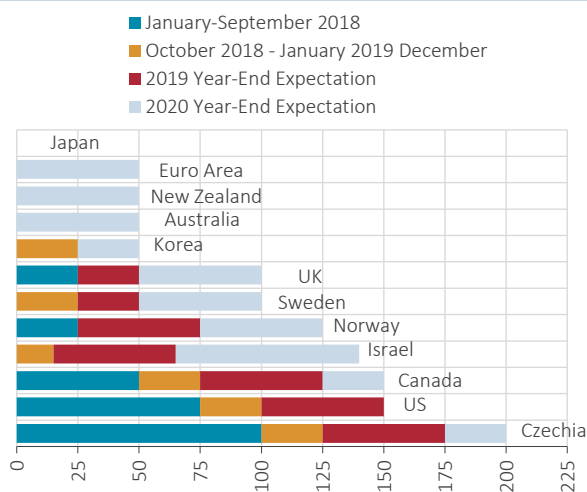
Source: Bloomberg.
* Actual figures on 28 January 2019.

Chart 2.3.2: Policy Rate Changes and Year-End Policy Rate Expectations in Emerging Economies (January 2017 – December 2020* Basis Points)

■ January-September 2018
■ October 2018 - January 2019 December
■ 2019 Year-End Expectation
■ 2020 Year-End Expectation

Source: Bloomberg.
* Actual figures on 28 January 2019.

On top of that, concerns over global trade and the resulting US financial market volatility forced the Fed to adopt a more cautious tone on rate hikes. Thus, despite stronger labor data and higher wage growth, the Fed revised its median projection to two rate hikes for 2019 at its December meeting, down from three at the March meeting. Despite this 25 basis point drop, the spread between options-implied interest rates and the Fed's median widened substantially in the inter-reporting period (Chart 2.3.3). In fact, markets are predicting a much looser monetary policy and, as of mid-January, pricing in a nearly constant policy rate through 2019.[1] Over the upcoming period, market pricing is expected to come in line with that of the Fed if global economic uncertainty moderates and the US growth and labor data remain robust, or the Fed's median path is projected to move towards market pricing if downside risks priced in by markets materialize and tensions over international trade escalate.

Chart 2.3.3: Options-Implied Fed Policy Rate for End-2019 (%, Upper Band)

— Options-Implied Interest Rate for End-2019
— Fed Median
— Current Policy Rate
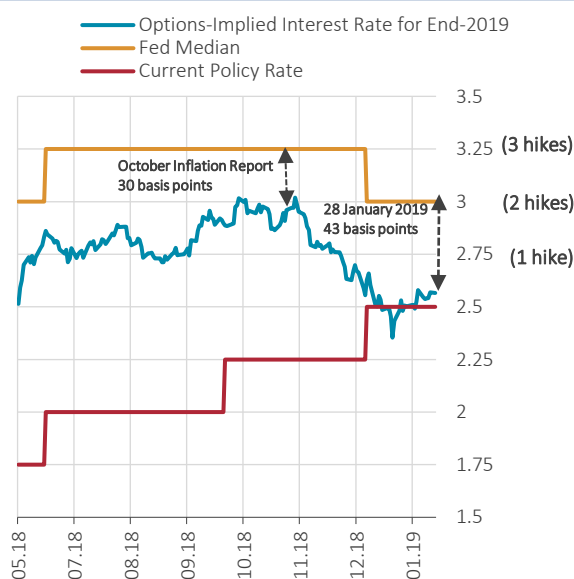
Source: Bloomberg.

Table 2.3.1: Options-Implied Policy Rates of Four Major Central Banks for End-2019 (%)

|	Current Policy Rate (%)	2019 Year-end Market Implied Policy Rate (%)		Change From October IR (% points)
		October IR	28 Jan 2019	
Fed	2.5	2.95	2.56	⬇ -0.39
ECB	0	0.10	0.05	⬇ -0.05
BoE	0.75	1.02	0.84	⬇ -0.18
BoJ	-0.1	-0.06	-0.12	⬇ -0.06

Source: Bloomberg.

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[1] As a matter of fact, markets priced in a rate cut for a short time, which drove options-implied interest rates below the current policy rate.

2.4 Global Risk Indicators and Portfolio Flows

Across advanced economies, central banks continued to normalize monetary policy gradually in the fourth quarter of 2018. Meanwhile, the sluggish global growth and the increased global economic uncertainty raised concerns that policy normalization might lose pace, sending sovereign bond yields lower in these countries (Chart 2.4.1).

Developments regarding the US-China trade conflict, the ongoing Brexit uncertainty, Italy's massive public debt and plunging oil prices fed into worries about increased fragility in global financial conditions. After having started 2018 on an upbeat tone amid tax cuts and a buoyant growth outlook, the US saw its stocks end the year with the worst annual decline since 2008 while the reduced risk appetite prompted outflows from stock markets in other advanced economies (Chart 2.4.2). Yet, both advanced and emerging stock markets have seen some recovery as of early 2019.

Chart 2.4.1: 10-Year Bond Yields (%)
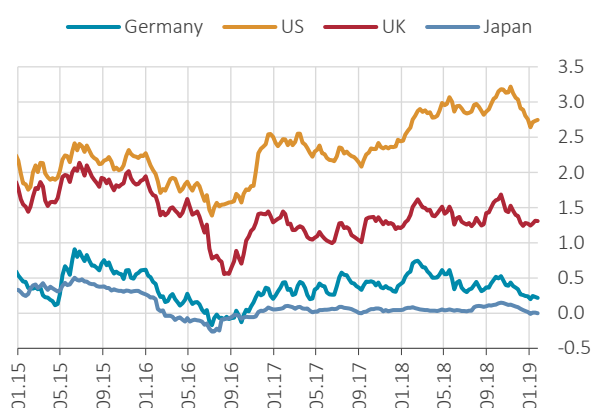
Source: Bloomberg.

Chart 2.4.2: MSCI Indices (January 2015=100)
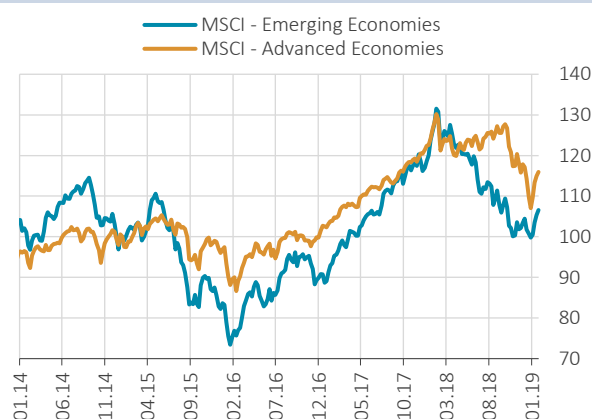
Source: Bloomberg.

The improved risk sentiment since the beginning of 2019 helped lower the exchange rate volatility for advanced market currencies that remained elevated through the fourth quarter of 2018 (Chart 2.4.3). The first half's portfolio outflows from emerging economies continued into the third quarter of the year, albeit more slowly. Though still weak, portfolio inflows somewhat stabilized starting in September, and as of early January, both stock and bond markets are recovering (Chart 2.4.4).

Chart 2.4.3: JP Morgan Exchange Rate Volatility Indices (Weekly)
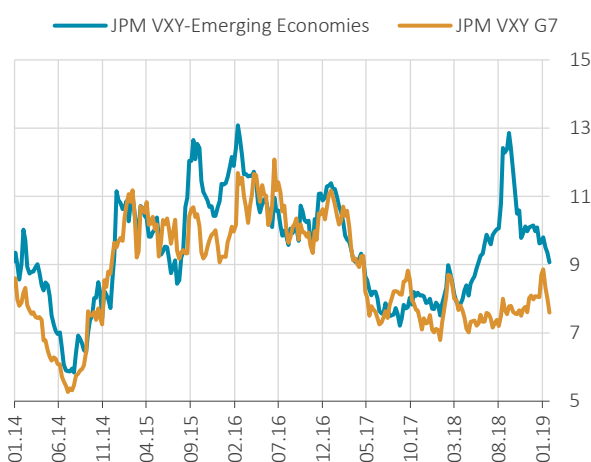
Source: Bloomberg.

Chart 2.4.4: Weekly Portfolio Flows to Emerging Economies (Billion USD, 4-Week Cumulative)
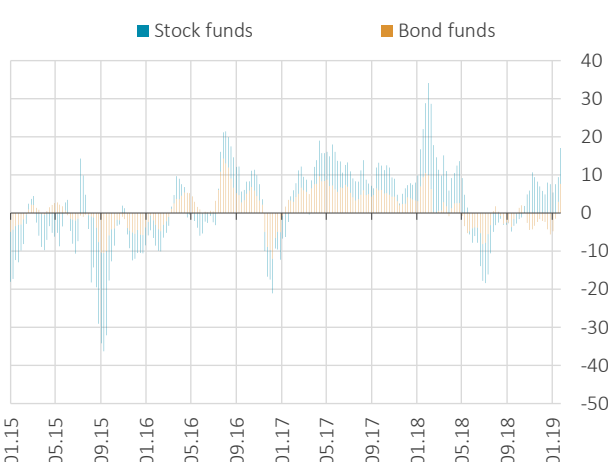
Source: EPFR.

Emerging bond markets saw outflows across all regions in the fourth quarter of 2018 whereas Asian stock markets received inflows (Table 2.4.1). China was the biggest receiver of portfolio inflows in this period. China's use of quantitative easing to stimulate domestic economic activity encouraged more portfolio flows into China. More specifically, Chinese stock markets reported larger inflows in the last quarter of 2018 and the country accounted for 28% of total inflows to emerging stock markets, up from 24% in 2017.

The growing anticipation that the path of monetary policy normalization across advanced economies might be less tight than in the previous period suggests that emerging economies might receive more portfolio inflows in 2019. However, it should be noted that the uncertainty over global economic policies, the high financial volatility in advanced economies and ongoing geopolitical tensions can reverse this prediction.

Table 2.4.1: Composition of Fund Flows to Emerging Economies (Quarterly, Billion USD)

		Total	Portfolio Composition		Regional Composition			
			Bond Funds	Stock Funds	Asia	Europe	Latin America	Middle East and Africa
2015	Q1	-8.6	1.9	-10.5	-8.1	2.2	-2.4	-0.2
	Q2	-8.0	1.4	-9.4	-6.9	0.4	-2.0	0.4
	Q3	-45.3	-16.5	-28.8	-23.8	-6.5	-10.8	-4.1
	Q4	-22.3	-12.7	-9.6	-11.1	-3.0	-6.4	-1.9
2016	Q1	-4.5	-1.2	-1.6	-2.5	-1.4	-0.3	-0.3
	Q2	-1.4	7.3	-8.7	-4.5	0.7	1.9	0.6
	Q3	42.4	26.1	16.3	17.9	7.5	12.4	4.7
	Q4	-17.4	-9.3	-8.1	-12.6	-0.8	-2.7	-1.3
2017	Q1	32.7	19.9	12.8	8.2	7.7	12.4	4.3
	Q2	52.6	24.4	28.2	25.2	7.6	14.5	5.4
	Q3	37.1	17.3	19.8	19.4	4.9	9.2	3.5
	Q4	29.5	11.8	17.6	14.8	3.7	8.3	2.7
2018	Q1	57.9	12.0	46.0	34.1	6.5	12.0	5.3
	Q2	-10.4	-10.4	0.0	-0.7	-4.3	-3.3	-2.1
	Q3	-9.9	-3.6	-6.3	-4.6	-1.4	-3.2	-0.7
	Q4	4.5	-14.0	18.5	14.1	-4.5	-3.1	-2.0

Source: EPFR.

3. Inflation Developments

In the final quarter of the year, consumer inflation declined to 20.30% (Chart 3.1). Core goods and energy groups were the main drivers of this decline that pushed inflation below the level projected in the October Inflation Report (Chart 3.2). In this quarter, the appreciating Turkish lira and the decelerating commodity prices as well as the tax cuts on certain products and weaker domestic demand contributed to the disinflation process. The Turkish lira appreciated by around 18% against the currency basket while international oil prices decreased by approximately 30% over the previous quarter. The sliding-scale tariff came to an end following the marked decline in oil prices and the appreciation in the Turkish lira. Meanwhile, energy prices that dropped primarily due to fuel prices had a positive effect on consumer inflation. Although the producer price inflation (PPI) decelerated at the end of the year due to the fall in exchange rates and energy prices, costs continued to exert a strong pressure on consumer prices through the producer prices channel.

Exchange rate developments stood as the main driver of the year-on-year rise in inflation at end-2018 while administered price adjustments in both consumer and producer prices in the energy group aggravated cost pressures over a large impact area. During the same period, tax adjustments had a downward effect on inflation. The strong economic activity witnessed particularly in the first half of the year fed into the demand-pull inflation, and inflation inertia increased due to the deterioration in expectations and pricing behavior throughout the year. However, in the last quarter of the year, weaker aggregate demand conditions contributed to the downtrend in inflation. Temporary tax cuts on certain durable goods also significantly added to this downtrend. On the other hand, although the maintenance of the state subsidy for employers, while increasing the net minimum wage by 26% for 2019, partially contained cost pressures, it is projected that the unit labor cost-driven upward effects on inflation will increase compared to the previous year. The revision in the special consumption tax (SCT) on tobacco products was another important factor affecting the short-term inflation outlook. In January, the ad valorem SCT rate on tobacco products was raised to 67% from 63%, and the minimum specific SCT practice was abolished. There has not yet been any adjustment in sector prices after this revision, which points to the existence of tobacco products-driven risks to inflation forecasts.[1]

Chart 3.1: CPI and D Index (CPI Excluding Unprocessed Food and Alcohol-Tobacco, Annual % Change)
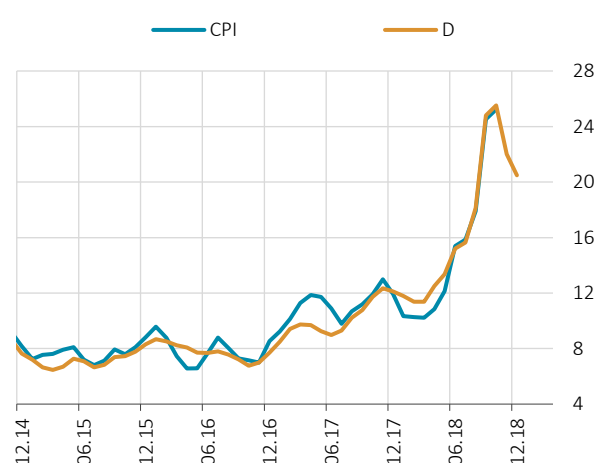
Source: TURKSTAT.

Chart 3.2: Contributions to Annual CPI (% Points)
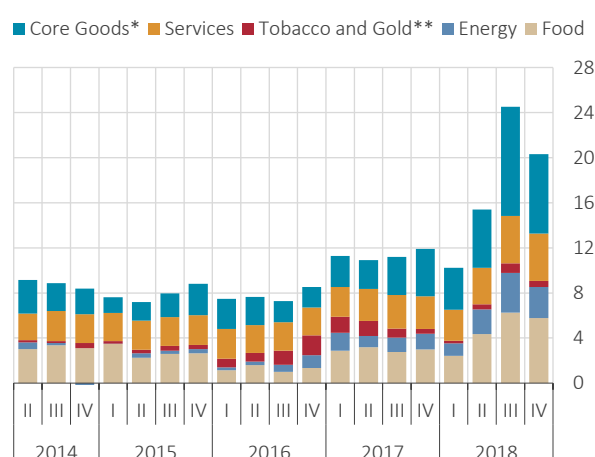
Source: CBRT, TURKSTAT.

* Core goods: Goods excluding food, energy, alcoholic beverages, tobacco products and gold.
** Tobacco and gold: Alcoholic beverages, tobacco products and gold.

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[1] Repercussions of tax revisions on consumer inflation are analyzed in Box 3.1 in the Inflation Report 2018-III.

In sum, although the inflation outlook has slightly improved in the recent period due to imported input costs and domestic demand developments, upside risks to the inflation outlook remain critical. The course of administered prices and the possible impact of accumulated costs on pricing behavior are the leading short-term risk factors for the period ahead. Besides, elevated levels of inflation and inflation expectations continue to pose risks to the inflation outlook through the pricing behavior channel. Moreover, as the volatility in capital flows and commodity prices persists due to uncertainties over global economic policies, the predictability of primary cost factors is weakened. In addition to the support that the macroeconomic rebalancing process offers to inflation, a decline in the indexation to past inflation in administered price, tax and wage adjustments that would weaken the backward-indexation mechanisms by anchoring expectations is crucial to achieving a permanent fall in inflation.

3.1 Core Inflation Outlook

In the last quarter, annual inflation in the core goods group decreased to 24.67% (Chart 3.1.1 and Table 3.1.1). This decrease was mainly due to the tax cuts on certain durable goods, appreciation in the Turkish lira and the marked decline in durable goods inflation driven by weakened economic activity (Chart 3.1.2).

Chart 3.1.1: Prices of Core Goods and Services (Annual % Change)
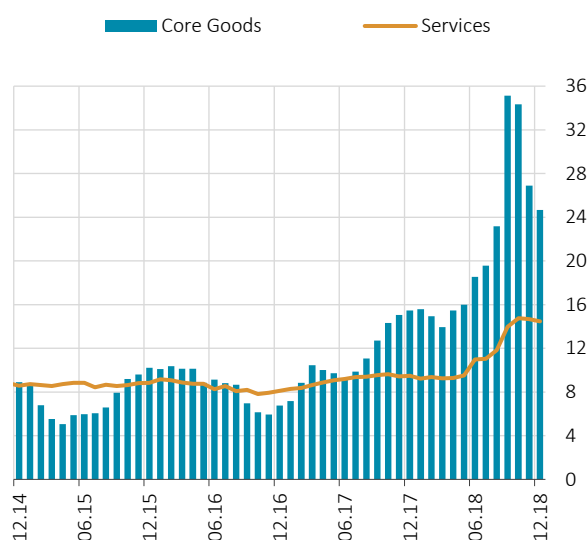
Source: TURKSTAT.

Chart 3.1.2: Prices of Core Goods (Annual % Change)
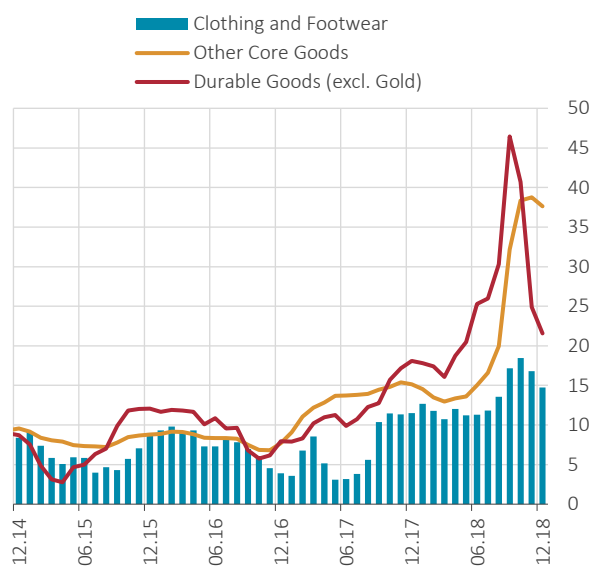
Source: TURKSTAT.

Led by the tax cuts introduced in November, prices of durable goods dropped by 10.69% in the last quarter while annual inflation in this group was 21.57%. Automobile, furniture and home appliances groups that received tax cuts recorded significant price decreases in this quarter, and annual inflation in these groups also declined (Chart 3.1.3). In addition, annual inflation in the clothing group decreased by 2.40 points in the final quarter to 14.75% due to subdued economic activity. Meanwhile, annual inflation in the other core goods group where the exchange rate pass-through is extended over a longer period of time continued to increase in this quarter as well. Against this background, the underlying trend of core goods inflation also declined significantly (Chart 3.1.4).

Table 3.1.1: Prices of Goods and Services (3-Month and Annual % Change)

	2017		2018				
	IV	Annual	I	II	III	IV	Annual
CPI	4.31	11.92	2.77	6.23	9.34	0.78	20.30
1.Goods	5.80	12.99	2.83	7.16	10.72	0.55	22.68
Energy	4.88	10.41	2.11	5.60	12.34	-0.25	20.82
Food and Non-Alcoholic Beverages	5.70	13.79	6.06	7.29	6.17	3.56	25.11
Unprocessed Food	8.74	15.55	6.71	12.50	2.68	3.10	27.09
Processed Food	3.04	12.20	5.43	2.22	9.91	4.02	23.22
Core Goods	7.51	15.45	0.88	8.67	14.64	-0.81	24.67
Clothing and Footwear	13.17	11.51	-9.15	15.04	-0.95	10.85	14.75
Durable Goods (excl. gold prices)	7.58	18.08	4.09	8.22	20.84	-10.69	21.57
Furniture	7.30	10.49	7.35	5.46	18.65	-9.39	21.71
Electrical and Non-electrical Devices	4.72	10.24	1.39	4.87	20.52	-1.00	26.87
Automobile	10.27	27.30	4.39	11.11	22.41	-17.09	17.72
Other Durable Goods	0.90	12.77	3.76	5.98	14.45	4.44	31.44
Core Goods Excluding Clothing and Durable Goods	3.10	15.13	4.34	4.74	17.30	7.36	37.63
Alcoholic Beverages, Tobacco Products and Gold	1.18	5.96	1.37	3.15	6.76	-2.67	8.65
2. Services	0.95	9.47	2.62	3.93	5.85	1.39	14.46
Rent	2.35	9.21	1.99	2.20	3.14	1.96	9.61
Restaurants and Hotels	1.65	11.47	2.81	4.40	9.15	2.26	19.81
Transport	0.44	12.46	1.18	4.48	7.52	-1.73	11.70
Communication	0.12	1.87	-0.72	6.45	1.45	2.57	9.96
Other Services	0.17	9.39	4.45	3.51	5.55	1.27	15.56

Source: CBRT, TURKSTAT.

Chart 3.1.3: Prices of Selected Durable Consumption Goods (Annual % Change)
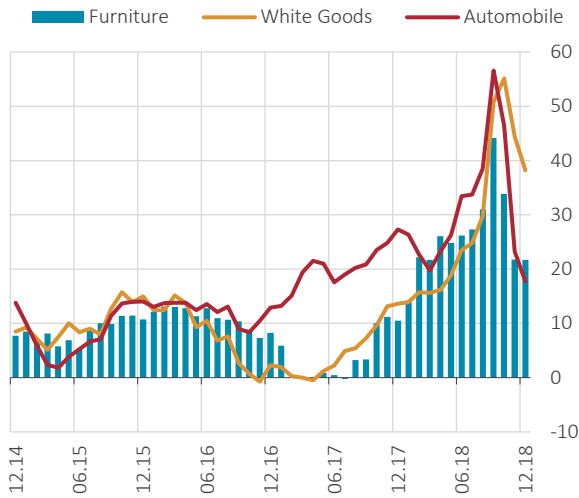
Source: CBRT, TURKSTAT.

Chart 3.1.4: Prices of Core Goods (Seasonally-Adjusted, Annualized 3-Month Average % Change)
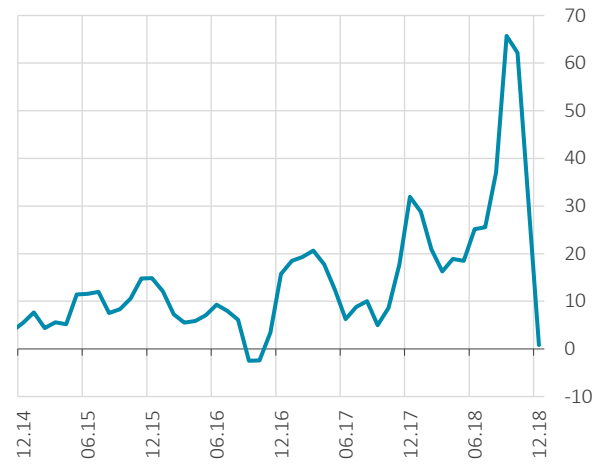
Source: CBRT, TURKSTAT.

Prices of services rose by 1.39% in the last quarter of the year while annual inflation in this group increased by 0.49 points to 14.46% (Chart 3.1.1 and Table 3.1.1). Quarterly rates of increase in overall services prices are close to the average of previous periods but the increases in other services and communication subcategories are above that average (Chart 3.1.5).

Chart 3.1.5: Prices of Services by Sub-Categories (Q4 % Change)
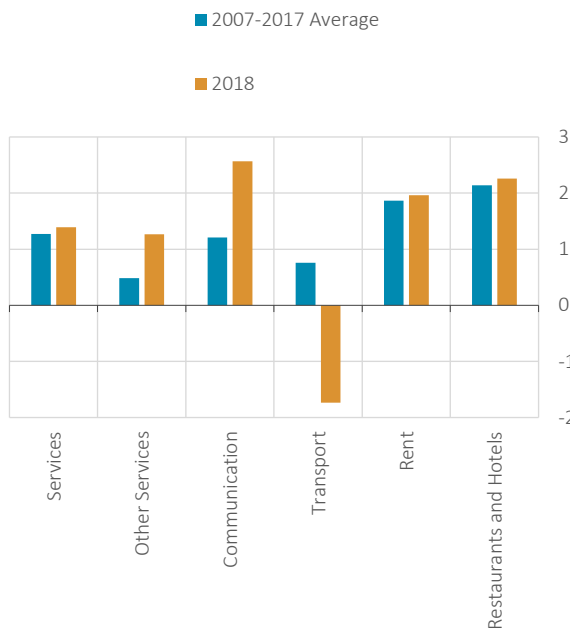
Source: TURKSTAT.

Chart 3.1.6: Prices of Services by Sub-Categories (Annual % Change)
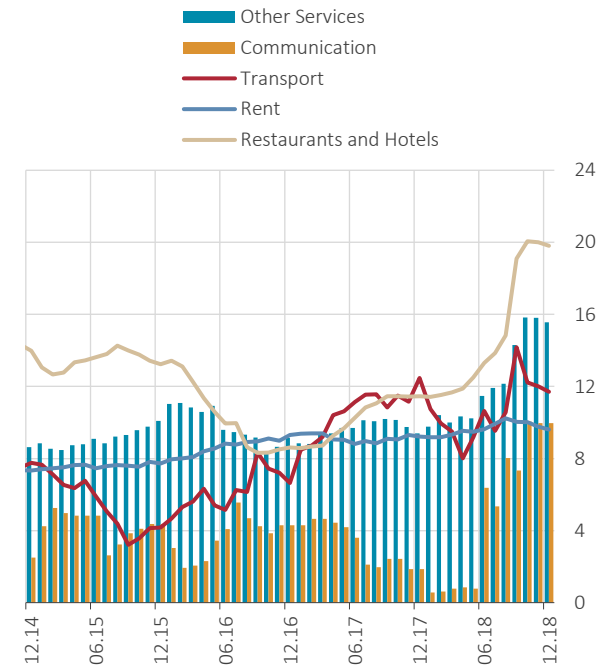
Source: TURKSTAT.

Among subcategories of services, annual inflation in communication, other services and restaurants-hotels groups increased in the final quarter whereas it decreased in transportation and rent groups (Chart 3.1.6). The fall in fuel prices was the main driver of the deceleration in transportation services inflation while the trend of food prices put a brake on the monthly rate of increase in the prices of restaurant services (Chart 3.1.7). On the other hand, annual inflation in the other services group

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continued to increase due to the lagged effects of the depreciation in the Turkish lira (Chart 3.1.8). As for the rent group where the backward-indexation mechanism is widespread, the fact that the monthly rate of increase has been subdued in recent months despite the high level of headline inflation stands as a significant indicator regarding the housing market and domestic demand.

The course of services prices in the following period will be shaped by the weak domestic demand as well as the impact of cumulative cost increases and the effects of the minimum wage increase put into effect in January 2019. In the services sector, which is a relatively labor-intensive sector, unit labor cost-driven inflationary effects are projected to increase in 2019 compared to 2018. Given the persistence of the strong backward-indexation mechanism in wages, sensitivity of inflation to business cycles may be limited and the disinflation process may be slower and more gradual.

Chart 3.1.7: Prices of Restaurant Services and Food*
(3-Month Average of Monthly % Changes)
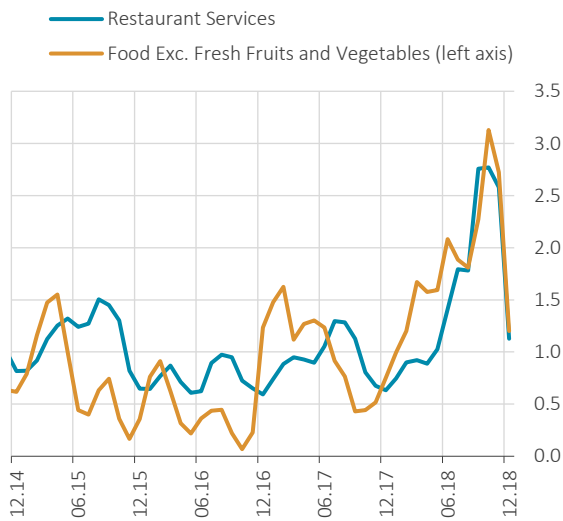
Source: CBRT, TURKSTAT.

*Food excluding fresh fruits and vegetables.

Chart 3.1.8: Other Services and Currency Basket
 (Annual % Change)
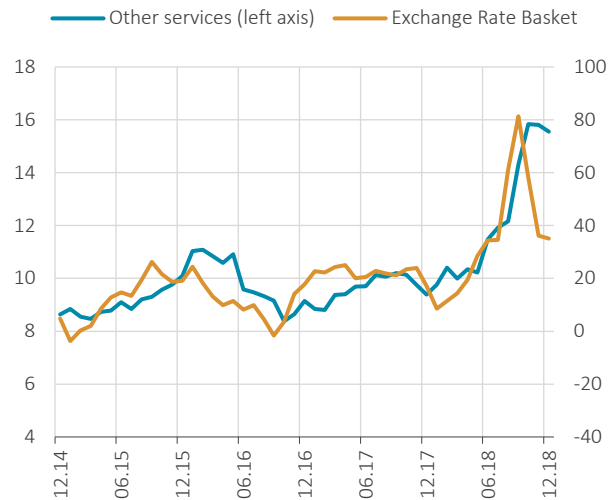
Source: CBRT, TURKSTAT.

Against this background, both the underlying trend of services inflation, which is captured by seasonally-adjusted three-month averages, and the tendency to increase prices, which is captured by the diffusion index, decelerated in the last quarter of the year (Charts 3.1.9 and 3.1.10). Although these indicators suggest a partial improvement in pricing behavior compared to the previous quarter, the current levels are still historically high.

Chart 3.1.9: Services Prices (Seasonally-Adjusted, Annualized 3-Month Average % Change)
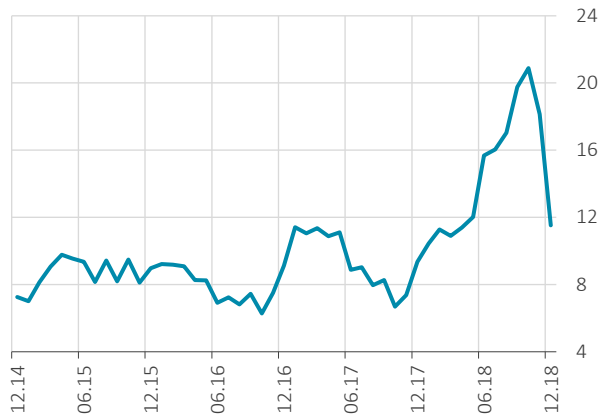
Chart 3.1.10: Diffusion Index for Services Prices* (Seasonally-Adjusted, 3-Month Average)

Source: CBRT, TURKSTAT.
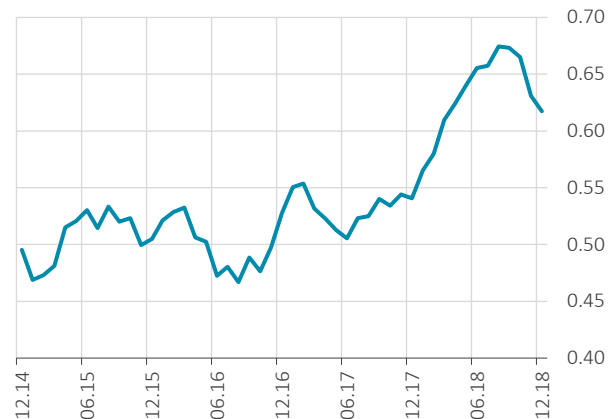
Source: CBRT, TURKSTAT.

* The diffusion index is calculated as the ratio of the number of items with increasing prices minus the number of items with decreasing prices to total number of items.

Among core inflation indicators, annual inflation in B and C indices decreased quarter-on-quarter by 3.56 and 4.52 points to 20.15% and 19.53%, respectively, led by the core goods inflation that declined on the back of temporary tax cuts in particular (Chart 3.1.11). Adjusted for the effect of temporary tax cuts, the underlying trend of core inflation substantially decelerated in this quarter (Chart 3.1.12).

Chart 3.1.11. B and C Indices (Annual % Change)
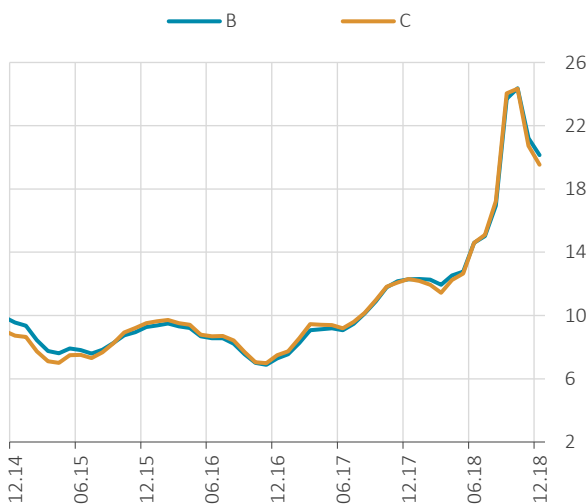
Chart 3.1.12. B and C Indices Adjusted for Tax Cut Effect (Seasonally-Adjusted, Annualized 3-Month Average % Change)

Source: CBRT, TURKSTAT.
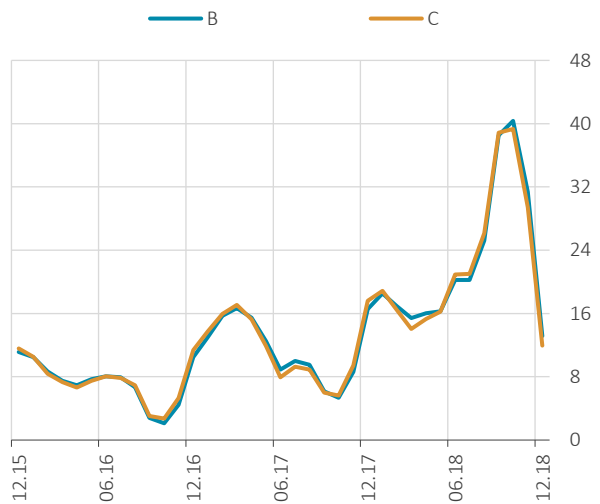
Source: CBRT, TURKSTAT.

The underlying trends of SATRIM and Median – alternative indicators of core inflation monitored by the CBRT – followed a pattern similar to that of other core inflation indicators in this period (Chart 3.1.13). Diffusion indices reveal that the tendency to raise prices hit a high in October but declined thereafter (Chart 3.1.14). To sum up, indicators monitored for tendencies and pricing behavior suggest that the underlying trend of inflation has improved from the previous quarter to this quarter. This improvement is attributed to the appreciation of the Turkish lira and the weak domestic demand.

Chart 3.1.13. Core Inflation Indicators SATRIM* and Median** (Annualized 3-Month Average, %)
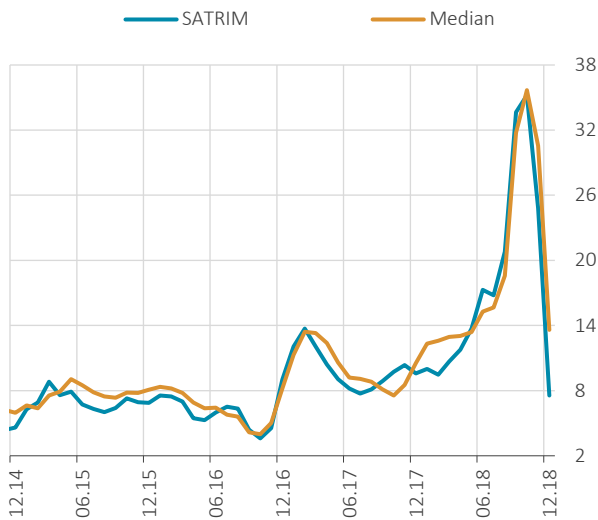
Source: CBRT.

* SATRIM: Seasonally-adjusted, trimmed mean inflation.

**Median: Median monthly inflation of seasonally-adjusted 5-digit sub-price indices.

Chart 3.1.14. CPI and B Diffusion Indices (Seasonally-Adjusted 3-Month Average)
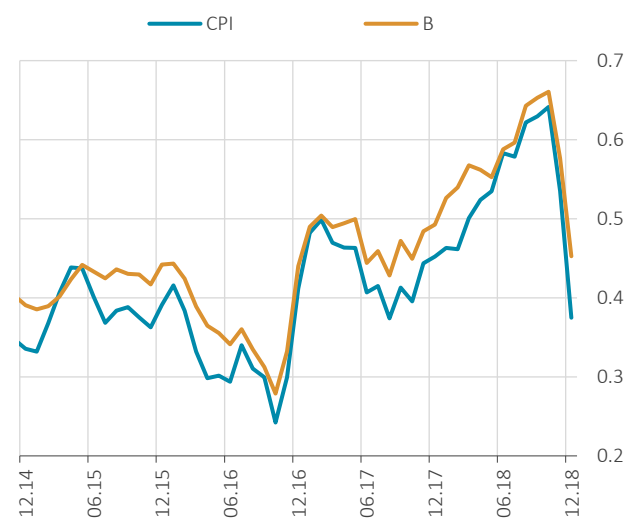
Source: CBRT, TURKSTAT.

## 3.2 Food, Energy and Alcohol-Tobacco Prices

In the final quarter, annual inflation in food and non-alcoholic beverages decreased by 2.59 points to 25.11% (Chart 3.2.1). This decrease was driven by unprocessed food prices whereas processed food inflation posted a slight increase (Chart 3.2.2). Annual inflation in food excluding fresh fruits and vegetables remained high (Chart 3.2.3).

Chart 3.2.1: Food and Energy Prices (Annual % Change)
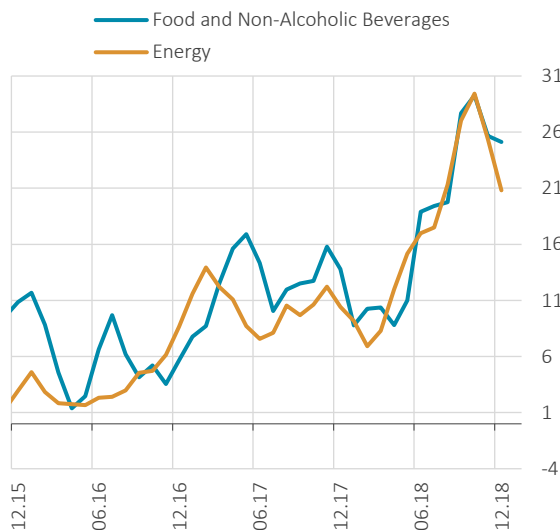
Source: TURKSTAT.

Chart 3.2.2: Food Prices (Annual % Change)
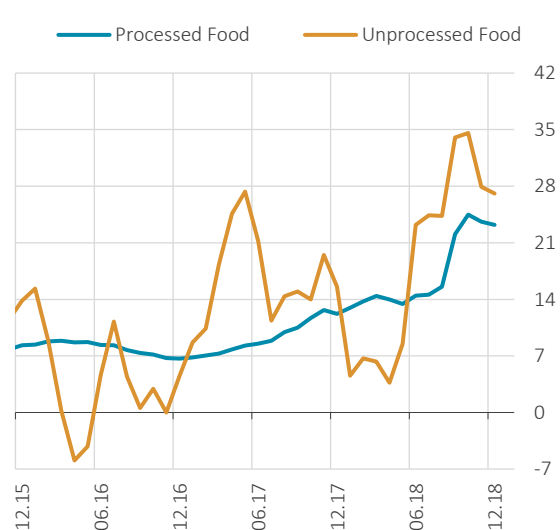
Source: TURKSTAT.

Annual unprocessed food inflation reached considerably high levels at the end of the third quarter but then dropped by 6.95 points to 27.09% (Chart 3.2.2). This drop was triggered by fresh fruits and vegetables prices that fell due to mild weather conditions (Chart 3.2.3). In the other unprocessed food

group, prices of potatoes and legumes posted significant increases whereas red meat prices displayed a favorable course in the last quarter (Chart 3.2.4).

Chart 3.2.3: Fresh Fruits and Vegetables Prices and Other Food Prices (Annual % Change)
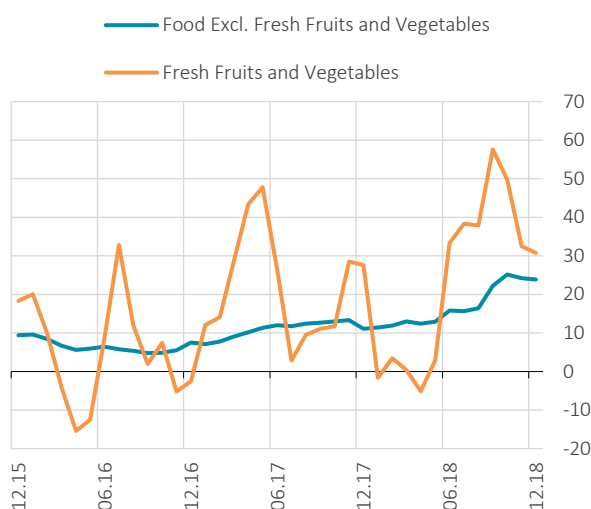
Source: CBRT, TURKSTAT.

Chart 3.2.4: Selected Unprocessed Food Items (Seasonally-Adjusted Index, 2003=100)
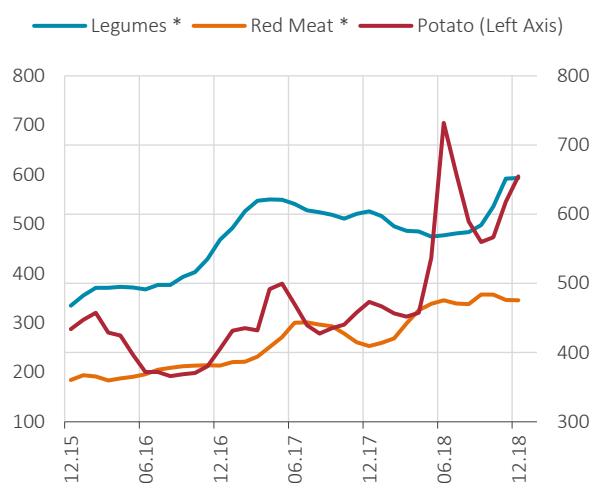
Source: CBRT, TURKSTAT.

* Prices of red meat and legumes are not seasonally adjusted as they do not show any statistically significant seasonal effect.

The sharp increase registered in annual processed food inflation in the third quarter was followed by a rather moderate increase in the last quarter, bringing it to 23.22% (Chart 3.2.2). In the last two months of the year, processed food prices remained relatively flat due to exchange rate developments and weakened domestic demand. On the other hand, cost-side risks, led by raw milk prices in particular, remain in place. Despite the accumulated cost pressures on the raw milk reference price, the state subsidy for raw milk was increased for the first three months of the year, thus offering a direct support for producers. This support contains the cost pressures on inflation in the short term but carries some uncertainty regarding the period ahead.

In the last quarter of the year, energy prices declined by 0.25% (Table 3.1.1). The average Brent crude oil price for barrel, which was USD 79 in September, slumped to USD 57 in December. Turkish lira-denominated oil prices also dropped significantly due to exchange rate developments (Chart 3.2.5). Following the favorable developments regarding cost factors, lump-sum SCT rates that were changed under the sliding-scale tariff system reverted back to their original level. Accordingly, fuel prices decreased by 8.79% in this quarter and became the driving factor in the positive course of energy prices.[2] Among administered prices, electricity and natural gas prices rose by 9.00% and 9.53%, respectively, as a result of the price adjustment in October whereas water prices posted a relatively limited increase of 1.77% (Chart 3.2.6). Consequently, annual energy inflation fell by 6.21 points to 20.82% in this period (Chart 3.2.1). It is assessed that the reductions in electricity, natural gas and water prices made a positive contribution to energy inflation in January through the administered prices channel.
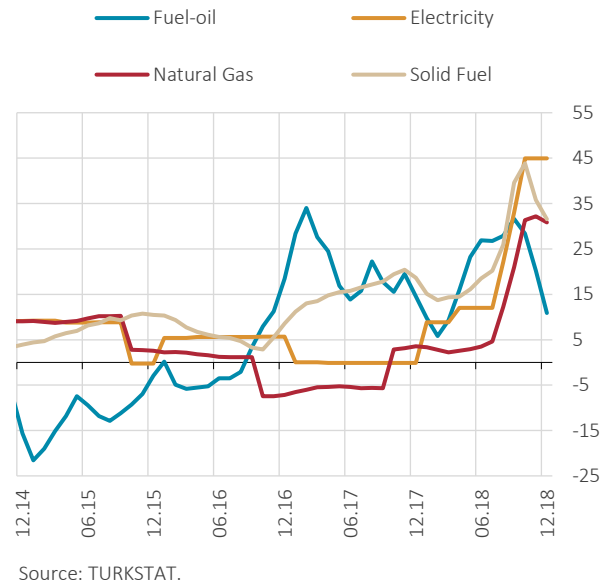
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[2] Box 3.2 offers an analysis of the effects of the sliding-scale tariff system on consumer inflation.

Chart 3.2.5: Oil and Selected Domestic Energy Prices (December 2010=100)

- Brent Crude Oil Price (TL)
- Solid Fuels
- Fuel Oil
- Liquid Hydrocarbons (bottled gas)

Source: Bloomberg, CBRT, TURKSTAT.
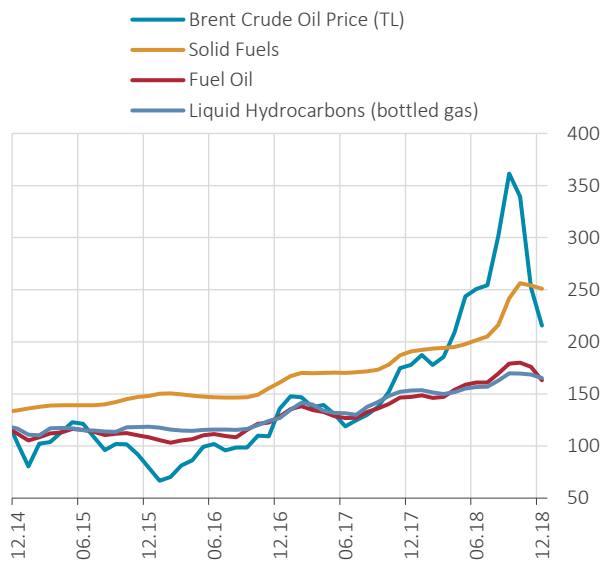
Chart 3.2.6: Domestic Energy Prices (Annual % Change)

- Fuel-oil
- Electricity
- Natural Gas
- Solid Fuel

Source: TURKSTAT.

3.3 Domestic Producer Prices

Following a sharp increase in the third quarter of the year, domestic producer prices (D-PPI) decreased by 3.83% in the last quarter, led by the manufacturing industry (Table 3.3.1). Thus, annual producer prices inflation decelerated quarter-on-quarter by 12.51 points to 33.64% (Chart 3.3.1). This deceleration was driven by the appreciation of the Turkish lira as well as the developments in international commodity prices, particularly in oil and metal prices.

Table 3.3.1: D-PPI and Sub-Categories (3-Month and Annual % Change)

	2017		2018				
	IV	Annual	I	II	III	IV	Annual
D-PPI	**5.18**	**15.47**	**5.29**	**9.72**	**20.29**	**-3.83**	**33.64**
Mining	6.88	16.13	6.52	7.02	12.62	-3.14	24.34
Manufacturing	5.52	16.64	4.98	9.68	19.15	-4.44	31.11
Manufacturing excl. Petroleum Products	5.04	16.16	5.01	9.04	18.50	-3.48	30.95
Manufacturing excl. Petroleum and Base Metal Products	4.21	14.04	4.88	8.58	17.41	-2.16	30.81
Production and Distribution of Electricity and Gas	-0.07	0.41	9.43	12.35	39.90	1.75	75.02
Water Supply	1.56	11.30	0.02	3.17	3.65	2.02	9.13
D-PPI by Main Industrial Groupings							
Intermediate Goods	7.21	20.75	5.38	10.24	22.02	-5.37	34.14
Durable Consumption Goods	3.47	16.31	3.57	6.69	14.90	-1.61	24.92
Durable Consumption Goods (excl.jewelry)	2.91	15.89	3.53	6.56	13.91	-1.08	24.31
Non-Durable Consumption Goods	1.00	7.69	4.32	7.61	12.56	-0.69	25.49
Capital Goods	6.26	17.52	5.81	8.39	19.63	-3.11	32.92
Energy	6.59	11.23	7.61	15.58	34.48	-6.06	57.13

Source: CBRT, TURKSTAT.

In the last quarter of the year, import prices remained relatively flat in USD terms while they declined in TL terms due to exchange rate developments (Chart 3.3.2). Manufacturing prices dropped by 4.44% and annual inflation in this group decreased to 31.11% (Table 3.3.1 and Chart 3.3.3). Likewise, inflation in the manufacturing industry excluding petroleum and base metal products also declined (Table 3.3.1).

Chart 3.3.1: Domestic Producer and Consumer Prices (Annual % Change)
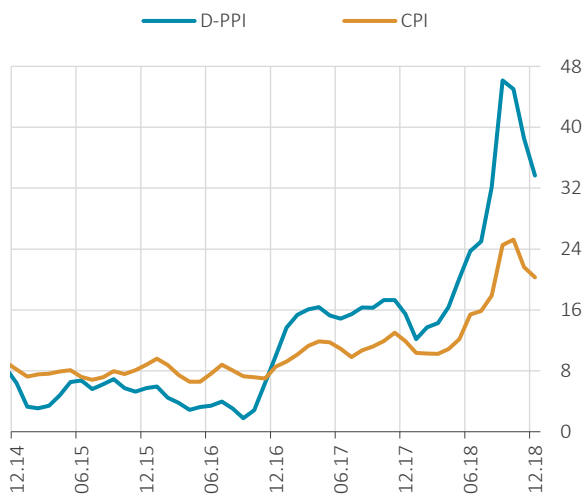
Source: TURKSTAT.

Chart 3.3.2: Import Prices in USD and TL (2010=100)
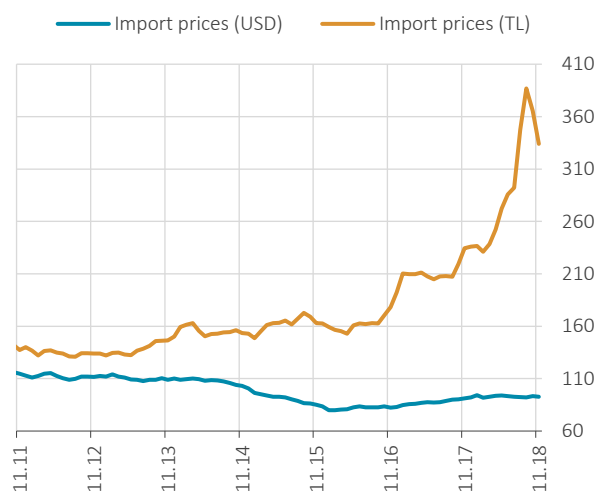
Source: CBRT, TURKSTAT.

All subcategories of main industrial groupings registered falling prices, most visibly energy and intermediate goods (Table 3.3.1). Energy prices that significantly increased in the August-October period due to adjustments in electricity and natural gas producer prices decreased by 6.06% in the last quarter (Table 3.3.1 and Chart 3.3.3). The impact of the 10% reduction made in industrial natural gas prices effective from January will be observed in the course of energy prices in the following period. This reduction is expected to have some indirect effects on consumer inflation as well. The decline in prices of intermediate goods was largely driven by iron-steel and ferroalloys, textile threads and fibers, plastics and basic chemical products while the fall in prices of capital goods was mostly due to metal construction materials and other machinery. On the other hand, durable goods prices decelerated on the back of furniture and household appliances prices while non-durable goods prices fell due to prices of meat and meat products, printing services, and fats and oils. Against this background, the seasonally adjusted underlying trend of manufacturing prices excluding petroleum and base metal products that entail information on the underlying trend of producer prices decelerated considerably (Chart 3.3.4). All in all, although exchange rate developments and decreases in energy prices triggered a decline in producer prices in the last quarter of the year, annual inflation in producer prices remained elevated.

Chart 3.3.3: Energy and Manufacturing Prices (Annual % Change)
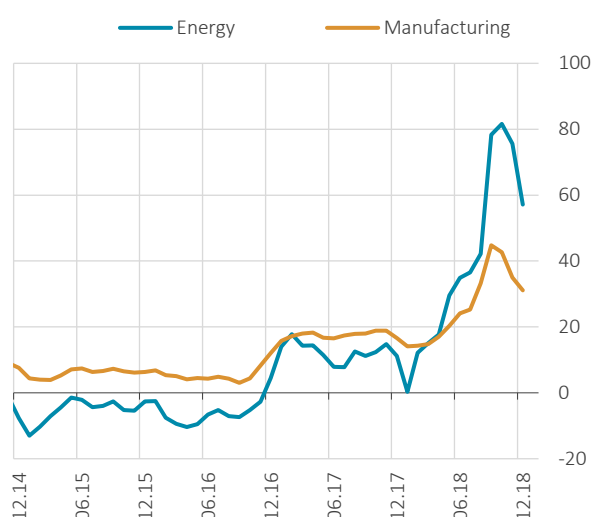
Source: TURKSTAT.

Chart 3.3.4: Manufacturing Prices Excluding Petroleum and Base Metal Products (Seasonally-Adjusted, Annualized Q-o-Q % Change)
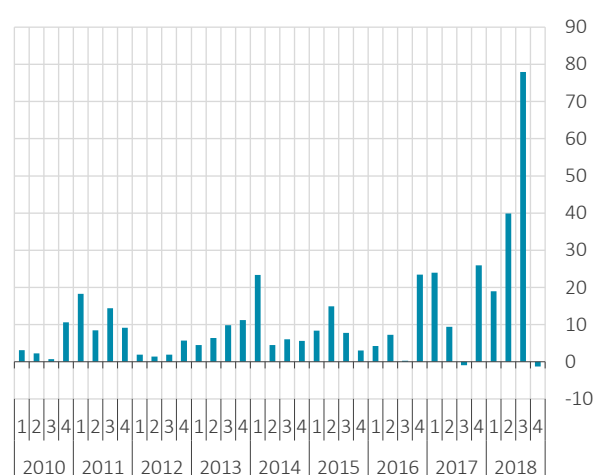
Source: CBRT, TURKSTAT.

3.4 Agricultural Producer Prices

In the final quarter of 2018, annual inflation in agricultural producer prices slightly decreased over the previous quarter and closed the year at 15.89% (Chart 3.4.1). The rates of increase in agricultural producer prices and consumer food prices were consistent with each other in previous years but they significantly diverged in 2018. Hikes in wheat and milk prices observed in the last quarter constituted the main factor affecting agricultural producer prices. In this quarter, producer prices of wheat and milk rose by 4.70% and 6.67%, respectively. These price hikes also pose upside risks to consumer food prices in the period ahead. Seasonally-adjusted three-month averages reveal that the underlying trend of agricultural producer prices decelerated in the final quarter (Chart 3.4.2).

Chart 3.4.1: Prices of Agricultural Products and Food
(Annual % Change)

Agricultural Products
Food and Non-Alcoholic Beverages
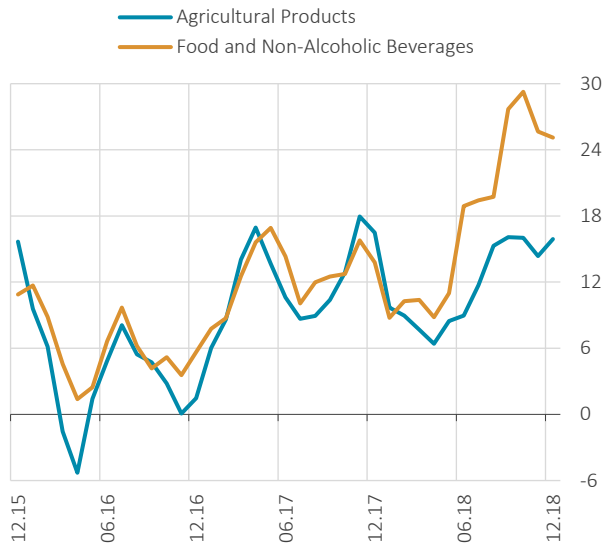
Source: CBRT, TURKSTAT.

Chart 3.4.2: Prices of Agricultural Products and Food
(Seasonally-Adjusted, Annualized 3-Month Average % Change)

Agricultural Products
Food and Non-Alcoholic Beverages
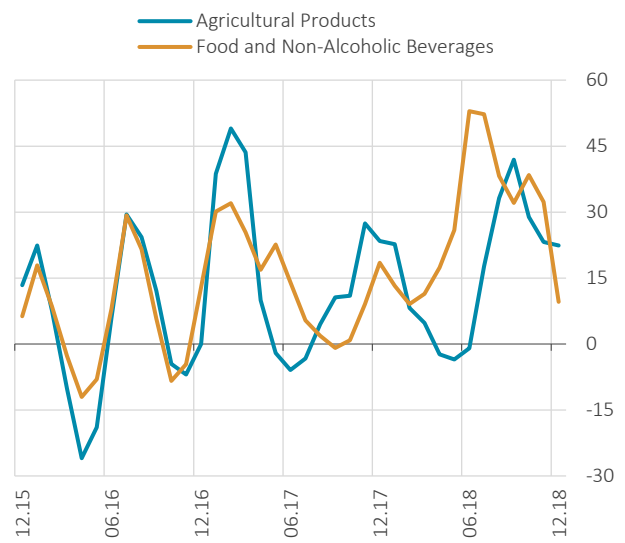
Source: CBRT, TURKSTAT.

3.5 Expectations

Inflation expectations remained elevated despite the decline in December and January triggered by the recent appreciation of the Turkish lira and the fall in consumer inflation. Inflation expectations for the next 12 and 24 months stood at 15.91% and 12.00%, respectively. In addition, 5-year ahead and 10-year ahead inflation expectations continued to hover above the inflation target (Chart 3.5.1).

Chart 3.5.1: CPI Inflation Expectations* (%)

12 Months 24 Months 5 Years 10 Years
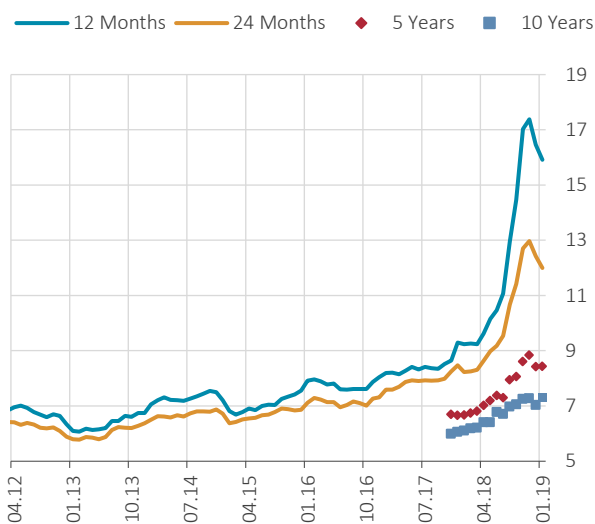
Source: CBRT.

* Second survey period results for the pre-2013 period derived from the CBRT Survey of Expectations which polls corporate sector and financial sector representatives as well as professionals.

Chart 3.5.2: Medium-Term Inflation Expectations Curve* (%)

October 2018 Inflation Target
Uncertainty Band Ocak 2019
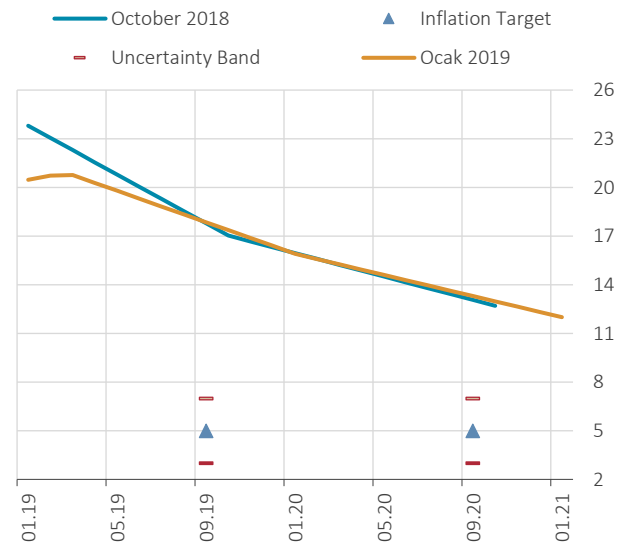
Source: CBRT.

* Calculated by linear interpolation of expectations for different time spans using the CBRT Survey of Expectations which polls corporate sector and financial sector representatives as well as professionals.

Over the previous quarter, inflation expectations have been revised downwards for the short term but left almost intact for the medium term (Chart 3.5.2). In other words, economic agents have not yet reflected the recent improvement in inflation in their expectations for the medium-term trend of inflation. Probability distributions of inflation expectations also suggest that the uncertainty regarding the course of inflation continues (Charts 3.5.3 and 3.5.4).[3] These developments keep the upside risks to the inflation outlook in place.

Chart 3.5.3: Probability Distribution of 12-Month Ahead Inflation Expectations* (%)
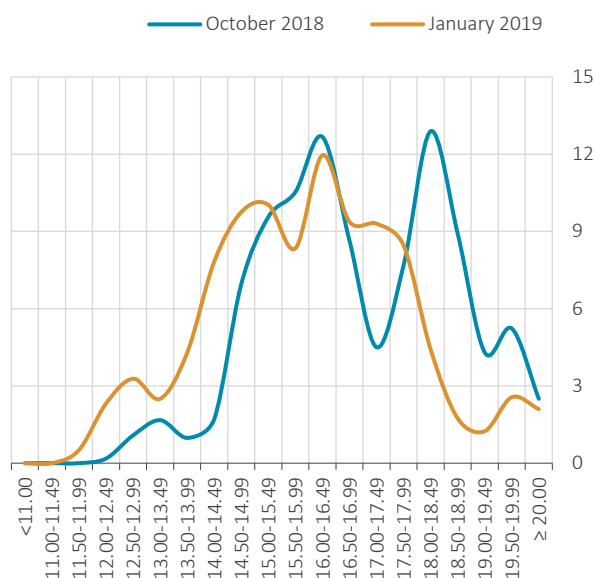
Source: CBRT.
* Horizontal axis denotes the ranges of expected inflation rate, while the vertical axis denotes the respective probabilities. For further details, see Statistics/Tendency Surveys/Survey of Expectations/Metadata at CBRT's website.

Chart 3.5.4: Probability Distribution of 24-Month Ahead Inflation Expectations* (%)
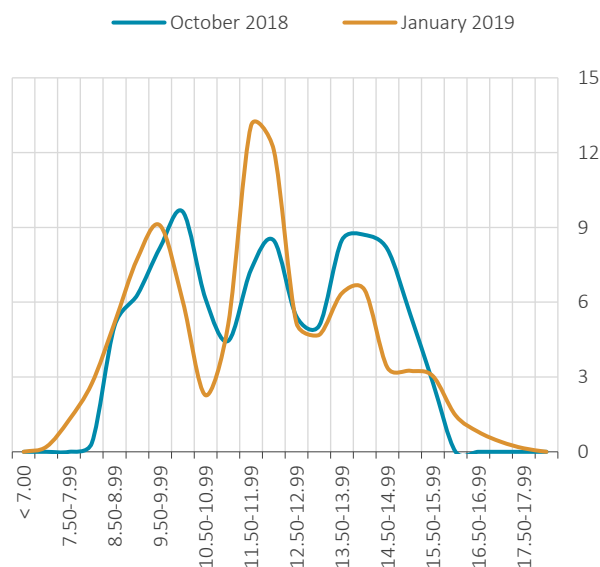
Source: CBRT.
* Horizontal axis denotes the ranges of expected inflation rate, while the vertical axis denotes the respective probabilities. For further details, see Statistics/Tendency Surveys/Survey of Expectations/Metadata at CBRT's website.

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[3] Box 3.1 presents the alternative indicators devised to monitor inflation uncertainty in Turkey.

Box 3.1

Inflation Uncertainty Measures

Inflation uncertainty is an important indicator for price stability and social welfare. In periods of heightened inflation uncertainty real financing costs increase, investment plans are distorted, and pricing behavior deteriorates. In addition, indicators on inflation uncertainty are perceived as the hallmark of achieving the price stability objective. Hence, central banks pay close attention to movements in inflation uncertainty.

This box derives alternative measures to monitor inflation uncertainty for the case of Turkish economy. In this context, various uncertainty measures are constructed using the CBRT's Survey of Expectations and their movements are interpreted.

Survey-Based Inflation Uncertainty

In the economic literature, conventional inflation uncertainty measures are constructed using either model-based or survey-based approaches. Model-based indicators employs the degree of predictability for inflation time series, while survey-based measures focus on the information embedded in forecasts of survey participants. This study used survey-based measures to construct measures of inflation uncertainty. This approach is preferred, because it yields a direct estimate of uncertainty perceived by the economic agents with a forward-looking perspective, and hence, is considered more relevant in terms of inflation dynamics and social welfare.

In the economic literature, the survey-based inflation uncertainty measures typically adopt three alternative approaches: (i) Disagreement in point forecasts among survey participants (ii) Indicators derived from probability distributions, which reveals the likelihood that participants attribute to the different outcomes for inflation (iii) A combination of the first two measures.[1]

The concept of "disagreement" shows how dispersed are the forecasts of survey participants at any given time, which is mostly measured by cross sectional standard deviation of point forecasts. The advantage of disagreement is that it can be easily calculated for almost all type of surveys. The main disadvantage is that, this measure can give misleading results after a short-term shock if participants update their forecasts at different times. For example, consider a favorable disinflation shock. If some respondents updated their forecasts rapidly, whereas the others are slower to update, this may lead to an increase in disagreement, which will give the impression that uncertainty is increasing despite declining inflation risks.[2]

Uncertainty measures derived from individual level density forecasts are used as a benchmark for uncertainty in the central banking and academic literature since they reflect subjective uncertainty perceived directly by individual respondents.[3] The indicator is computed mostly based on the standard deviation of individual density forecasts. The advantage of this indicator is that it shows a direct measure of perceived individual uncertainty around the point forecasts at the micro-level, and thus it is closer to the true notion of uncertainty. The disadvantage is that in many countries' surveys of expectations, micro level probability distribution forecasts are not available and therefore the calculation of this measure is often not possible.

[1] Hülagü and Şahinöz (2012) use inflation expectation errors (inflation surprises) calculated from the CBRT's Survey of Expectations as an indicator of uncertainty. However, in this approach, month t value of the inflation surprise can be calculate only when inflation is announced at month $t+1$. Therefore, this indicator is not included in this Box since the aim is to derive timely measures to guide decision-makers.
[2] See Mankiw et al. (2003), Zarnowitz and Lambros (1987) for a detailed discussion on disagreement.
[3] See Rich and Tracy (2010).

The third approach for inflation uncertainty focuses on measures incorporating both disagreement and individual level uncertainty. This measure is constructed by aggregating individual density forecasts and calculating some measure of dispersion for this distribution.

Economic literature often uses standard deviation as a benchmark uncertainty indicator. On the other hand, some studies employ the concept of "entropy" from information theory. Entropy is a reasonable candidate as an alternative uncertainty indicator since it measures the degree of concentration of a probability distribution.[4] The advantage of this measure is that it provides more robust results than the standard deviation metric when the individual probability distributions are bi-modal or non-normal.

Measures of Inflation Uncertainty for Turkey

For the case of Turkey, the particular design of the Expectations Survey (the Survey) compiled by the Statistics Department of the CBRT, which is published monthly on the official website, allows for a proper construction of the above-mentioned uncertainty measures. The availability of individual level density forecasts for 12-month ahead inflation expectations in the survey since 2013 permits measurement of inflation risk perceived by individual respondents.

In the Survey, each month around 100 professionals provide forecasts on indicators such as inflation, output growth, the Turkish lira exchange rate, interest rates and current account for different maturities. Survey participants are asked not only to report their 12-month and 24-month ahead inflation forecasts but also density forecasts in the form of histograms. Survey participants provide density forecasts in two steps. First, the on-line survey asks the respondents to provide their point forecasts on a digital menu. Once the point forecast is received, the system automatically creates intervals and asks participants to distribute probabilities as multiples of 10% for each interval.[5] The chart below is an example of the screen shot that shows the density forecast filled out by a hypothetic participant whose point estimation is 9.7% for one-year ahead inflation (Chart 1).

Chart 1: The Screen Shot of Probability Forecasts

Source: CBRT.

[4] See Harris (2006) for a more comprehensive assessment of the concept of entropy.

[5] Although the number of participants who provide density forecasts is lower than the number of respondents providing point forecasts, approximately 40 participants share their density forecasts each month during the sample period.

Using individual level data, we construct alternative uncertainty measures based on the approaches proposed in the previous section. In this context, three different measures are introduced. The first indicator measures the cross-sectional dispersion across participants' point forecasts and is calculated as the standard deviation of survey participants' point forecasts. The second indicator is the average of the standard deviation of individual density forecasts across survey participants. The third measure is constructed by using the entropy of the aggregated individual density forecasts.[6]

Accordingly, uncertainty measures calculated using the data on one-year ahead inflation expectations are shown in Chart 2.

Chart 2: Inflation Uncertainty Measures Implied by 12-Month Ahead Expectations
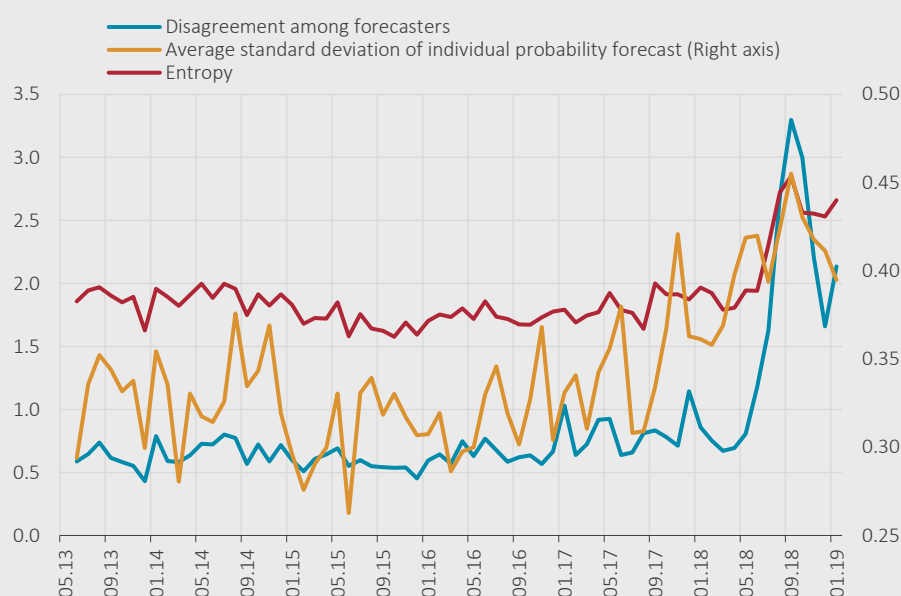
Source: Gülşen and Kara (2019).

All uncertainty measures show that inflation uncertainty has started to increase slightly since 2017, and displayed a much sharper upside movement until September in 2018. Although inflation uncertainty declined significantly after September, it still hovers at elevated levels compared to historical averages.

Although uncertainty measures mostly show similar patterns, they exhibit some differences in certain periods. The indicator calculated from the individual density forecasts, which measures the direct perception of uncertainty, shows a slow but continuous decline after September. Yet, the entropy indicator, which measures whether the distribution is concentrated on certain intervals or distributed across many intervals, has not shown a significant improvement in recent period. Meanwhile, the rapid recovery in the disagreement since September 2018 seems to reverse in January 2019. To explore further the recent upsurge of the disagreement measure, we compare the cross sectional distribution of point forecasts in January with that of the previous month (Chart 3).

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[6] The uncertainty measures used in this box are based on Gülşen and Kara (2019). Following Rich and Tracy (2010), the entropy measure is calculated as follows: $entropy_t = -\left(\sum_{b=1}^{n} p_{b,t}\left[\ln\left(p_{b,t}\right)\right]\right)$ where n shows the total number of intervals of the probability distribution shown in Chart 1; b is the number of interval and $\mathrm{p_{b,t}}$ shows the probability assigned to the bth interval at time t.

Chart 3: Cross Sectional Distribution of Point Forecasts from 2018 December and 2019 January Survey of Expectations (12-Month Ahead Inflation Expectations)
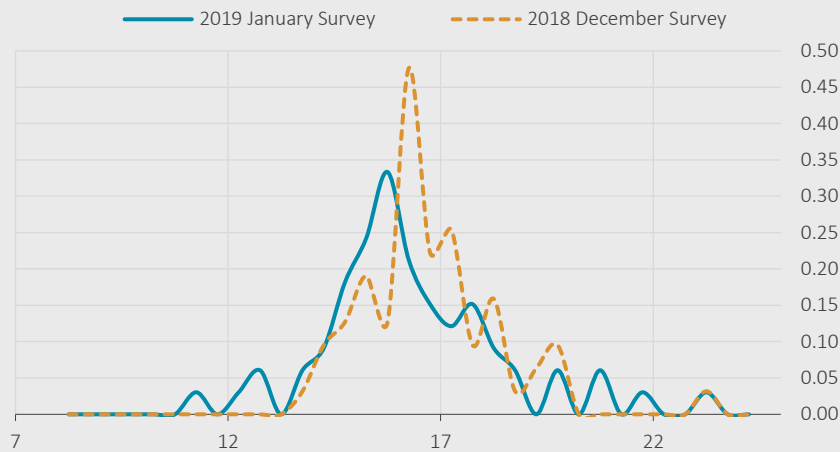
Source: CBRT.

Chart 3 shows that from December to January many participants have lowered their inflation forecasts (the distribution shifts to left), while a small number of participants increase their forecasts. Despite the decline in the average of the inflation forecasts, the standard deviation rises because a few number of participants update their inflation forecasts to extreme levels. This confirms that, consistent with the economic literature, the disagreement measure may not be an adequate proxy for inflation uncertainty. Still, the disagreement measure should not be ignored and their behavior should be monitored, because the behavior of outlier respondents may reveal some important signal.

Chart 4: Inflation Uncertainty Measures Implied by 24-month Ahead Expectations
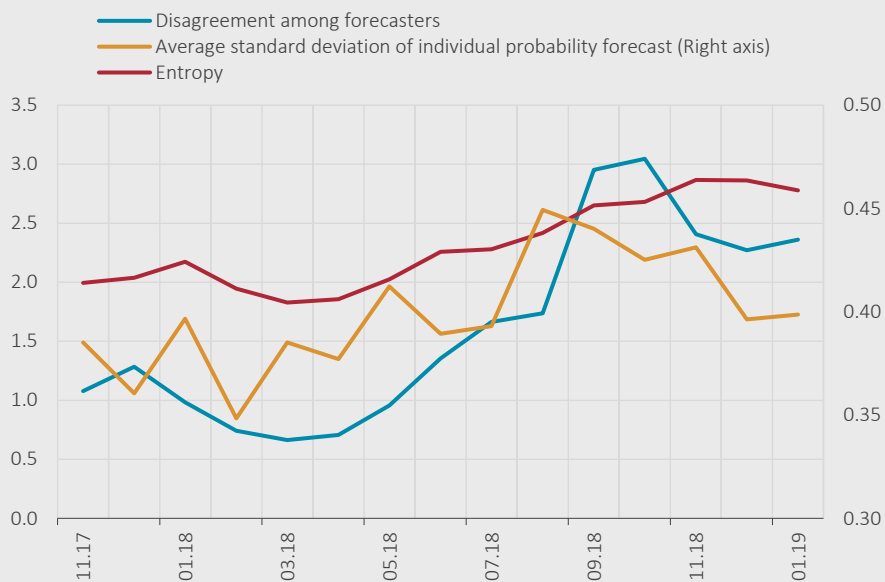
Source: Gülşen and Kara (2019).

We also compute the inflation uncertainty measures for two-year ahead inflation expectations (Chart 4).[7] Similarly, all of the inflation uncertainty indicators edge up in 2018, before easing considerably after September 2018. However, the level reached in January is still elevated compared to historical averages. In other words, economic agents do not perceive the recent decline in inflation as an improvement in medium-term inflation outlook.

Academic literature on the determinants of inflation uncertainty argues that the level of inflation is the key determinant of uncertainty.[8] In line with the literature, inflation level in Turkey is strongly significant in all models explaining the uncertainty measures derived in this study.[9] The tight relationship between inflation and inflation uncertainty underscores the key role of price stability in supporting long-term balanced growth and welfare improvement. Inflation uncertainty, which increases in periods of high inflation, hampers economic activity through higher real interest rates and delayed investments, distorting long-term plans and the pricing behavior.[10]

To sum up, monitoring and interpreting inflation uncertainty measures constructed using survey data have the potential to be complementary for forward-looking analysis of inflation dynamics and pricing behavior.

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[7] Since the probability distribution of two-year ahead inflation expectations is available at fixed intervals from November 2017, for methodological consistency the uncertainty indicators are shown from this period.
[8] Carvalho and Minella (2012) find that for the case of Brazil, disagreement on the point forecasts can be largely explained by inflation and sovereign risk premium. However, the authors do not include alternative uncertainty indicators in their analysis.
[9] Detailed empirical results can be found in Gülşen and Kara (2019).
[10] Ball (1992) describes the economic reasons for the relationship between inflation level and inflation uncertainty.

Box 3.2
Coordination Between Monetary and Fiscal Policies: Sliding Scale Tariff and Its Impact on Inflation

The Sliding Scale Tariff (SST), introduced in May 2018, has established a ceiling on the prices of fuel oils, where the ceiling was determined to be then-effective prices of fuel oil products. The mechanism by which this application works is to make the necessary cut in fuel oil taxes whenever the underlying prices of fuel oil hit the ceiling, which might be due to exchange rates, oil prices or butane/propane prices shocks. This mechanism kept the fuel oil prices constant in a period when the volatility in financial markets was heightened and Turkish lira was depreciating. Thus, the likely inflationary pressures of a rise in fuel oil prices have been contained, which would otherwise have a large spillover effect on consumer prices. As per the implementation, the lump-sum SCT was raised in tandem with the appreciation of the Turkish lira and the fall in oil prices to keep fuel oil prices constant. [1] When cost factors allowed, taxes returned back to the pre-SST levels, allowing decreases in fuel oil. The fixed price implementation was effective until 4 December 2018 and following this, price reductions in consumer prices started to be observed. [2] This box explains the impact of SST on consumer inflation in the period May-December 2018 when SST was effective.

Measuring the impact of SST on consumer price inflation necessitates estimating the fuel oil prices in a scenario where SST was not implemented, thus demands an understanding of how prices for fuel oils are set. Fuel oil prices are set according to a formula determined by the EPDK (Energy Market Regulatory Authority) and the effective prices are updated when the discrepancy between the effective prices and the prices calculated according to the formula (formula price) exceeds a threshold. Since not all the components of the formula are perfectly known, the formula price, hence the prices that would be effective under a no-SST scenario are unknown. In this regard, fuel oil prices are modelled using main cost factors such as exchange rates and oil prices.

Considering the fuel oil products (gasoline, diesel fuel and LPG), exchange rates, oil and butane/propane prices are set as explanatory variables for the model. Due to the innate long run relationship between fuel oil prices and Turkish lira denominated oil and butane/propane prices, for estimation purposes under different scenarios (e.g. no SST scenario), the amount of deviation from the long-run equilibrium prior to the estimation period should be taken into account. This calls for a model that takes into account this relationship and incorporates an assumption for an error correction mechanism.

Against this backdrop, using the main determinants of fuel oil prices along with the lump sum tax on fuel oils, an autoregressive distributed lag (ARDL) model is estimated. The model is given as

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[1] Prices of fuel oils went up in August due to a one-time hike in lump sum tax and in September due to the impact of the hike extended to September price data. Moreover, price increases, which actually stemmed from the adjustments by fuel stations, were observed in the other months as well, albeit these increases remained very limited.

[2] The impact of the SST on gasoline and diesel fuel faded in November. Hence, prices of gasoline and diesel fuel showed downward movements in November.

$$\Delta \log(P_t - \tau_t) = \alpha + \beta_1 \Delta \log(e_t) + \beta_2 \Delta \log(oil_t) + \beta_3 \Delta \log(bp_t) + \lambda[\log(P_{t-1} - \tau_{t-1})$$
$$- \gamma_1 \log(e_{t-1}) - \gamma_2 \log(oil_{t-1}) - \gamma_3 \log(bp_{t-1})] + \delta D0907$$

In the equation, log denotes the logarithmic transformation, P_t fuel oil prices, τ_t the lump sum tax on fuel oil products, e_t the USD/TL exchange rate, oil_t international oil price and, bp_t denotes weighted average of butane and propane prices. $D0907$ is a dummy variable for July 2007, and λ denotes the speed of adjustment to the long run equilibrium. The model is estimated by OLS, and the estimation results are shown in Table 1. The model is able to explain 90% of the variation in fuel oil prices, and the coefficients are consistent with the theory in hand, and are statistically significant.

Table 1: Model Output

Parameter	Coefficient	Standard Dev.	t-Statistic
α	-0.64	0.143	-4.52
β_1	0.78	0.059	13.15
β_2	0.43	0.023	18.54
β_3	0.20	0.021	9.83
λ	-0.18	0.040	-4.64
γ_1	0.97	0.033	29.1
γ_2	0.61	0.081	7.53
γ_3	0.13	0.079	1.65
δ	-0.14	0.021	-6.89
Sample	January 2007 – April 2018 (Monthly)		
R^2	0.89		

Source: Author's Own Calculations.

Fuel oil prices implied by the model results and the actual prices under SST are depicted in Chart 1. The discrepancy between the actual and the estimated fuel oil prices reached the peak in September.

Chart 1: Actual and Estimated Fuel Oil Prices (TL)
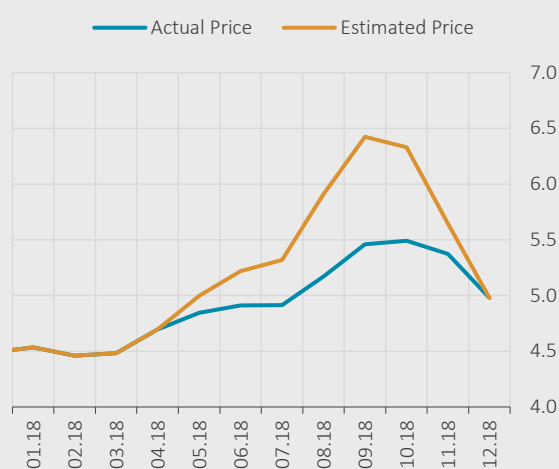
Chart 2: Impact on CPI Inflation in an Alternative No SST Scenario (% Points)

Source: Author's Own Calculations.
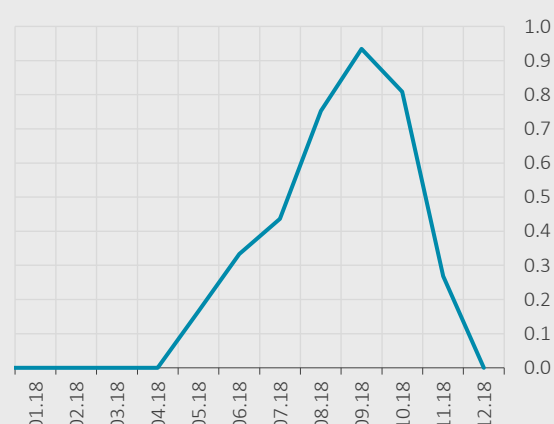
Source: Author's Own Calculations.

The estimated impact of fuel oil prices under a no SST scenario on CPI inflation is provided in Chart 2. By September, around 1 percentage point of contribution to CPI inflation had been prevented. Taking into account the fact that fuel oils constitute one of the most widely used inputs in the economy, and considering the expectations and price indexation channels, a significant inflationary pressure has been contained by SST. After September, particularly in November and December, the fall in international oil prices along with the appreciation of the Turkish lira has rendered SST ineffective. Therefore, SST has smoothed the sharp increase in inflation in the third quarter and helped containing the inflationary pressures, direct and indirect, and demonstrated a significant example of macroeconomic policy coordination.

4. Supply and Demand Developments

In the third quarter of 2018, economic activity slowed down, consistent with the outlook laid down in the October Inflation Report. In this quarter, the rebalancing process that started in the second quarter became more evident. The strong contribution from net exports curbed further demand-led slowdown in economic activity.

Despite the improvement in financial volatility and risk premium indicators on the back of the policy steps and the measures taken, the sustained tightness in financial conditions continued to limit domestic demand. Although the tax cuts introduced for durable goods instigated a partial recovery in private consumption demand, the impact of tax cuts on production and growth remained limited due to reduced inventory stock. Meanwhile, as growth in exports of goods and services, and the decline in the demand for imports continued, net exports' contribution to growth continued as well.

It is estimated that throughout 2019, financial conditions underpinned by the improvement in inflation outlook and the decline in country risk premiums will support a moderate recovery in domestic demand and net exports will contribute to growth. Although real income, which decreased in the second half of 2018 due to the rapid climb in inflation, is expected to support private consumption in the first quarter on the back of the wage adjustments introduced in early 2019, its contribution to growth throughout the year is expected to be limited depending on the labor force outlook. Meanwhile, the recent rise in uncertainties pertaining to monetary policies of advanced economies and global economic activity keep downside risks to growth via capital flows and foreign trade channels in place.

4.1 Supply Developments

In the third quarter of 2018, gross domestic product (GDP) grew by 1.6% year-on-year and contracted by 1.1% quarter-on-quarter, adjusted for seasonal and calendar effects. In this quarter, the slowdown in economic activity spread across the majority of the sectors, with all main industries except agriculture providing less contribution to growth in both annual and quarterly terms. The services sector remained the biggest contributor to growth thanks to the strong recovery in the tourism sector (Charts 4.1.1 and 4.1.2).

Chart 4.1.1: Contributions to Annual GDP Growth from the Production Side (% Points)
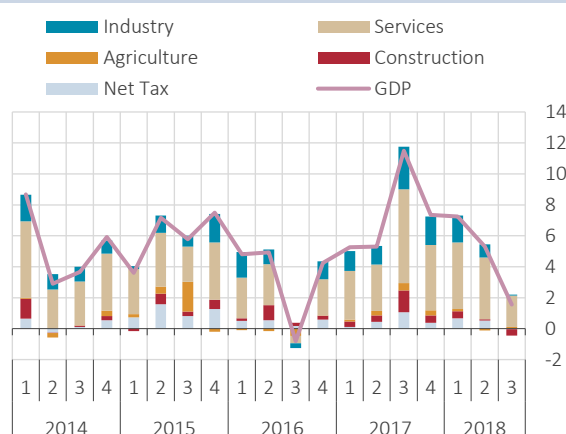
Source: CBRT, TURKSTAT.

Chart 4.1.2: Contributions to Quarterly GDP Growth from the Production Side (Seasonally Adjusted, % Points)
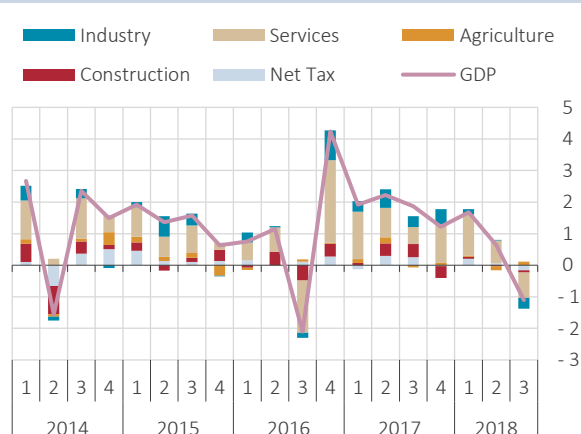
Source: CBRT, TURKSTAT.

In the final quarter of 2018, financial indicators displayed a partial recovery on the back of the policy steps and measures taken, nevertheless, the interest margin and risk premium remained high and tightness in financing conditions persisted (Chart 4.1.3).

Chart 4.1.3: Commercial Loan-Deposit Rate Spread and Real Commercial Loan Rates* (Annual, Simple, %)
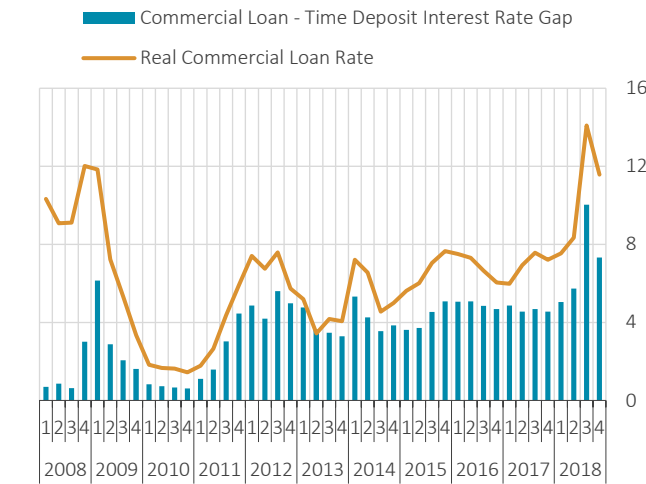

Source: CBRT, TURKSTAT.
* Deflated by 12-month ahead CPI expectations.

In the October-November period, industrial production decreased by 4.5% quarter-on-quarter (Chart 4.1.4). The slowdown in sectors that cater to the domestic market led by construction-related businesses continued with further spread across all sectors. In November, tax cuts were introduced for some sectors. Nevertheless, production only increased in the furniture manufacturing sector among the sectors subject to tax cuts which means the rise in sales in other sectors were largely met out of the stocks and production did not increase. Despite the general weakness in domestic demand, sectors related with medicine and defense industries sectors continued to contribute to industrial production. Meanwhile, a partial slowdown is observed in export-oriented sectors as well. The survey and the import data suggest that the domestic demand-led weakness in industrial production continued in December too (Chart 4.1.5).

Chart 4.1.4: Industrial Production Index (Seasonally Adjusted, Quarterly % Change)
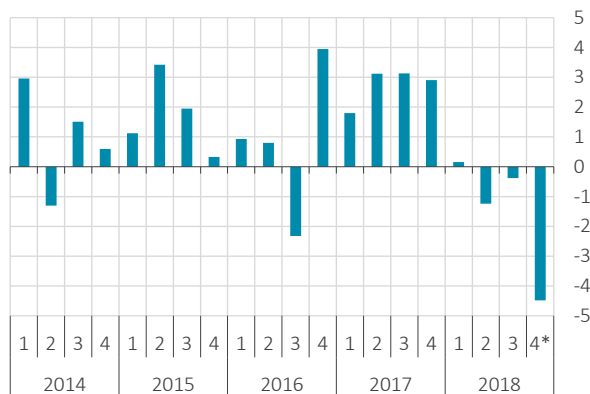
Source: TURKSTAT.
* October-November average.

Chart 4.1.5: PMI and PMI Production (Seasonally Adjusted, Level)
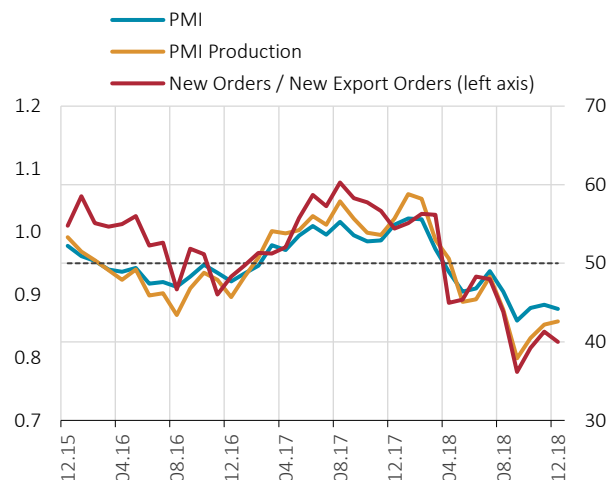
Source: IHS Markit.

In the third quarter, the construction sector's value added continued to decrease on a quarterly basis, and contracted by 5.3% annually, making it the only main sector that contributed negatively to annual growth. The industrial production, employment and construction sector composite indicator suggests that the ongoing decline in the sector's value added further accelerated in the final quarter (Chart 4.1.6, Chart 4.3.4). Meanwhile, services sector activity decreased in tandem with the downtrend in

manufacturing and construction sectors (Chart 4.1.7). Conversely, the positive outlook in tourism-related sub-sectors curbed further weakening in the services sector.

Chart 4.1.6: Value Added and Composite Index of Construction** (Annual % Change)

Construction Investment Value Added
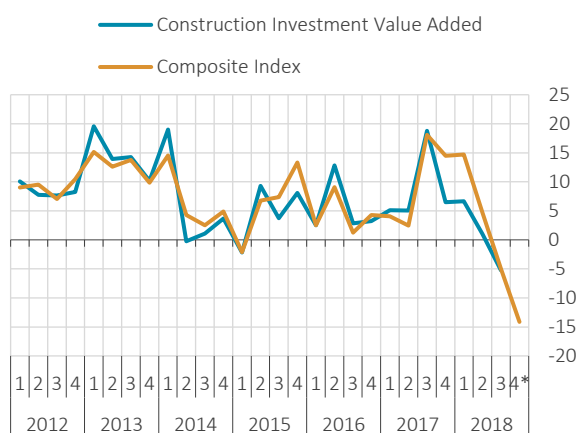
Composite Index

Source: CBRT, TURKSTAT.
* As of November.
** The composite index of construction is measured by the annual percentage change in domestic real turnover in fabricated metals and other non-metallic minerals. Weights obtained from linear regression.

Chart 4.1.7: Value Added of Services Sector and PMI Service Index

Services Sector Value Added (annual % change)

PUMAX Services (seasonally adjusted, left axis)
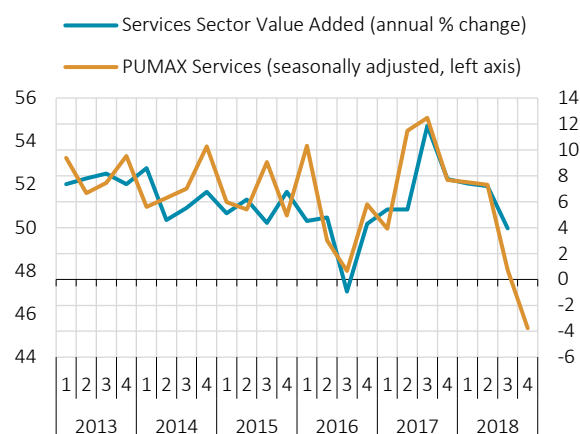
Source: MÜSİAD, TURKSTAT.

4.2 Demand Developments

On the expenditures side, an analysis of 2018's third quarter data reveals that the slowdown in the economy mainly stemmed from domestic demand while net exports curbed further quarterly contraction (Chart 4.2.1 and Chart 4.2.2). In this quarter, the public sector's direct contribution to growth decreased compared to previous periods. Underpinned by strong tourism activities, exports of goods and services increased in the third quarter while imports of goods and services decreased due to weak domestic demand and the depreciation in real exchange rates (Box 4.2).

Chart 4.2.1: Contribution to Annual Growth from the Expenditure Side (% Points)
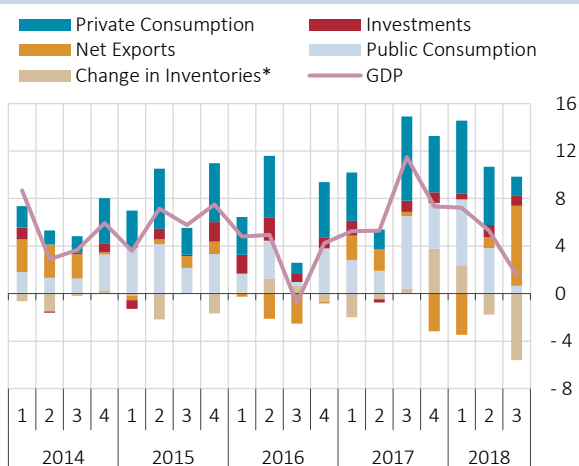
Private Consumption | Investments
Net Exports | Public Consumption
Change in Inventories* | GDP

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

Chart 4.2.2: Contributions to Quarterly GDP Growth from the Expenditures Side (% Points)
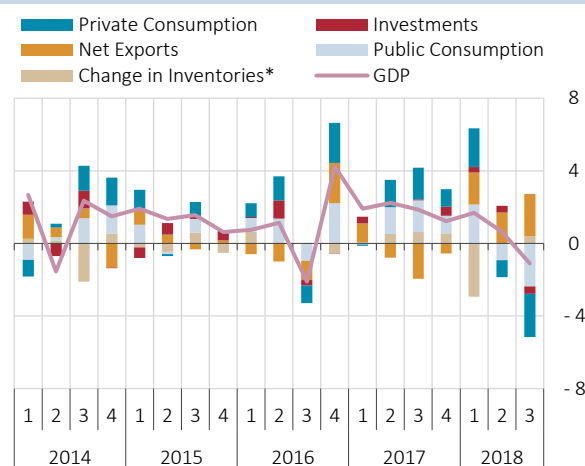
Private Consumption | Investments
Net Exports | Public Consumption
Change in Inventories* | GDP

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

Indicators for the final quarter suggest that the rebalancing in demand composition has continued and became more significant. The measures taken and the tax incentives introduced have partially curbed contraction in domestic demand. Meanwhile, the strong trend in exports of goods and services continued,

albeit with a slight slowdown. Thus, net exports continued to contribute to growth with the support of the decreasing imports due to subdued domestic demand conditions.

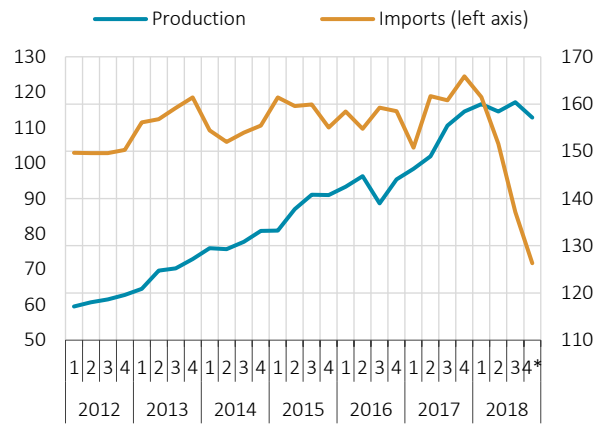**Chart 4.2.3: Private Consumption and Composite Indicator for Private Consumption**** (Annual % Change)
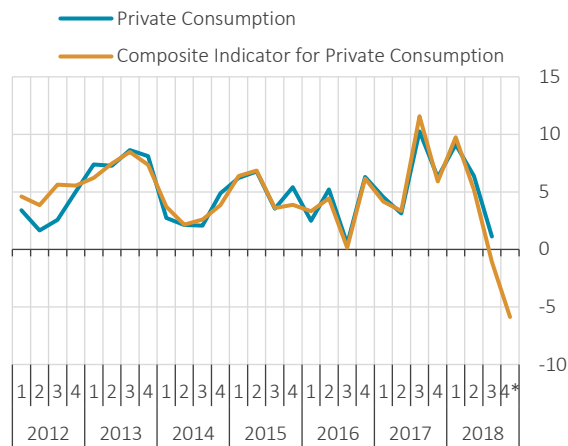
Source: ADA, CBRT, TURKSTAT.
* As of November.
** The composite indicator is the weighted average of the annual percentage changes in the real turnover in non-durable goods, the import quantity index for durable goods, automobile and the volume index for retail sales. Weights obtained from regression analysis.

Chart 4.2.4: Production and Imports of Consumer Goods (Seasonally Adjusted, 2010=100)

Source: CBRT, TURKSTAT.
* October-November average.

Composite indicators suggest that private consumption and investment expenditures decreased in the final quarter, year-on-year (Chart 4.2.3 and Chart 4.2.5). The depreciation in the Turkish lira and tightening in financial conditions led to a decline in demand for imported goods, primarily in automobiles. Meanwhile, deterioration in labor market and real wages made a contractionary impact on consumer demand via income-sensitive consumer non-durables (Chart 4.2.4).

Chart 4.2.5: Investment Expenditures and Composite Indicator for Investment Expenditures** (Annual % Change)
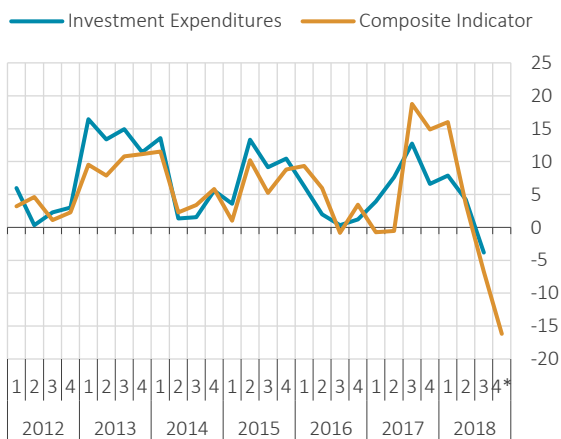
Source: CBRT, TURKSTAT.
* As of November.
** The composite indicator is the weighted average of the annual percentage changes in the domestic real turnover in the other non-metallic minerals, machinery-equipment, capital goods industries and annual percentage change in imports quantity index for capital goods. Weights obtained from regression analyses.

Chart 4.2.6: Investment Expenditures and Exchange Rate Volatility*
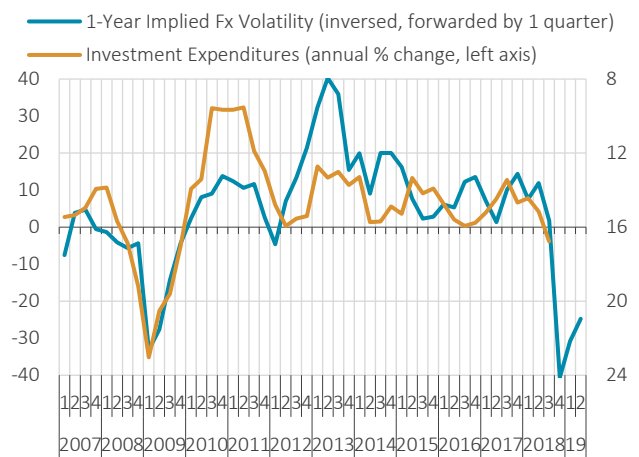
Source: Bloomberg, TURKSTAT.
* As of 25 January 2019.

Financial volatilities restrict investment spending (Chart 4.2.6). In addition, the reduction of public spending on construction investments was another factor limiting total investments in the last quarter of 2018 (Chart 4.2.7). On the other hand, data from the Business Tendency Survey (BTS) suggest that exporting sectors had a higher investment tendency compared to other industries (Chart 4.2.8).
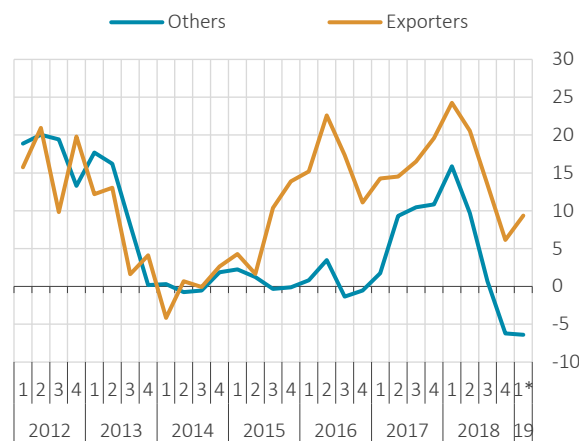
Chart 4.2.7: Central Government's Capital Expenditures* (Seasonally Adjusted, Real, 2012=100)
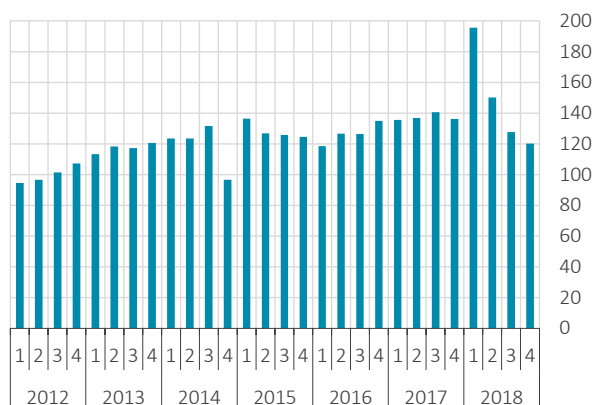
Source: MTF, CBRT.
* Deflated by CPI.

Chart 4.2.8: Fixed Capital Investment Tendency by Sectors Based on BTS (Seasonally Adjusted, Up – Down, %)

Source: CBRT.
* As of January.

Net exports' strong contribution to quarterly growth continued in the final quarter as well. External demand remained strong despite the partial slowdown signals in global growth outlook. In this quarter, exports of goods were supported by firms' tendency to reach out to foreign markets and by their market diversification flexibility in response to cumulative depreciation of reel exchange rate and the slowdown in domestic demand (Chart 4.2.9). Moreover, the contribution to growth coming from exports of goods and services, which was underpinned by the strong course of tourism and affiliated transportation activities, increased (Chart 4.2.10). Meanwhile, the depreciation of the Turkish lira and the shrinking domestic demand put downward pressure on import demand (Chart 4.2.9 and Box 4.1).

Chart 4.2.9: Quantity Indices for Imports and Exports (Excl. Gold, Seasonally Adjusted, 2010=100)
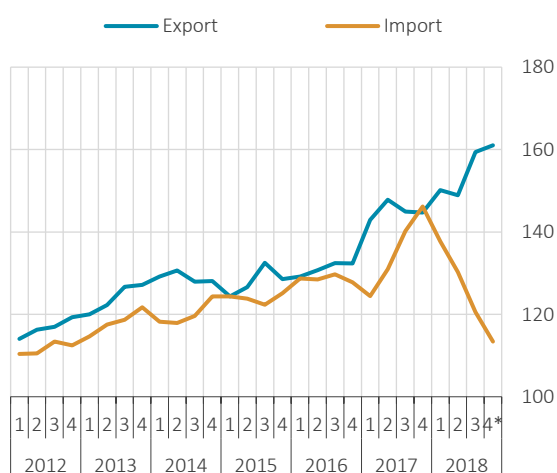
Source: CBRT, TURKSTAT.
* Actual figures for October and November, forecast for December.

Chart 4.2.10: Tourism and Services Revenues** (Real, Seasonally Adjusted, 2010=100)
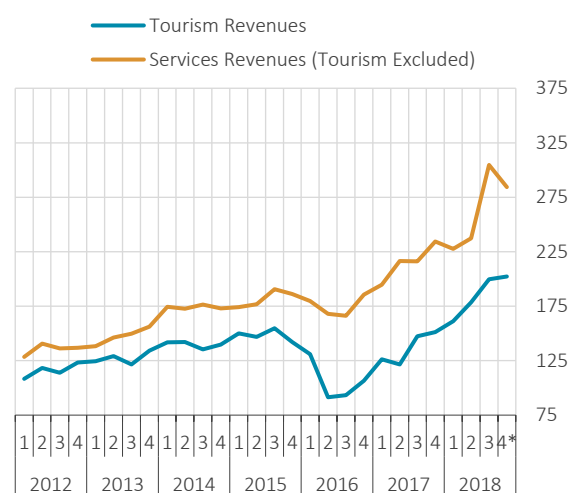
Source: CBRT, TURKSTAT.
* Actual figures for October and November, forecast for December.
** Deflated by CPI.

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To sum up, the rebalancing trend in economic activity became more evident. It is estimated that throughout 2019, financial conditions underpinned by the improvement in the inflation outlook and the decline in country risk premiums will support a moderate recovery in domestic demand and that net exports will contribute to growth. Meanwhile the recent rise in uncertainties pertaining to monetary policies of advanced economies and global economic activity keep downside risks to growth via capital flows and foreign trade channels in place.

4.3 Labor Market

After a steady fall throughout 2017, unemployment rates assumed an uptrend in the second quarter of 2018 and this trend continued in the October period (Chart 4.3.1). In the third quarter, seasonally adjusted total and non-farm unemployment rates increased by 0.5 points compared to previous quarter to 11.2% and 13.1%, respectively. This was due to both deceleration in non-farm employment as a result of the slowdown in economic activity and the rise in labor force participation (Chart 4.3.2). In the October period, covering September, October and November, the seasonally adjusted total and non-farm unemployment rates increased by 0.3 and 0.4 points compared to third quarter to 11.5% and 13.5%, respectively.

Chart 4.3.1: Unemployment and Labor Force Participation Rates (Seasonally Adjusted, %)
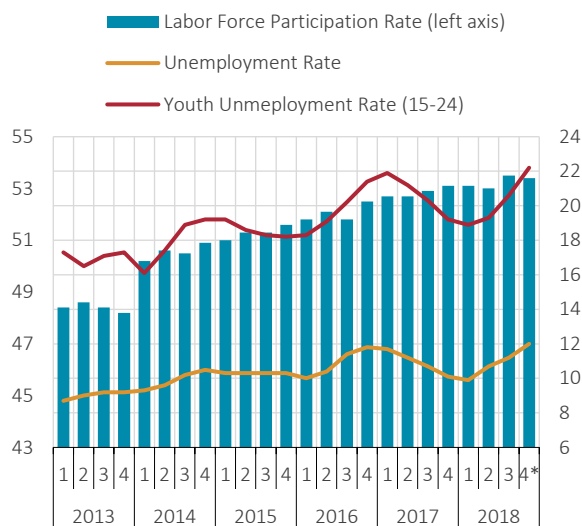
Source: TURKSTAT.
* As of the October period.

Chart 4.3.2: Contributions to Quarterly Changes in Non-Farm Unemployment (Seasonally Adjusted, % Points)
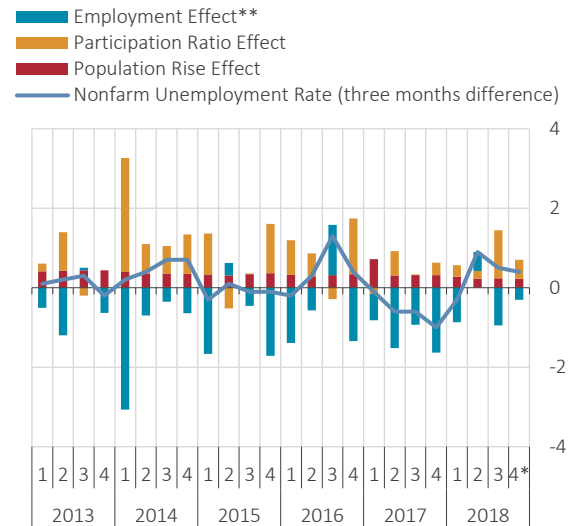
Source: CBRT, TURKSTAT.
* As of the October period.
** Employment growth pulls non-farm unemployment down.

In the third quarter of 2018, the main contributors to non-farm employment growth were services and industrial sectors (Chart 4.3.3 and Chart 4.3.4). The favorable trend of exports made a positive impact on industrial employment. An analysis of sub-sectors of the services employment reveals that the increase was mainly driven by trade, tourism and public sector-related sectors (Chart 4.3.5). Employment in the construction sector continued to decrease as a result of the slowdown in businesses providing input to this sector (Chart 4.3.4).

Chart 4.3.3: Non-Farm and Services Employment
(Seasonally Adjusted, Million People)
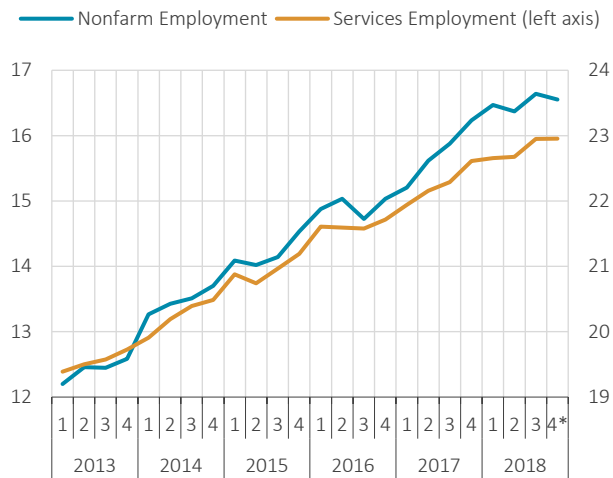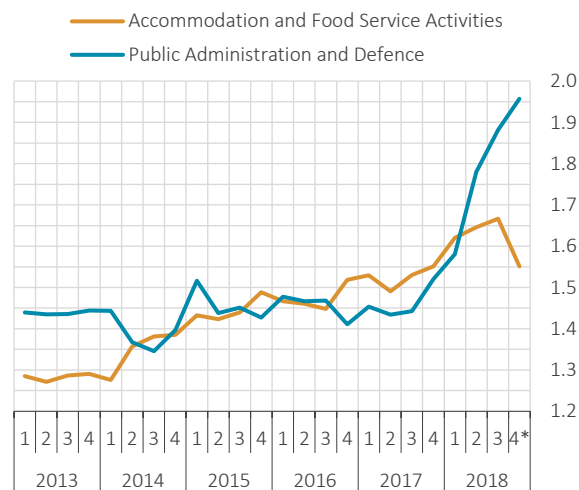

Source: TURKSTAT.
* As of the October period.

Chart 4.3.4: Industrial and Construction Employment
(Seasonally Adjusted, Million People)
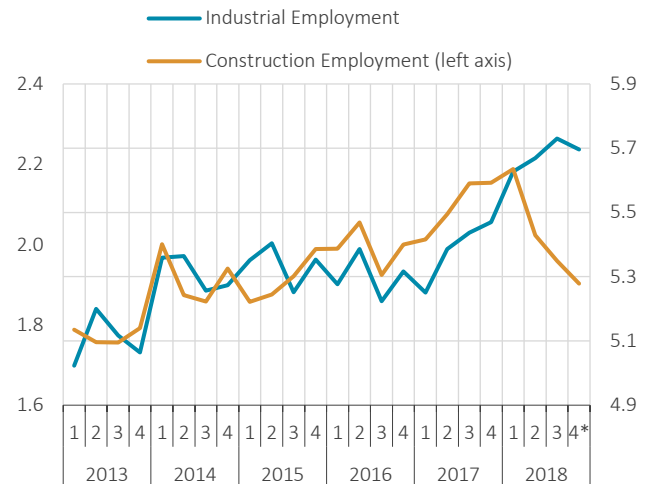
Source: TURKSTAT.
* As of the October period.

As the domestic demand-driven slowdown in economic activity became more noticeable in the final quarter of the year, firms' employment prospects deteriorated. Actually, compared to third quarter, industrial and construction sector employment decreased by 0.6% and 2.9%, respectively, in the October period. While the services sector employment was underpinned by public sector-related sectors, export and tourism-related sectors employment slowed down (Chart 4.3.5).

Chart 4.3.5: Employment in Selected Services Subsectors
(Seasonally Adjusted, Million People)

Source: CBRT, TURKSTAT.
* As of the October period.

Chart 4.3.6: Three-Month Ahead Total Employment Expectations-BTS (Seasonally Adjusted, Up-Down, %)
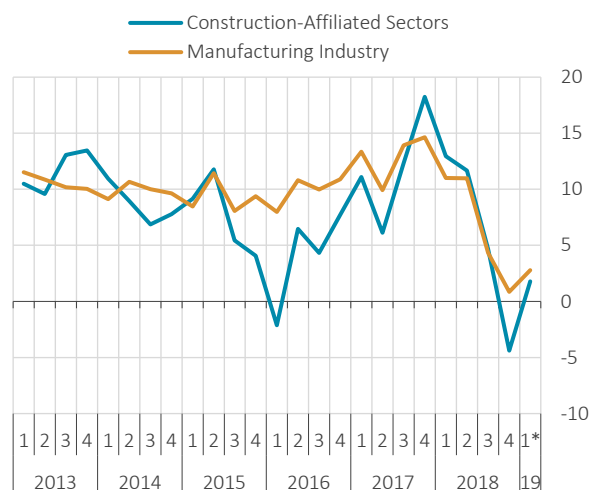
Source: BTS, CBRT.
* As of January.
** Construction-affiliated sectors include rubber and plastics, minerals, basic metal and fabricated metal.

According to the BTS, the three month-ahead employment expectation suggests that employment will remain weak particularly in construction-related sectors (Chart 4.3.6). Similarly, the deceleration in three month-ahead employment expectations for sectors other than industrial sector continues (Chart 4.3.7). In the third quarter, applications per job posting on Kariyet.net, which moves together with non-farm unemployment, continued to rise compared to the previous quarter (Chart 4.3.8).

Chart 4.3.7: Expected Number of Employees by Sectors for the Next 3 Months (Seasonally Adjusted)
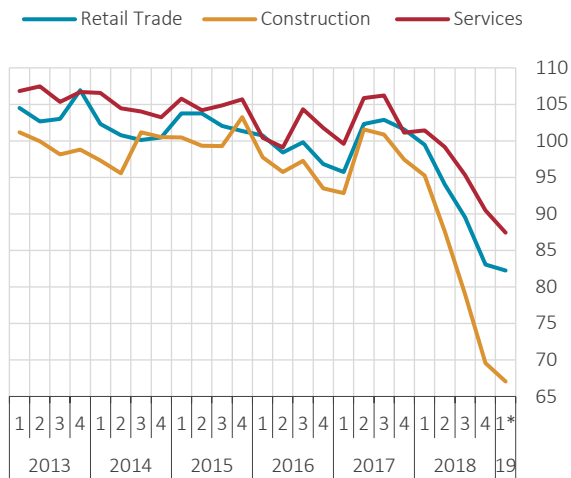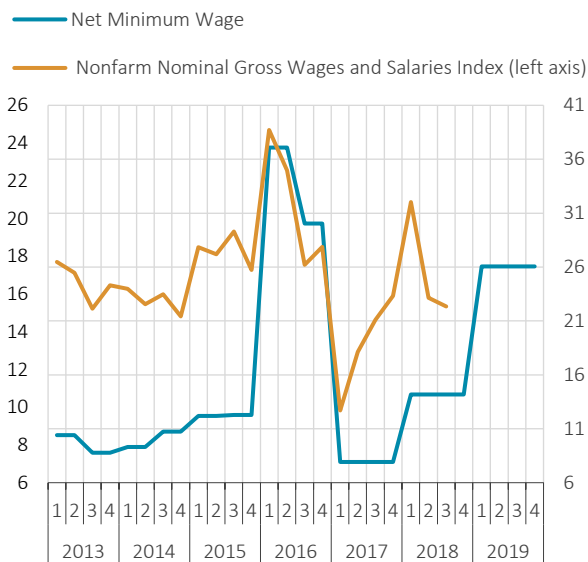

Source: CBRT, TURKSTAT.
* As of January.

**Chart 4.3.8: Applications per Posting on Kariyer.net and Nonfarm Unemployment*** (Seasonally Adjusted)
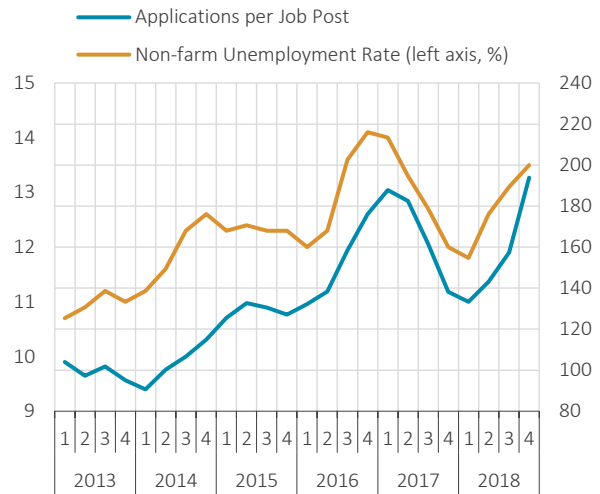
Source: Kariyer.net, CBRT.
* As of the October period.

4.4 Wages and Productivity

In the third quarter of 2018, as the uptrend in unemployment rates continued, the non-farm gross wage index decreased in real terms (Chart 4.4.1). Similarly, the seasonally adjusted real earnings index decreased significantly by 2.8% (Chart 4.4.2).

Chart 4.4.1: Non-farm Wage Index and Net Minimum Wage (Nominal, 2015=100, Annual % Change)

Sources: MLSS, CBRT, TURKSTAT.

Chart 4.4.2: Non-farm Hourly Earnings Index (Seasonally Adjusted, 2015=100)
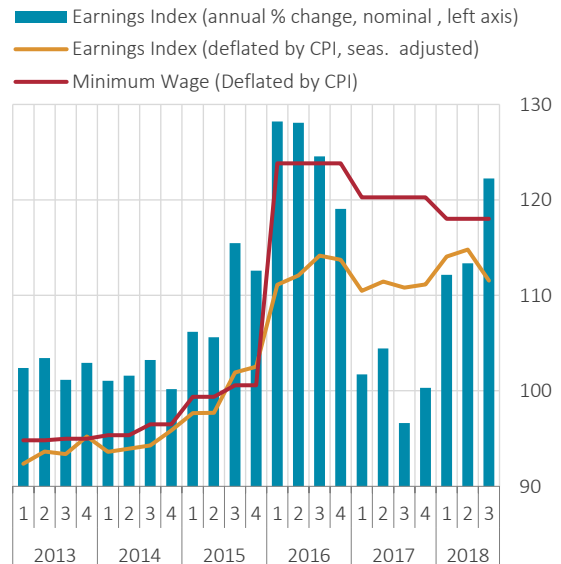
Source: CBRT, TURKSTAT.
* Deflated by the CPI.

In periods when economic activity contracts, as was the case in the third quarter of 2018, production reacts more promptly than employment and thus, partial labor productivity decreases. Actually, in this quarter, non-farm partial productivity decreased by 1.6% year-on-year, while per capita real wage fell by 1.4%, less than the productivity. Therefore, real unit wages (per capita real wage/productivity) remained similar to last year's level (Chart 4.4.3).

Chart 4.4.3: Partial Labor Productivity*, Per Capita Real Wages and Real Unit Wages** (Non-farm, 2015=100, Annual % Change)
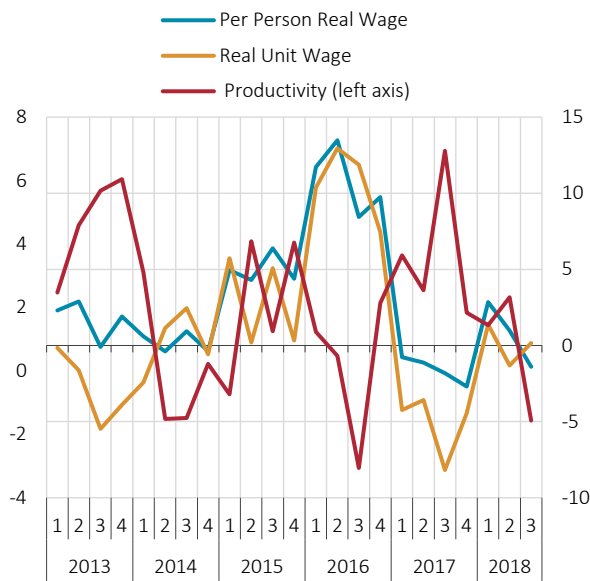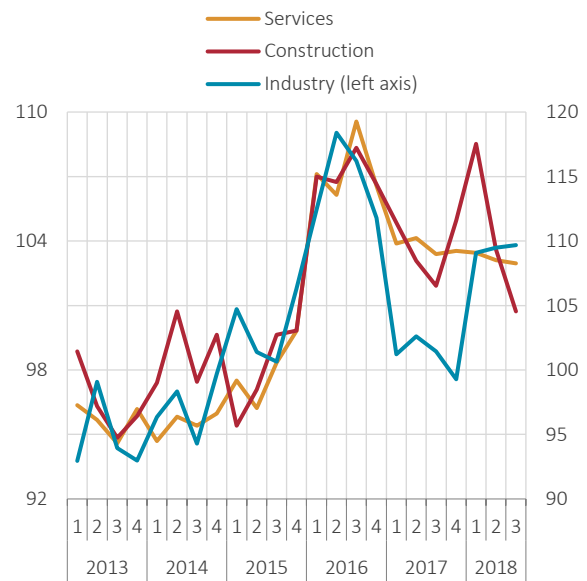

Source: CBRT, TURKSTAT.
* Non-farm value added/nonfarm employment (HLFS).
** Per capita real wage x employment/value added.

Chart 4.4.4: Real* Unit Labor Costs** by Sectors (Seasonally Adjusted, 2015=100)

Source: CBRT, TURKSTAT.
* Deflated by the CPI.
** Real labor cost/productivity (value added/HLFS employment).

In the third quarter, the seasonally adjusted real labor cost per hour index decreased across all sectors compared to previous quarter. Similarly, as a result of the productivity decreases in services and industrial sectors, the real unit labor costs remained flat. Real unit labor cost of the construction sector decreased significantly due to the sharp fall in employment (Chart 4.4.4).

The factors that will determine the course of wages in the final quarter will be the trend of the economic activity, unemployment rate and inflation developments. In this quarter, the rise in unemployment rates did not affect employees with wages very close to the minimum wage, but exerted downward pressure on wage increase for upper percentiles. In 2019, the level of minimum wage and past inflation rates will be the two key factors that will determine wage increase. The gross minimum wage and net minimum wage for 2019 was set at TRY 2,558, and TRY 2,020, respectively, denoting a 26% increase (Chart4.4.1). The continuation of state subsidies for minimum wage provided to employers in 2019 is expected to partially limit cost pressures. Another important issue is the sensitivity of wages to business cycles. Aldan and Gürcihan-Yüncüler (2016)[1] conclude that while, there is no significant flexibility in real wages around or under the minimum wage in Turkey, real wages over the minimum wage are relatively more flexible. Therefore, it is expected that the percentage rise for wages sensitive to business cycles will be less than the minimum wage increase rate. To sum up, the wage increases in 2019 is expected to be higher than that in 2018 due to minimum wage adjustment and backward-indexation; nevertheless this rise is expected to be partially curbed by economic activity and labor market outlook.

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[1] Aldan, A., and Gürcihan Yüncüler, H. B. (2016), Real Wages and the Business Cycle in Turkey, CBRT Working Paper, No. 16/25.

4.5 Output Gap

To assess the cyclicality of the economy and the demand-driven pressures on inflation, the CBRT monitors output gap indicators estimated by several methods.[2] Based on the breakdown of the output gap by its components, exports are estimated to have hovered above their long-term trend in the final quarter (Chart 4.5.1). However, the disinflationary contribution of aggregate demand conditions became more noticeable due to the weak domestic demand. Actually, output gap's maximum- minimum band compiled from various indicators points to a unanimous conclusion that economic activity has been significantly below its potential in the final quarter (Chart 4.5.2).

Chart 4.5.1: Breakdown of Output Gap by Demand Components*
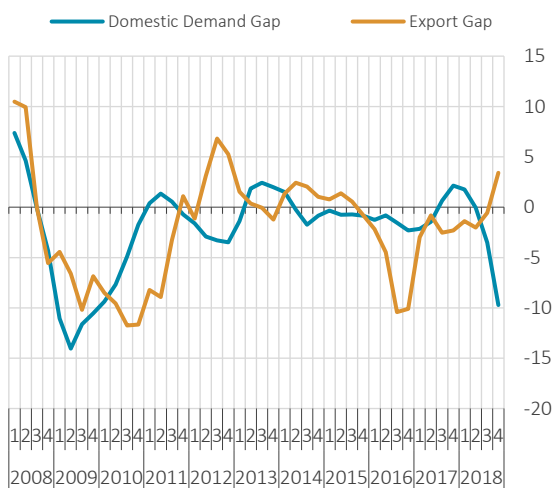
Source: CBRT calculations.
* Output gap series constructed from demand components (See Inflation Report 2018-III Box 4.1). Forecasts for total demand components have been used for 2018Q4.

Chart 4.5.2: Output Gap Indicators*
(Average and Min/Max Band)
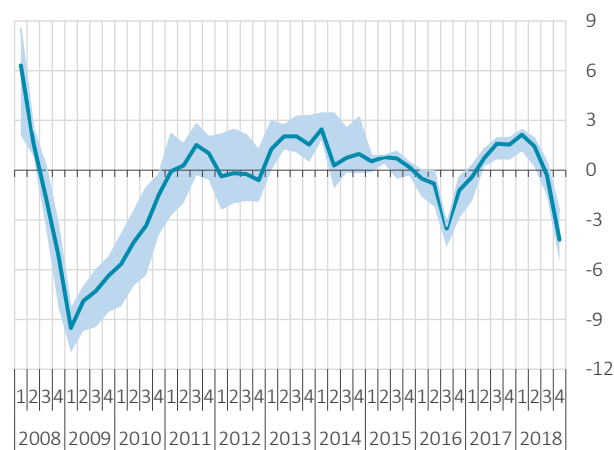
Source: CBRT calculations.
* For 2018Q4, forecasts for GDP and total demand components have been used.

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[2] See Inflation Report 2017-1, Box 4.2, "Alternative Indicators for Output Gap", pp. 55-59.

Box 4.1

## Recent Trends in Imports: Consumption and Investment Goods

The recovery in the current account balance, which started in the third quarter of the year, accelerated in the last quarter because of the strong course of exports, the deceleration in loans, the slowdown in economic activity and the increase in tourism revenues. As a matter of fact, the annual current account deficit, which reached USD 58.2 billion in May, decreased to USD 33.9 billion as of November. This fall in the current account deficit is mainly due to the contraction in imports. The recent declines in the real exchange rate and domestic demand, and the deceleration in the growth rate of loans[1] have led to decreases both in total imports and imports of consumption and investment goods.

Chart 1: Goods Imports (Annual % change)
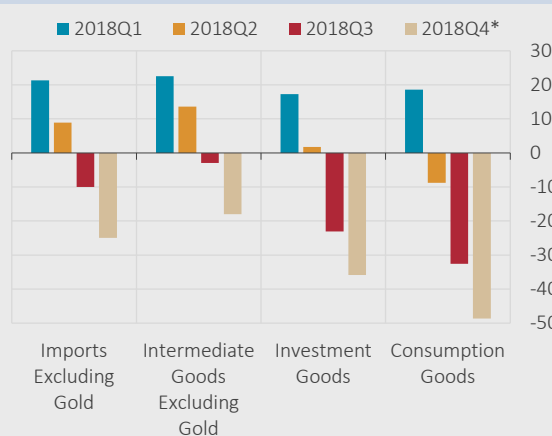
Chart 2: Contributions to Import Growth (% points)

*Covers October and November only.
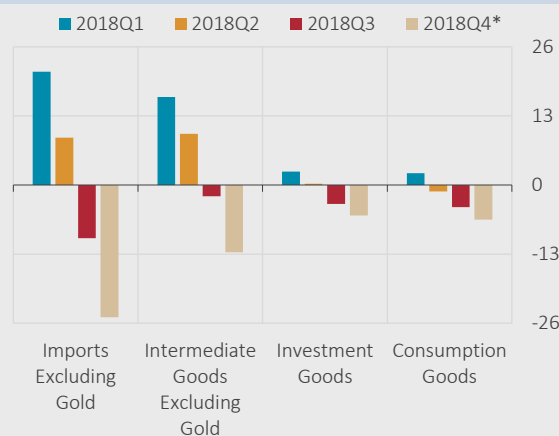
Source: TURKSTAT.

A few important points come to the fore when examining the recent developments in imports: Excluding gold, imports, which rose by 10% in the first half of the year, contracted by 10.4% and 24.9% in the third and fourth quarters of the year, respectively. While the imports of investment and consumption goods lost considerable pace in the first half of the year, the imports of intermediate goods, which have a high share in the total imports, contributed significantly to the positive growth of total imports in the first half (Charts 1 and 2).[2] With the slowdown in domestic demand and credit growth rates, which started in the third quarter, the decline in investment and consumer goods imports became more apparent and imports of intermediate goods started to decline, albeit moderately. In the last quarter of the year, the downward trend in the imports spread across all three sub-categories. Despite the low share of consumption and investment goods in total imports, their contribution to the decline in total imports in the last quarter is almost the same as that of the intermediate goods.[3]

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[1] For more information on the relationship between credit growth and the current account deficit, see Box 5.1, "Credit Expansion and Current Account Deficit" in the Inflation Report (April 2011).

[2] All calculations in the box are made by ignoring non-monetary gold imports. In addition, import numbers/values are in USD million per working day.

[3] Calculated by excluding non-monetary gold, consumption, investment and intermediate goods constitute 13%, 15% and 72% of total imports in 2017, respectively.

A detailed analysis of consumption goods indicates that the annual decline spilled over into the sub-items and was particularly rapid in the third and fourth quarters (Chart 3). Imports of passenger cars are the item of consumer goods with the highest decline. In the last quarter, passenger cars contributed 31 percentage points to the decrease in consumption goods imports, which was 46% from the same period of the preceding year (Graph 4).

Chart 3: Imports of Consumption Goods
(Annual % change)
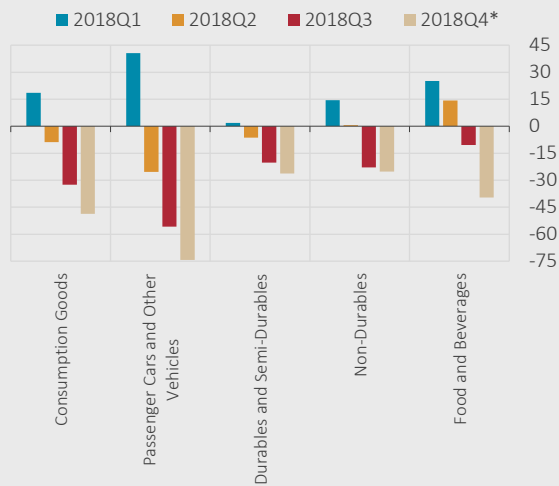
Chart 4: Contributions to Import Growth (% points)

*Covers October and November only.
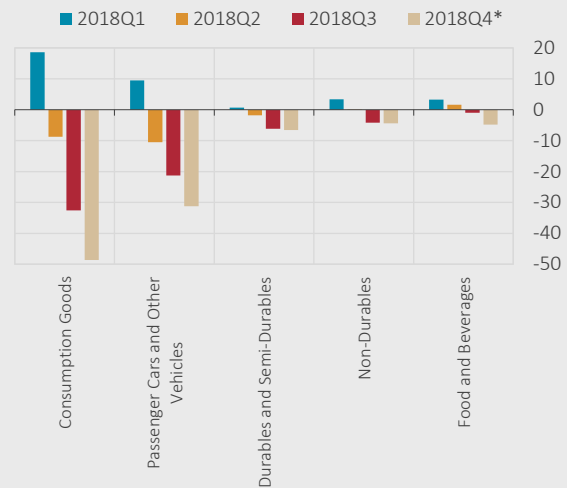
Source: TURKSTAT.

An analysis of the sub-items of the investment goods imports suggests that the decrease in imports is mostly concentrated in items such as mobile phones, portable computers and transportation vehicles, which are used essentially as consumer goods (Chart 5). The decline in imports of these products is mostly due to the tightening of credit conditions and the rise in their prices as a result of the depreciation in the TL. In the last quarter, these items fell by 70%, 64% and 45% on an annual basis, respectively. The total contribution of these three items to the 36% decline in the imports of investment goods in the last quarter is around 16 percentage points (Chart 6). The decline in imports of other investment goods, including machinery and equipment, remained relatively limited (28%).

Chart 5: Imports of Investment Goods
(Annual % change)
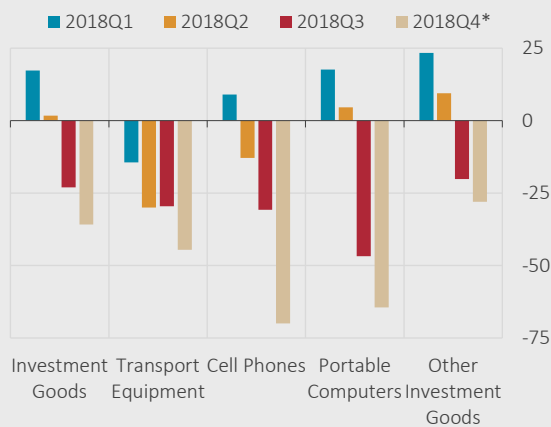
Chart 6: Contributions to Import Growth (% points)

*Covers October and November only.
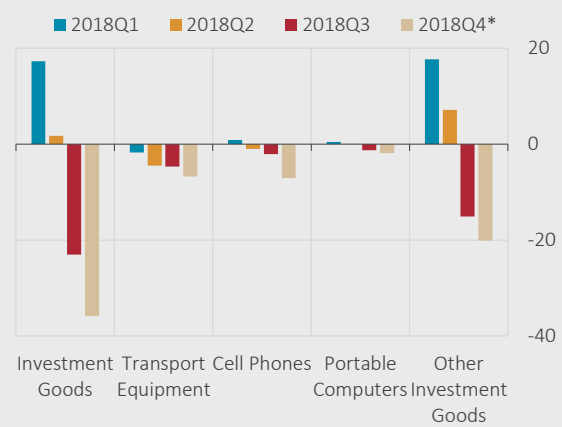
Source: TURKSTAT.

To sum up, imports of consumption and investment goods played an important role in the rapid recovery of the current account balance in the last quarter of the year. While the automotive sector drives the decline in consumer goods imports, the sharp fall in the imports of goods with consumption nature yet classified under investment goods is one of the main determinants of the decline in the imports of investment goods. On the other hand, the relatively limited contraction in the imports of machinery and equipment draws considerable attention. In this period of weakened economic activity, contracted credit supply and depreciated real exchange rate, achieving external balancing mainly through reducing imports of consumer goods rather than intermediate goods indicates a healthier composition in terms of production potential. This is expected to limit the external financing risks as the fall in the current account deficit continues in the upcoming period.

Box 4.2

Structural Policy Measures to Reduce the Current Account Deficit

After reaching 6.5% in the first half of 2018, the ratio of the current account to gross domestic product (CA/GDP) decreased to 5.5% in the third quarter with the recovery in exports. In November, the 12-month cumulative current account deficit fell l to USD 34 billion, with a reduction of USD 5.5 billion from the previous month. The improvement in the current account is expected to continue considering the recovery in exports and slowdown in imports. Meanwhile, as the literature states, improvements in the current account in the medium/long run will call for reforms on the structural side . Accordingly, multiple measures to contain the current account deficit have recently been taken in Turkey. The main structural problems in the current account and policy measures to contain them are discussed in this box under five headings.

Savings-Investments Gap

The saving-investment gap fluctuating around 4-5% is higher than in peer countries. Accordingly, a number of policy measures increasing the diversity of financial instruments to encourage domestic savings have recently been put into effect. For example, funds accumulated in the automatic enrollment pension system are expected to reach 3.5% of GDP at the end of 2020. Similarly, gold-backed bond issues aimed at bringing the under-the-mattress gold into the economy and the dowry and housing accounts facility introduced in 2016 increased the household savings significantly.

An increase in the household saving rate rests on a higher income as well as a healthy income distribution. Other long-term solutions include changing consumption habits by reducing waste and taking cognizance of ecologic sustainability as well as maintaining a rate of population increase compatible with long-run sustainable growth.

The household debt in Turkey is relatively lower than its peers. Nonetheless, the connection between the household debt and a balanced current account emphasized by the literature calls for the capacity to implement macro-prudential policies in coordination with different institutions when necessary. Accordingly, the recently established Financial Stability and Development Committee plays an important role in detecting the risks accumulated in financial system in advance and coordinating the management of such systemic risks. The amendments to Decree no. 32 and the establishment of the initiative at the CBRT to manage the exchange rate risk, and the foreign exchange borrowing regulation addressing small-scale firms with no foreign exchange are all expected to help attaining a healthy saving structure .

Foreign Direct Investments

Policies aiming at increasing Foreign Direct Investments (FDI) should be designed in tandem with the industrial policies. The motivation of foreign firms investing in the manufacturing sector is generally to raise the efficiency of a part of the production chain while the motivation of foreign firms investing in the services sector is to increase their market share . The incentive programs that are conducted in different sizes and scopes can assist FDI that will increase the production capacity through positive externalities. Accordingly, domestic partnership can be encouraged and the FDI incentives can be designed with the intention of increasing the capacity and skills of domestic suppliers. These programs should be designed to serve the purpose of developing knowledge-based capital; should be supported by long-term education policies aiming at increasing R&D; should be more-broad based and easily understood and implemented by investors.

Investments in Sectors with High Productivity and Added Value

It should be considered that the main prerequisites of production in high value added sectors are the production experience, technical infrastructure, business environment, R&D and human capital. Hence, sources of investment should be channeled to areas that will develop technical infrastructure and education system should be designed in a way to ease the transition of employment towards productive areas.

Import Dependency of Exports

Policies aimed at producing high value added and technological products domestically as an alternative to imported inputs can help contain the current account. Accordingly, to reduce dependency on imported intermediate inputs and sustainability of input supplies the Input Supply Strategy (GITES) and Action Plan was put into effect and the Committee for Domestic Production was established. On the other hand, it should be emphasized that the use of imported intermediate inputs is not entirely unfavorable given cognizance of the internationalization of production. The sustainability of imported inputs, especially for producers that are a part of global chains is essential.

Energy Imports

The primary policy to reduce the demand for imported energy is the shift towards renewable energy. Reducing natural gas imports will affect the current account directly. Energy investments should be designed in view of the natural resources of the country and should be dispersed across the country. Incentives for domestic hardware, training the technical staff that can use this technology, and undertaking energy saving policies can all contribute to the efforts to meet the energy demand through domestic resources. Moreover, efforts to change the energy consumption behavior should also be supported.

To sum up, it is important to support the cyclical improvement in the current account with structural policies in order to attain a balanced current account in the long run. To this end, efforts to increase savings for a balanced current account financing structure and to sustain financial stability will be conducted in hand with efforts to increase the total productivity in an era of internationalization of the production.

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5. Financial Conditions and Monetary Policy

In the last quarter of 2018, marked by heightened global volatilities and increased protectionist tendencies regarding international trade, expectations of a longer-than-expected normalization process in advanced economy monetary policies strengthened. Risk premiums of emerging economies, which have been volatile partly due to geopolitical risks, have receded since January in tandem with the rise in the global risk appetite. The recovery in portfolio flows to these economies became more discernible in this period. Along with a limited depreciation in the US dollar, emerging market currencies appreciated slightly. Despite the geopolitical developments and global volatilities experienced in the current reporting period, there has been a slight improvement in domestic financial indicators partly due to the CBRT's maintaining of its tight monetary policy stance and the improving inflation outlook.

Credit growth rates remained on the decline in the last quarter of 2018. This decline is attributed to the tightening credit standards and the weakening domestic demand. As a result of the decline in credit growth, the ratio of the net credit use to GDP continued to decrease in the last quarter of the year (Chart 5.1). The Bank Loans Tendency Survey suggests that commercial loan standards continued to tighten and the demand for commercial loans continued to decline noticeably. According to the Survey, banks do not expect a change in standards, but do envisage that the credit demand will continue to decline in the first quarter of 2019.

Financial conditions remained tight, albeit with a significant decrease in the level of tightness, in the last quarter of 2018. In the last quarter, all financial components of the financial conditions index continued to contribute to the index in the tightening direction , however due to the flattening of the yield curve, the real appreciation in the Turkish lira, the decline in loan rates and the partial easing of loan standards, the tightness in financial conditions lessened compared to the previous quarter (Chart 5.2).

Chart 5.1: Financial Conditions and Credit Growth*

Chart 5.2: Contributions to the FCI
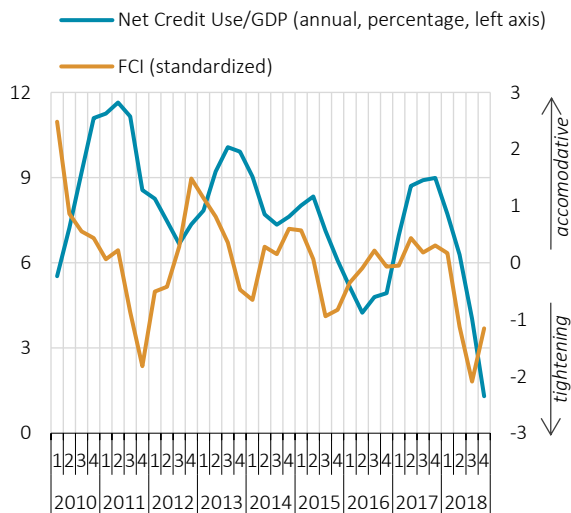
Source: CBRT.

Source: CBRT.

* For further details on measuring FCI, see the CBRT Working Paper No. 15/13.
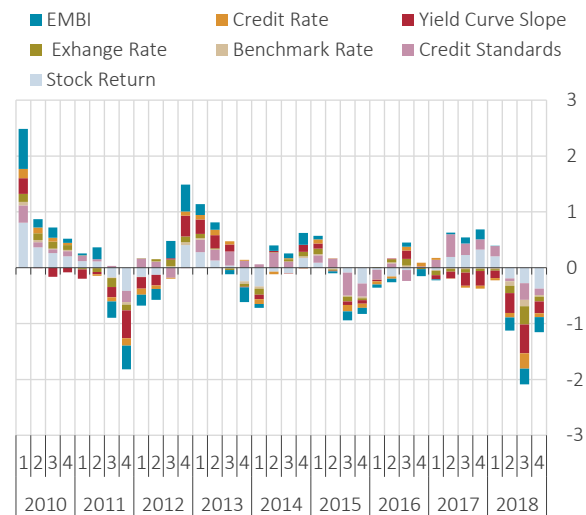
Net Credit Use is defined as the annual change in the credit stock and it is adjusted for exchange rate. GDP data for the fourth quarter of 2018 is forecast.

5.1 Relative Performance in Financial Markets

Risk Perceptions and Portfolio Flows

In the last quarter of 2018, heightened volatilities in global markets and declines in asset prices paved the way for expectations of a potential slowdown in the normalization process in monetary policies of advanced economy central banks. Fed rate hike expectations for 2019 dropped to two following the downward revision of the US growth forecasts in particular. Amid persistently low levels of inflation in Japan, the Bank of Japan announced continuation of its accommodative monetary policy. In the meantime, although the ECB announced the end of its net asset purchases, prospects of a significant tightening in the monetary policy were muted by both the Brexit process and budget-related problems in Italy, and global risks. These developments in global monetary policies drove long-term bond rates in advanced economies down compared to the previous reporting period. Nevertheless, global risk appetite remained weak until mid-January due to heightened volatility in global financial markets, protectionist tendencies in international trade and geopolitical risks, and regional risk premiums of emerging economies rose. In response to a slight decline in concerns over protectionist tendencies in international trade and geopolitical risks, global risk appetite increased while risk premiums of emerging economies declined in January. Turkey's risk premium moved in tandem with other emerging economy risk premiums (Chart 5.1.1). Portfolio outflows in emerging economies that had been in place since mid-2018 due to global volatilities and decreased risk appetite were replaced by portfolio inflows in the current reporting period. In this period, portfolio flows in Turkey also followed a similar trend. Portfolio inflows were predominantly observed in equities markets, while portfolio outflows were seen in Government Domestic Debt Securities (GDDS) markets (Chart 5.1.2).

Chart 5.1.1: Regional Risk Premiums*
(2 January 2017 = 0, Basis Points)
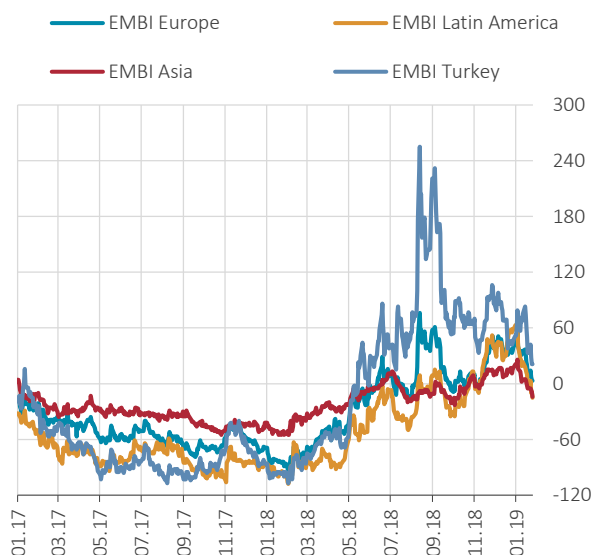
Source: Bloomberg.
* Shows cumulative changes since 2 January 2017.

Chart 5.1.2: Portfolio Flows in Emerging Economies*
(4-Week Cumulative, Billion USD)
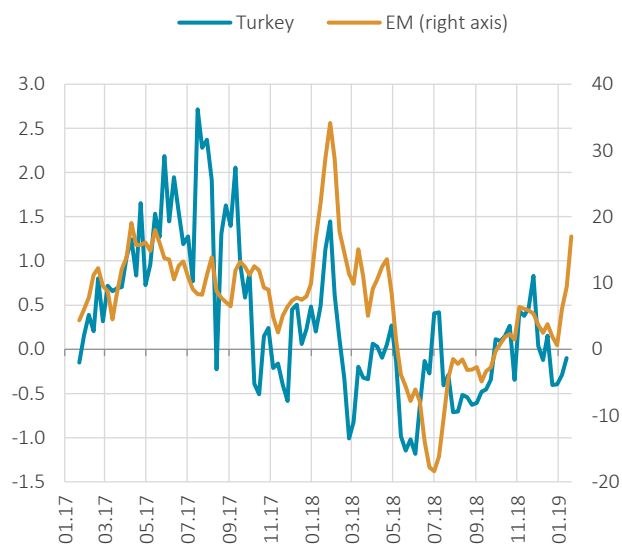
Source: EPFR, CBRT.
* Turkey data includes portfolio inflows to stocks and GDDS market. Repo is included in the GDDS data. Emerging Economy data is from the EPFR database. It includes all the database-covered funds' weekly net investments in equity and GDDS markets in emerging economies.

Exchange Rates and Market Rates

In the inter-reporting period, emerging economy currencies appreciated slightly on the back of the limited weakening in the US dollar as well as expectations regarding a possible slowdown in the normalization of advanced economy monetary policies despite volatile global financial conditions. Backed by the tight monetary policy stance of the CBRT and the recovery in inflation outlook, the Turkish lira positively diverged from other emerging economy currencies. In line with these developments, the implied volatility of the Turkish lira declined.

In the current reporting period that witnessed limited declines in short and long-term interest rates of emerging economies, Turkey's short and medium-term market rates decreased on the back of the tight monetary policy stance and the recovery in the inflation outlook.

5.2 Credit Conditions

Loan Rates, Funding Costs and Interest Rate Spreads

Banks' funding costs have increased since the second quarter of 2018 due to the rise in risk premium and the depreciation of the Turkish lira. Additionally, a lower appetite for lending also pushed TL commercial loan rates, which were flat in the first quarter of 2018, up in the second and third quarters. Whereas in the last quarter, implementation of measures and coordinated policies alleviated the uncertainty in financial markets and pulled deposit and currency swap rates down (Chart 5.2.1). However, despite this decline, the loan-deposit rate spreads hover above their historical averages (Chart 5.2.2). Besides, the Bank Loans Tendency Survey suggests that banks maintained their tight stance in commercial loan standards also in the last quarter. This was mainly attributable to prospects for overall economic activity, outlook for the sector or firms, risks related to the collaterals required, access to money and bond markets and capital adequacy constraints.

Chart 5.2.1: Indicators of Banks' Funding Costs (4-Week Moving Average, %)
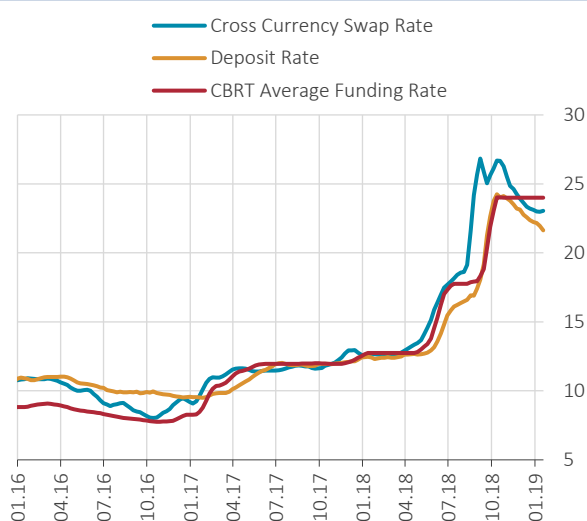
Source: Bloomberg, CBRT.

Chart 5.2.2: TL Commercial Loan Rates and TL Deposit Rates* (Flow, Annualized, 4-Week Moving Average, %)
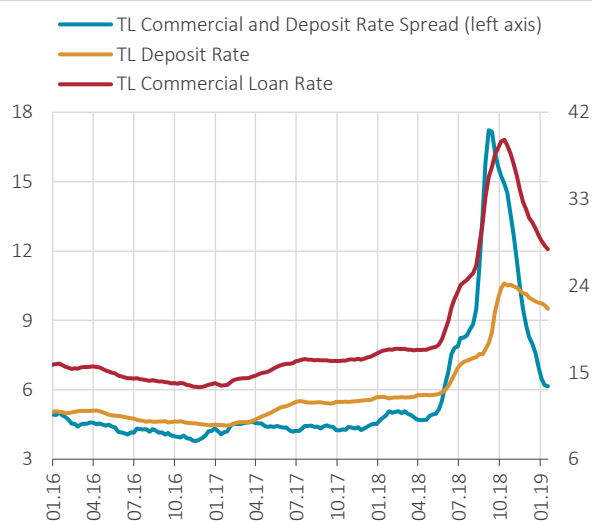
Source: CBRT.

* TL commercial loan rate series excludes overdraft accounts, credit cards and zero-rate loans.

Across firm size, a decrease is observed in all subcategories of commercial loan rates in the current reporting period (Chart 5.2.3). Moreover, consumer loan rates declined, and the fall was more pronounced in personal loans (Chart 5.2.4).
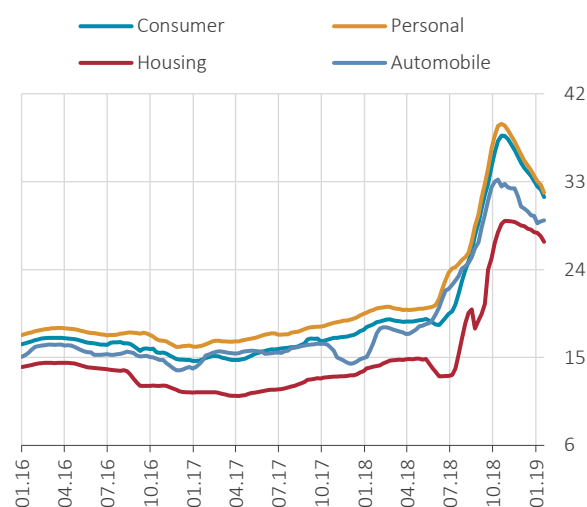
Chart 5.2.3: TL Commercial Loan Rates*
(Flow Data, Annualized, 4-Week Moving Average, %)
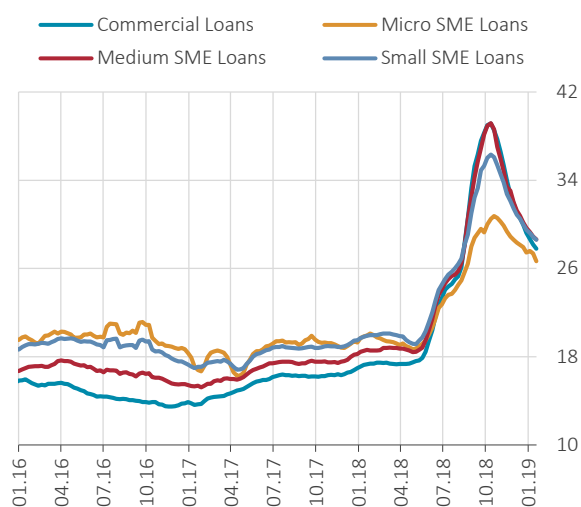
Source: CBRT.

* Excluding overdraft accounts, credit cards and zero-rate loans.

Chart 5.2.4: Consumer Loan Rates
(Flow Data, Annualized, 4-Week Moving Average, %)

Source: CBRT.

Credit Volume

The total loan growth has shown a trend of deceleration since the first quarter of 2018, which prevailed throughout the rest of the year (Chart 5.2.5 and Chart 5.2.6). The deceleration in the rate of annual growth of loans was mainly triggered by supply and demand-side dynamics in addition to the base effect stemming from the acceleration in the loan growth in 2017. Tightening global financial conditions and the resulting increase in risks related to liquidity preferences of the banking sector and exchange rate developments were effective in the tightening of the loan supply. Additionally, the weakening domestic demand led by the slowdown in economic activity and the rise in loan rates in the first three quarters of 2018 were the determinants of the decline in the credit demand.

Chart 5.2.5: Domestic Credit Stock and Net Annual Credit Use* (%)
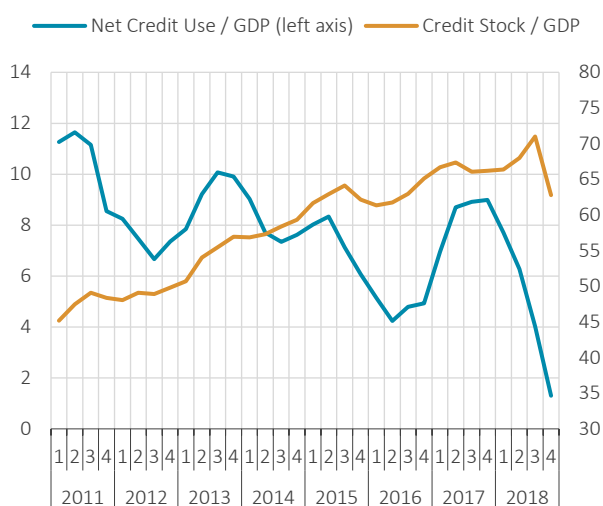
Source: CBRT.

* GDP data for the fourth quarter of 2018 is forecast.

Chart 5.2.6: Y-o-Y Loan Growth (Adjusted for Exchange Rates % Change)
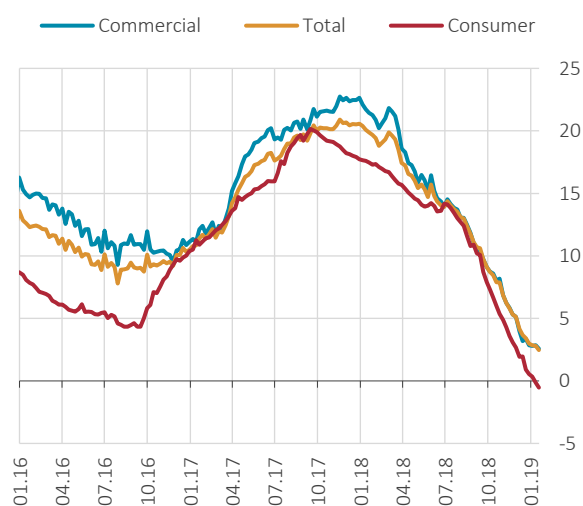
Source: CBRT.

The Bank Loans Tendency Survey reveals that the increase in domestic and external funding costs and banks' tightening their credit standards on account of the risks to economic activity were the leading factors that affected the credit supply throughout the year. On the credit demand side, while the effect of fixed investment and the decrease in the amount of loans needed for inventory buildup and working capital were the determinants of the decline in the demand for commercial loans, the weakened domestic demand and expectations regarding the economy were influential in the consumer loan demand.

Commercial and total loan growth rates are hovering below their historical averages (Chart 5.2.7 and Chart 5.2.8).

Chart 5.2.7: Annualized Total Loan Growth (13-Week Moving Average, Adjusted for Exchange Rate, %)
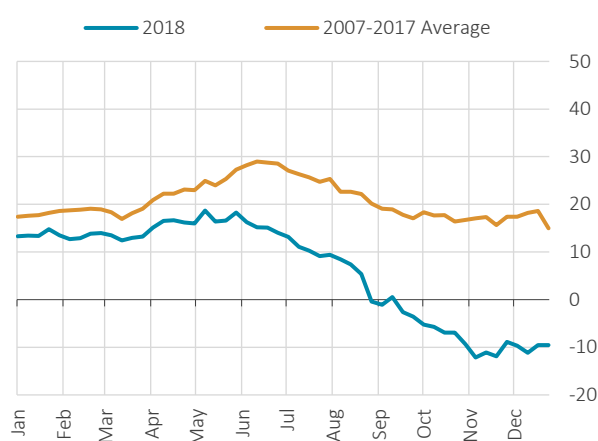
Source: CBRT.

Chart 5.2.8: Annualized Commercial Loan Growth (13-Week Moving Average, Adjusted for Exchange Rate, %)
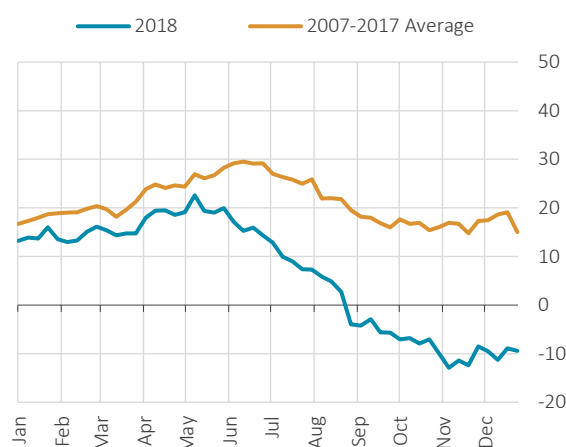
Source: CBRT.

The growth rate of Turkish lira-denominated commercial loans that slightly picked up in the first half of 2018 started to trend down in the second half of the year. According to the Bank Loans Tendency Survey, although TL commercial loan standards remained less tight, the decline in the demand for TL commercial loans became slightly more pronounced in the last quarter of the year. Meanwhile, FX loans posted a limited growth in the first half of 2018, yet declined in the second half. In the last quarter, the decline in FX loans continued at a decreasing pace due to the reduced uncertainty in financial markets and exchange rate developments, driven by the policy coordination and measures taken (Chart 5.2.9). However, the Bank Loans Tendency Survey signals that the tightness in FX loan supply and the fall in FX loan demand continued in the fourth quarter of 2018.

The slowdown in the growth rate of consumer loans that posted a decline throughout 2018 persisted in the last quarter of the year (Chart 5.2.10). It is also apparent from the Bank Loans Tendency Survey that the tight outlook in consumer credit standards and the decline in credit demand continued in that period.

Chart 5.2.9: Annualized TL and FX Commercial Loan Growth (13-Week Moving Average, Adjusted for Exchange Rate, %)
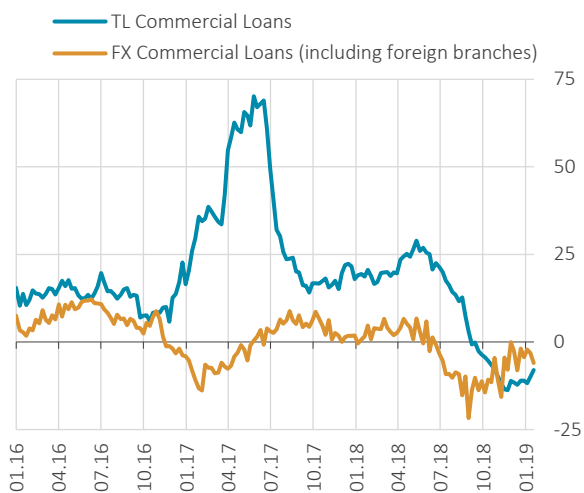
Chart 5.2.10: Annualized Consumer Loan Growth (13-Week Moving Average, %)
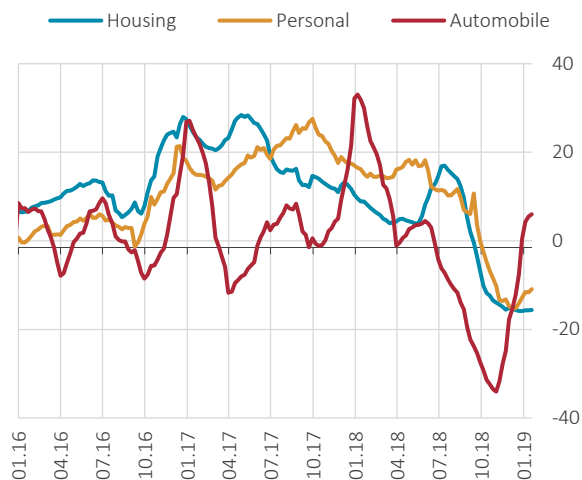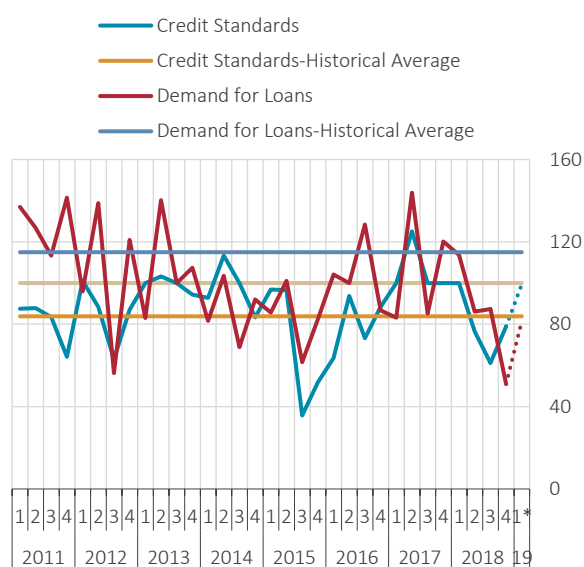

Source: CBRT.

Source: CBRT.

Credit Standards

According to the Bank Loans Tendency Survey, banks, which continued to tighten commercial credit standards in the fourth quarter of 2018, expect no change in standards in the first quarter of 2019 (Chart 5.2.11). Commercial credit standards by scale, maturity and currency unit for the fourth quarter of 2018 reveals a similar outlook across all categories, yet further strengthening in standards for FX credits. On a subcategory basis, while a limited easing is expected in credit standards for SMEs, the tightening in standards for long-term and FX-denominated credits is anticipated to remain intact in the first quarter of 2019.

Answers of banks participating in the survey suggest that firms' demand for commercial loans continued to decline in the last quarter of 2018 (Chart 5.2.11). In the first quarter of 2019, credit demand is anticipated to decrease across all categories, more noticeably in the demand for SME and FX-denominated loans.

Chart 5.2.11: Commercial Credit Standards and Commercial Loan Demand**

- Credit Standards
- Credit Standards-Historical Average
- Demand for Loans
- Demand for Loans-Historical Average

Source: CBRT.
*Data for the first quarter of 2019 denote expectations.
**Index values above 100 indicate an easing in credit standards and an increase in loan demand.

Chart 5.2.12: Consumer Credit Standards and Consumer Loan Demand**
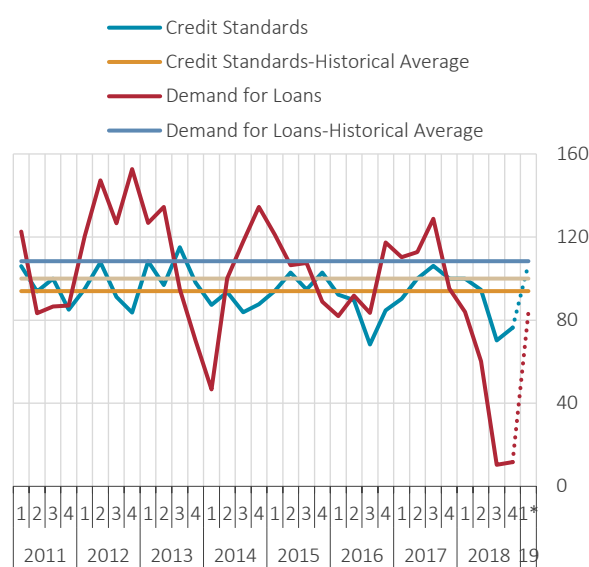
- Credit Standards
- Credit Standards-Historical Average
- Demand for Loans
- Demand for Loans-Historical Average

Source: CBRT.
*Data for the first quarter of 2019 denote expectations.
**Index values above 100 indicate an easing in credit standards and an increase in loan demand.

On the consumer loan front, the tightening in the credit standards and the decline in the consumer loan demand persisted in the fourth quarter of 2018. Standards for consumer loans are envisaged to be slightly eased whereas the decline in the consumer loan demand is expected to continue in the first quarter of 2019 (Chart 5.2.12).

The factors affecting consumer credit standards reveal that the prospects for overall economic activity, together with funding costs and balance sheet constraints had a significant role in the tightening of credit standards, while, on the automobile and personal loan front, the consumer loan score had a further tightening effect on credit standards. Housing market prospects, consumer confidence, non-housing consumption expenditures, household savings and loans from other banks stand out as the leading factors reducing the demand for consumer housing loans. As for personal loans, all factors had a downward effect on the demand for such loans.

5.3 Monetary Policy

Monetary Policy Response and Market Developments

In the current reporting period, the entirety of the CBRT funding was provided via weekly repo auctions (Chart 5.3.1). Consequently, the average interest rate at the BIST Interbank Repo market, calculated excluding CBRT transactions, fluctuated around the one-week repo auction rate (Chart 5.3.2). The CBRT delivered a strong monetary tightening in September to support price stability by raising the one-week repo auction rate to 24% and keeping it constant thereafter.

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

- Overnight Lending
- Late Liquidity Window
- One Week Repo
- Net Open Market Operations
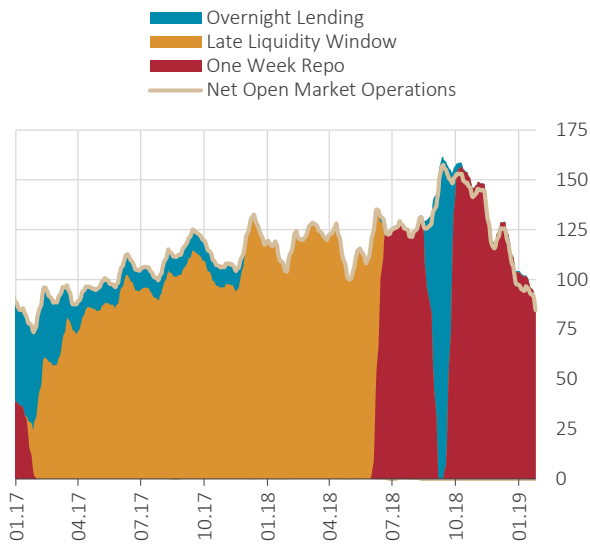
Source: CBRT.

Chart 5.3.2: Short-Term Interest Rates (%)

- CBRT Average Funding Rate
- Average Interest Rate at BIST excluding the CBRT
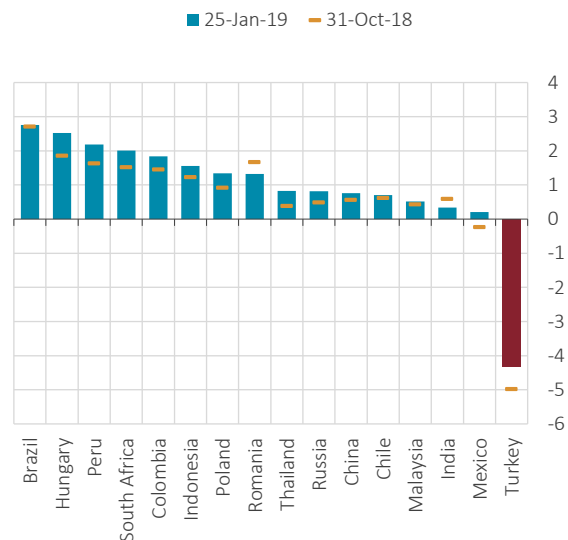- 1 Week Repo Rate
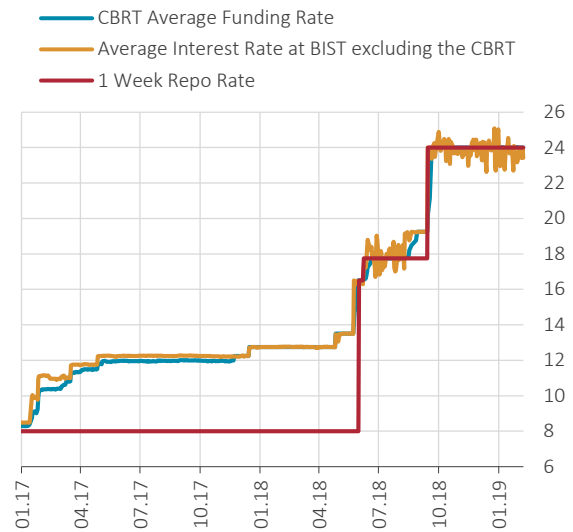
Source: BIST, CBRT.

Due to the strong monetary tightening in September, along with the fading geopolitical risks, the country's risk premium declined. These developments prompted currency swap rates to decrease across all maturities compared to the previous reporting period. In response to the maintenance of the strong tightening, short-term currency swap yields continued to hover above the yields on long-term currency swaps (Chart 5.3.3). As a reflection of its tight monetary policy, Turkey continued to have the lowest yield curve slope among emerging economies in the current reporting period (Chart 5.3.4).

Chart 5.3.3: Swap Yield Curve (%)

- 31 October 2018
- 31 Oct 2018-25 Jan 2019 Average
- 25 January 2019

Maturity (Month)
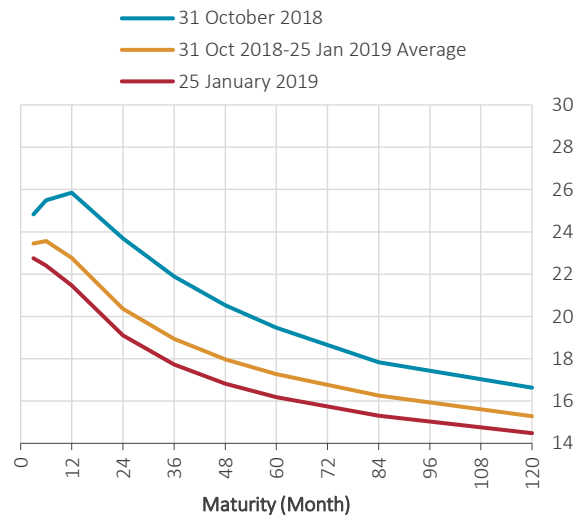
Source: Bloomberg.

Chart 5.3.4: Yield Curve Slopes in Emerging Economies*
(% Points)

- 25-Jan-19
- 31-Oct-18

Source: Bloomberg.

* Yield curve slope is calculated by taking the difference between 5-year bond yields and 6-month bond yields. For Turkey, swap rates have been used instead of bond yields to calculate the yield curve slope.

The decline in inflation compensation started on the back of measures taken in August and became more discernible following the strong monetary response at the September MPC meeting. In the current reporting period, inflation compensation decreased considerably in line with the improved inflation outlook thanks to the appreciation of the Turkish lira and slowdown in economic activity (Chart 5.3.5). Two-year real interest rates, calculated using inflation expectations data obtained from the CBRT Survey of Expectations, decreased over the previous reporting period as the decrease in nominal interest rates outpaced the decline in inflation expectations (Chart 5.3.6).

Chart 5.3.5: Inflation Compensation
(5-Day Moving Average, %)
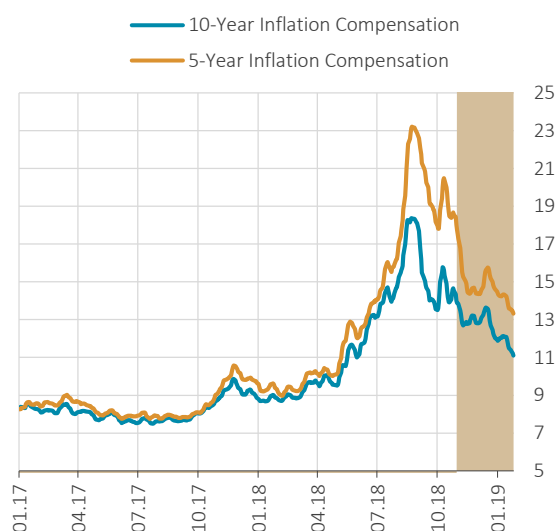
Source: Bloomberg.

Chart 5.3.6: 2-Year Bond Yields and the Real Interest Rate in Turkey* (%)
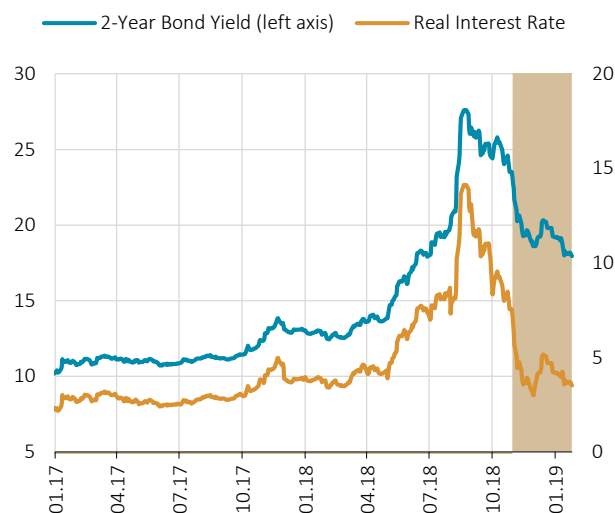
Source: Bloomberg, CBRT.

* Real interest rate is calculated as the difference between 2-year bond yields and the 24-month-ahead inflation expectations data obtained from the CBRT Survey of Expectations.

Monetary Policy in 2018

The CBRT delivered a strong monetary tightening in 2018 to support price stability in the face of deterioration in pricing behavior and risks to the inflation outlook. While a tight monetary stance was maintained during the January–March period, a measured monetary tightening was delivered in April to support price stability. In May, the tight stance in monetary policy was strengthened taking into account the risks to general pricing behavior posed by unhealthy price formations in markets and the ongoing rise in inflation expectations.

In June, the simplification process regarding the operational framework of the monetary policy was completed. Thus, the predictability of the monetary policy was improved to a significant extent. Accordingly, the one-week repo auction rate became the CBRT's policy rate. Moreover, it was decided that the CBRT's overnight borrowing and lending rates would be determined at 150 basis points below/above the one-week repo rate. In the new operational framework, the CBRT started to provide entire funding via weekly repo auctions.

In early August, to avoid excessive volatility in financial markets and to ensure efficient operation of markets, the CBRT introduced a series of financial stability-oriented measures that supported Turkish lira and foreign exchange liquidity management. In view of price increases that showed a generalized pattern across sectors due to the movements in exchange rates, the CBRT implemented a strong monetary tightening in September and raised its one-week repo auction rate to 24%.

As risks to price stability persisted, the MPC decided to maintain its tight monetary policy stance throughout the last quarter of the year and at its January 2019 meeting.

In 2018, besides these policy decisions, the CBRT widened and employed in the most effective way its set of tools to ensure efficient functioning of the markets and to support the transmission mechanism in the face of exchange rate volatility and unhealthy price formations. In this scope, the CBRT launched Turkish lira-Settled Forward Foreign Exchange transactions at the Derivatives Market operating under Borsa İstanbul. In November, the Turkish Lira Currency Swap Market was opened. The aim of these steps was to contribute to the deepening of the Turkish derivatives market and indirectly to the foreign exchange risk management of the corporate sector.

Table 5.3.1: Recent Monetary Policy Decisions and Their Rationale

Date	Policy Decision	Rationale
18 January 2018	• The late liquidity window (LLW) lending rate was kept constant at 12.75%.	• The CBRT emphasized that the tight stance in monetary policy would be maintained decisively until the inflation outlook displayed a significant improvement, independent of base effects and temporary factors, and became consistent with the targets.
7 March 2018	• The LLW lending rate was kept constant at 12.75%.	• In addition to the previous MPC explanations, the CBRT noted that underlying trend indicators displayed inertia and the core inflation remained elevated, thus emphasized that the tight stance in monetary policy would be maintained decisively.
25 April 2018	• The LLW lending rate was increased by 75 basis points to 13.50%.	• The CBRT implemented a measured monetary tightening noting that current elevated levels of inflation and inflation expectations continued to pose risks to the pricing behavior and that upside movements in import prices increased such risks.
23 May 2018	• The LLW lending rate was increased to 16.5% from 13.50%.	• The CBRT decided to implement a strong monetary tightening considering the risks to the pricing behavior posed by unhealthy price formations in markets and the ongoing rise in inflation expectations.
28 May 2018	• The CBRT decided that the one-week repo rate would be the policy rate and that this rate would be equal to the current funding rate (16.50%). • Central Bank overnight borrowing and lending rates were determined at 150 basis points below/above the one-week repo rate.	• The simplification process regarding the monetary policy operational framework to enhance the predictability of monetary policy and strengthen the transmission mechanism was completed.
7 June 2018	• The policy rate (one-week repo auction rate) was raised to 17.75% from 16.50%.	• The CBRT emphasized that elevated levels of inflation and inflation expectations continued to pose risks to the pricing behavior.
24 July 2018	• The policy rate (one-week repo auction rate) was kept constant at 17.75%.	• The CBRT noted that elevated levels of inflation and inflation expectations continued to pose risks to the pricing behavior, so it might be necessary to maintain a tight monetary policy stance for an extended period.
6 August 2018	• The upper limit for the FX maintenance facility within the reserve options mechanism (ROM) was lowered to 40% from 45%.	• Approximately 2.2 billion US dollars of liquidity was provided to banks to prevent excessive volatility observed in financial markets in early August.
13 August 2018	• Turkish lira and FX reserve requirement ratios were reduced and flexibility was	• A series of measures were introduced to prevent the excessive volatility in financial

	provided in Turkish lira and FX liquidity management. • The CBRT did not hold weekly repo auctions between 13 August and 14 September 2018, thereby raising the average funding cost to 19.25% from 17.75%.	markets and to ensure effective functioning of markets in early August.
13 September 2018	• The policy rate (one-week repo auction rate) was raised to 24% from 17.75% and the entirety of the CBRT funding started to be provided via weekly repo auctions again.	• The CBRT decided to implement a strong monetary tightening to support price stability noting the generalized pattern of price increases across subsectors, reflecting the movements in exchange rates.
25 October 2018	• The policy rate (one-week repo auction rate) was kept constant at 24%.	• The CBRT decided to maintain the tight monetary stance, emphasizing upside risks to pricing behavior despite weaker domestic demand conditions.
13 December 2018	• The policy rate (one-week repo auction rate) was kept constant at 24%.	• The CBRT decided to maintain the tight monetary policy stance, emphasizing the persistent risks to price stability despite some improvement seen in the inflation outlook led by developments in import prices and domestic demand conditions.
16 January 2019	• The policy rate (one-week repo auction rate) was kept constant at 24%.	• The CBRT decided to maintain the tight monetary policy stance, emphasizing the persistent risks to price stability despite some improvement seen in the inflation outlook led by developments in import prices and domestic demand conditions.

6. Public Finance

In 2018, fiscal policy supported economic growth through not only measures and incentives, but also public consumption and investment expenditures in particular. Due to the expenditures borne by incentives to boost investment, employment and exports as well as the increase in personnel and current transfer expenditures, the budget deficit grew wider in 2018. In the second half of 2018, despite the downside effect of the decelerated economic activity on tax revenues, the favorable performance of non-tax revenues contained the widening in the budget deficit.

Under the scope of the NEP announced in September, the measures taken towards decreasing primary budget expenditures and the revenues to be obtained from restructuring of taxes and some other receivables, the zoning amnesty and military service compensation fees had a positive effect on the budget balance.

In 2017, the rising public financing need that increased in tandem with the accommodative fiscal policy to boost economic activity was mostly met through domestic borrowing; and the domestic debt rollover ratio stood at 125.6%. In 2018, the widening in the budget deficit and the fall in net external borrowing were mostly financed through domestic borrowing, while public deposits were used to meet the financing need to some extent. The domestic debt rollover ratio was 98.1%, while the external debt rollover ratio stood at 70.4% in this period.

6.1 Budget Developments

The central government budget balance posted a deficit of TRY 72.6 billion, and a surplus of TRY 1.3 billion in 2018 (Table 6.1.1). The strong performance of non-tax revenues had a favorable effect on the budget balance. The primary budget balance continued to post a surplus.

Table 6.1.1: Central Government Budget Aggregates (Billion TL)

	2017	2018	Rate of Increase (%)	Realization/ Budget Target (%)
Central Government Budget Expenditures	678.3	830.4	22.4	108.9
Interest Expenditures	56.7	74.0	30.4	103.2
Primary Budget Expenditures	621.6	756.5	21.7	109.5
Central Government Budget Revenues	630.5	757.8	20.2	108.8
I. Tax Revenues	536.6	621.3	15.8	103.7
II. Non-Tax Revenues	93.9	136.5	45.4	140.2
Budget Balance	**-47.8**	**-72.6**	**52.0**	**110.1**
Primary Balance	**8.9**	**1.3**	**-84.9**	**23.3**

Source: Ministry of Treasury and Finance.

At the end of 2018, it is estimated that the ratio of annualized budget deficit to GDP will be 1.9%, while the primary budget balance to GDP ratio will be at the 0 level (Chart 6.1.1). These ratios are consistent with the targets envisaged in the NEP for 2018.

Chart 6.1.1: Central Government Budget Balances (Annualized, % of GDP)

■ Budget Balance   ■ Prmary Budget Balance

Source: Ministry of Treasury and Finance.
*Forecast.
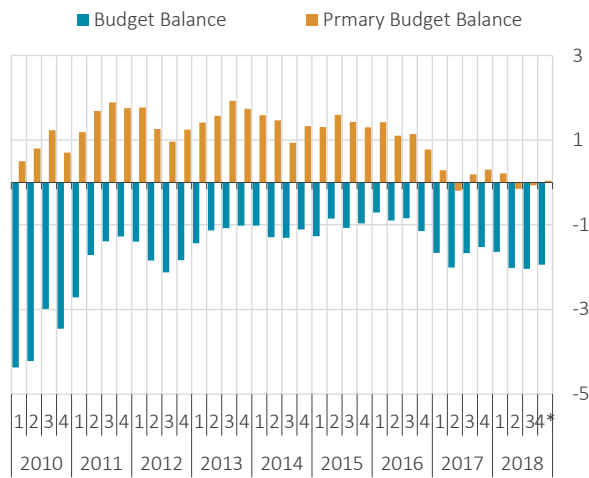
Chart 6.1.2: Central Government Budget Revenues and Primary Expenditures (Annualized, % of GDP)

■ Budget Revenues   ■ Primary Expenditures

Source: Ministry of Treasury and Finance.
*Forecast.
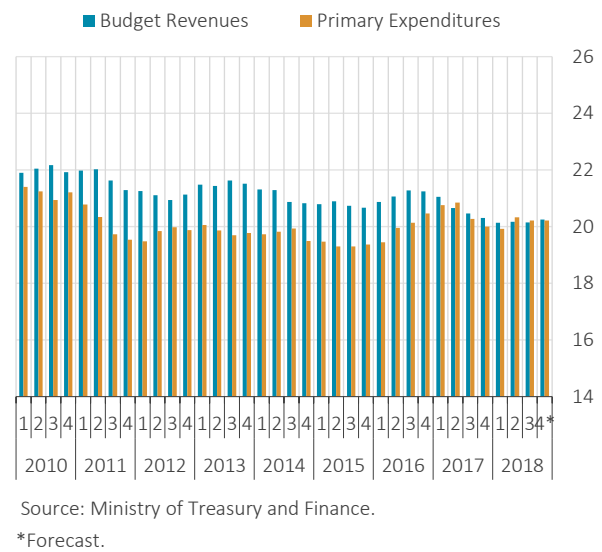
The central government revenues to GDP ratio is expected to remain unchanged year-on-year at 20.2% in the last quarter of 2018. The central government primary expenditures to GDP ratio is expected to display a year-on-year increase of 0.2 percentage points to 20.2% (Chart 6.1.2).

Central government primary budget expenditures rose by 21.7% year-on-year to TRY 756.5 billion in 2018 (Table 6.1.2). Meanwhile, current transfers, the most significant item among primary expenditures, posted a rather limited rise of 19.3% in 2018. The low increase in health, pension and social benefit expenditures curbed the rise in current transfers. The upsurge in shares allocated from income was driven by the increased shares transmitted to the defense industry, support fund and local administrations.

Table 6.1.2: Central Government Primary Expenditures (Billion TL)

	2017	2018	Rate of Increase (%)	Realization/ Budget Target (%)
Primary Budget Expenditures	621.6	756.5	21.7	109.5
1. Personnel Expenditures	162.1	200.9	23.9	109.7
2. State Premium Payments to SSI	27.3	34.4	26.0	111.6
3. Purchase of Goods and Services	63.6	71.7	12.8	108.6
4. Current Transfers	270.9	323.1	19.3	107.9
a) Duty Losses	7.4	7.4	0.5	106.3
b) Health, Pension and Social Benefit Expenditures	132.5	148.4	12.0	109.4
c) Agricultural Support Payment	12.7	14.6	14.4	100.3
d) Allocated Revenues	72.6	96.1	32.4	107.0
e) Household Transfers	16.5	23.5	42.8	110.8
5. Capital Expenditures	71.0	88.0	24.0	127.9
6. Capital Transfers	13.3	16.7	25.5	109.3
7. Lending	13.3	21.7	63.1	107.1

Source: Ministry of Treasury and Finance.

Central government general budget revenues increased by 20.1% year-on-year to 729.1 billion TL in 2018 (Table 6.1.3). Tax revenues that make up a vast part of general budget revenues rose modestly by 15.8%, while the growth of non-tax revenues hovered above this figure. The upsurge in non-tax revenues was led by the collection of one-time revenues such as the legal arrangement for restructuring tax and premium debts (Law no 7143), the zoning amnesty and military service compensation fees.

Income and corporate taxes, which are direct tax items, recorded relatively high increases in 2018 and remained above the year-end targets. The sliding scale system introduced to prices of fuel products in mid-May coupled with the tax adjustments on automobiles and commercial vehicles introduced in late October had influence on the drop of the collection of the Special Consumption Tax (SCT). The increase in VAT in imports is affected by the rise in the exchange rates.

Table 6.1.3: Central Government General Budget Revenues (Billion TL)

	2017	2018	Rate of Increase (%)	Realization/ Budget Target (%)
General Budget Revenues	607.1	729.1	20.1	107.0
I-Tax Revenues	536.6	621.3	15.8	103.7
Income Tax	112.4	139.0	23.7	113.2
Corporate Tax	52.9	78.7	48.7	119.6
Domestic VAT	55.6	56.4	1.4	85.4
SCT	138.3	133.9	-3.2	91.4
VAT on Imports	100.1	122.1	22.0	113.3
II-Non-Tax Revenues	70.5	107.8	52.9	131.6
Enterprise and Property Revenues	19.8	26.1	32.2	129.6
Interests, Shares and Fines	35.6	71.3	100.4	153.4
Capital Revenues	11.7	7.8	-33.2	64.6

Source: Ministry of Treasury and Finance.

Real tax revenues declined in the last quarter of 2018 (Charts 6.1.3 and 6.1.4).

Chart 6.1.3: Real Tax Revenues (Year-on-Year % Change)
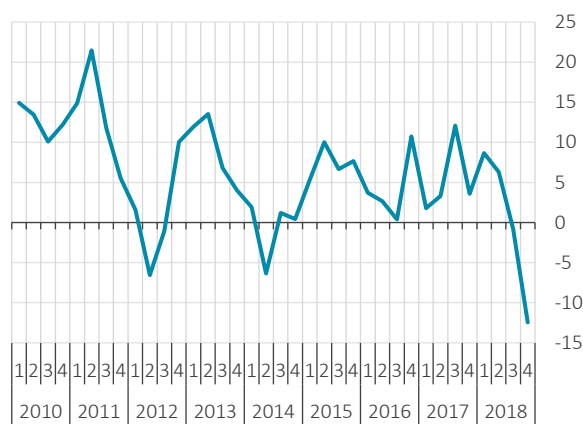
Source: Ministry of Treasury and Finance.

Chart 6.1.4: Real VAT and SCT Revenues (Year-on-Year % Change)

■ Domestic Real VAT Revenues   ■ Real VAT Revenues
■ Real VAT Revenues on Imports
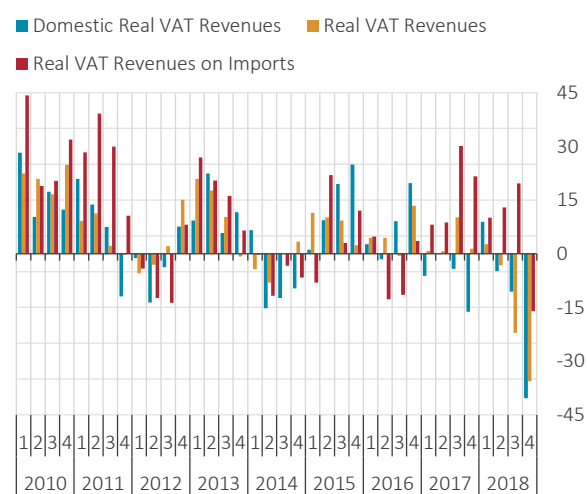
Source: Ministry of Treasury and Finance.

6.2 Developments in the Public Debt Stock

The EU-defined general government nominal debt stock to GDP ratio is 32.6% (Chart 6.2.1).

Chart 6.2.1: Public Debt Stock Indicators
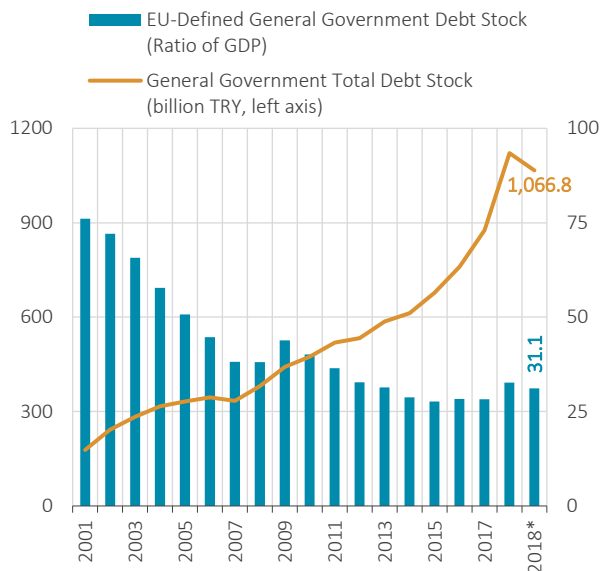
Source: Ministry of Treasury and finance
* December 2018 realization for the central government total debt stock, NEP 2018 forecasts for the EU-defined general government debt stock

Chart 6.2.2: Composition of the Central Government Debt Stock* (%)
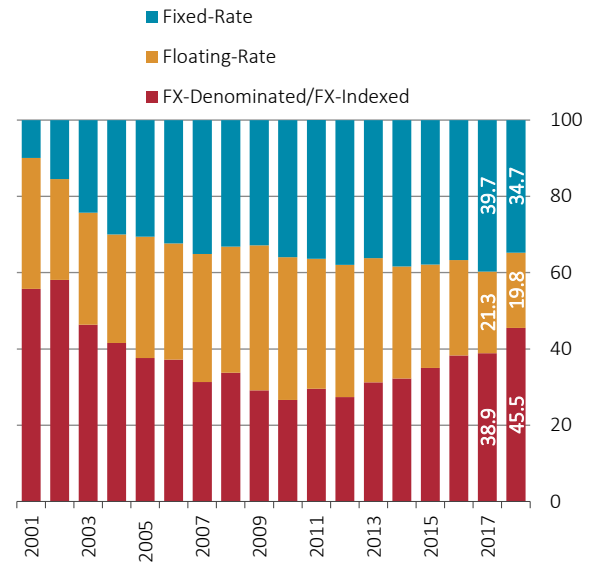
Source: Ministry of Treasury and Finance.
 * As of December.

In December 2018, the shares of fixed-rate and floating-rate securities in the total debt stock have decreased compared to 2017, while those of FX-denominated and FX-indexed securities increased due to the depreciation of exchange rates (Chart 6.2.2). Domestic borrowing was mostly financed by fixed-rate securities in this period.

Chart 6.2.3: Average Maturity of Domestic Cash Borrowing and the Average Term-to-Maturity of the Domestic Debt Stock (Month)
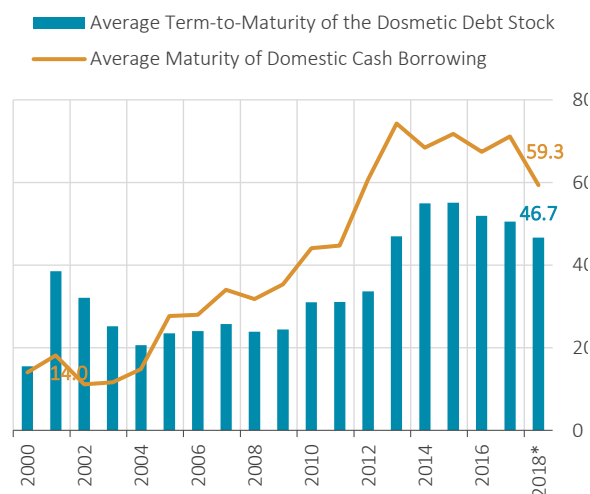
Source: Ministry of Treasury and Finance.
* As of December.

Chart 6.2.4: External Borrowing through Bond Issues
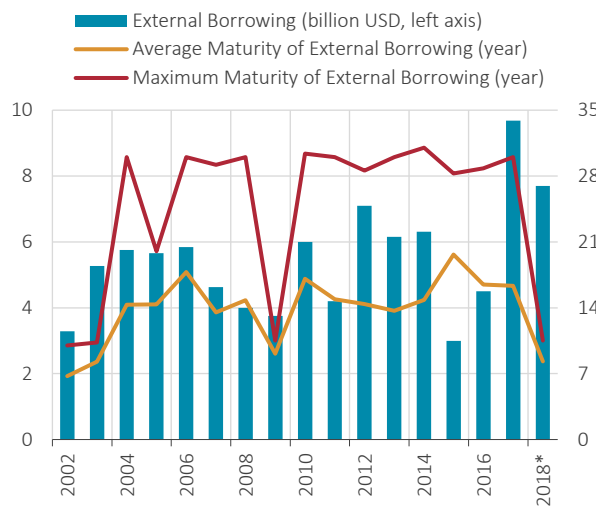
Source: Ministry of Treasury and Finance.
* As of December.

The average term-to-maturity of the domestic debt stock stood at 46.7 months at the end of 2018 (Chart 6.2.3). In 2018, the amount of external borrowing by bond issues was 7.7 billion USD, with an average maturity of 8.3 years (Chart 6.2.4). The external debt rollover ratio was 70.4% in 2018.

The domestic debt rollover ratio stood at 98.1% in 2018 (Chart 6.2.5). In this period, the public financing need was mostly met through domestic borrowing and some part of public deposits was used to meet financing need as well. The average domestic borrowing real interest rate[1] decreased following October due to the relatively low borrowing costs and increased inflation expectations (Chart 6.2.6).

Chart 6.2.5: Total Domestic Debt Rollover Ratio (%)
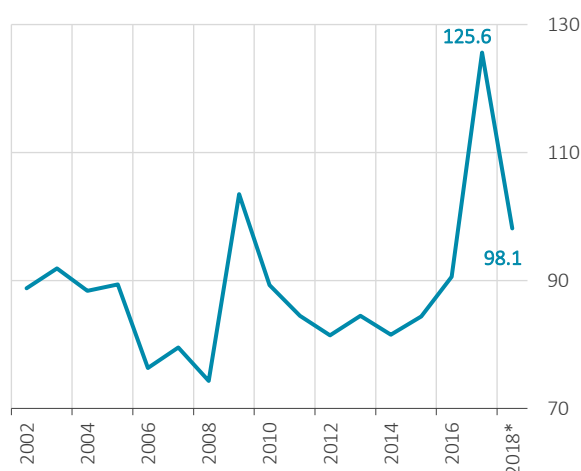
Source: Ministry of Treasury and Finance.
* As of December.

Chart 6.2.6: Treasury Auctions Interest Rate and Maturity Structure*
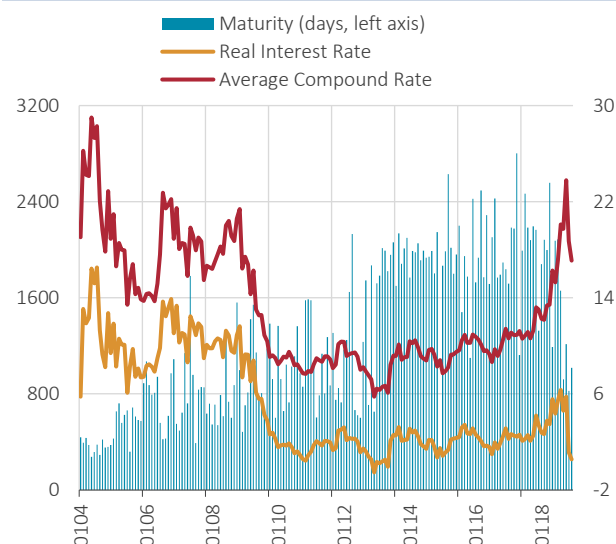
Source: Ministry of Treasury and Finance.
* As of December.

[1]1Real interest rate is calculated by subtracting the 12-month-ahead inflation expectations of the CBRT Survey of Expectations from nominal interest rates at the Treasury's auction.

7. Medium-Term Projections

This chapter summarizes the underlying forecast assumptions and presents the medium-term inflation and output gap forecasts as well as the monetary policy outlook over the next three-year horizon.

7.1 Current State, Short-Term Outlook and Assumptions

Changes in Key Forecast Variables

Consumer inflation recorded a decline in the last quarter of 2018 and remained far below the October Inflation Report forecasts (Table 7.1.1). In this period, the milder-than-projected course of TL-denominated import prices led by the appreciation in the Turkish lira and the decline in the international oil prices as well as the temporary tax cuts led to a deviation from consumer inflation expectations.[1] The decline in inflation spread across subgroups, and even when adjusted for the temporary tax cuts, the underlying trend of inflation registered a slowdown. This is attributed to the favorable repercussions of mitigated financial market volatility in the inter-reporting period on the pricing behavior as well as the weakening in demand conditions.

The up-to-date national income and employment data announced in December point out that economic activity lost pace in the third quarter of 2018 in line with the projections of the October Inflation Report. Accordingly, the output gap forecasts for the fourth quarter were revised downwards, whereas those for the first three quarters were revised upwards to a limited extent (Table 7.1.1). The output gap forecasts for the upcoming period were based on an outlook that net exports will contribute further to growth, the tightness in fiscal conditions will taper off and the fiscal policy will be formulated in line with the rebalancing process in the economy. Against this backdrop, economic activity is estimated to register a gradual improvement. The rise in real wages and the extension of tax cuts in durable goods in the first quarter is believed to support consumer demand to some extent (Chart 7.2.3).

Table 7.1.1: Changes in Key Forecast Variables*

	2018-III	2018-IV
Output Gap	-0.4 (-0.7)	-4.2 (-3.6)
Consumer Inflation (Quarter-end. Annual % Change)	24.5 (24.5)	20.3 (23.5)
B** Index Inflation (Quarter-end. Annual % Change)	23.7 (23.7)	20.2 (22.8)

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

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

Despite the global volatilities that persisted in the period following the announcement of the October Inflation Report, financial market indicators for Turkey improved slightly due also to the downtrend in inflation. In this period, portfolio flows towards emerging economies recovered, while portfolio inflows were seen mostly towards stock markets in Turkey as well. Backed also by the CBRT's tight monetary policy stance, the Turkish lira diverged positively from currencies of peer economies in November and December. In the last quarter of 2018, financial conditions grew less tight, while credit growth remained low due to supply and demand-side effects. The loan-deposit spread posted a quarterly decline, yet hovered above historical averages.

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[1] Reasons for revisions to year-end inflation forecasts across the year and for the deviation from the year-end forecasts from the October Inflation Report are elaborated on in Box 7.1.

Following the strong tightening in September, the CBRT maintained the tight stance by keeping the policy rate unchanged in the MPC Meetings of October, December and January. Owing also to the tight monetary policy stance, Turkey's risk premium receded; short-term GDDS rates hovered above long-term yields, while a notable downward shift was seen in the yield curve across all maturities compared to the previous reporting period.

Assumptions for External Variables

Global Growth

Following the announcement of the October Inflation Report, the global growth rate continued to lose momentum due particularly to the more evident deceleration in the euro area growth. Weakened also by the blurred global economic policies, the growth outlook both for advanced and emerging economies for 2019 was revised downwards. Accordingly, medium-term forecasts were based on a slight downward revision in the growth path assumption for the upcoming period implied by the export-weighted global production index, a measure for external demand (Chart 7.1.1). In the external demand outlook for the period ahead, downside risks have become more apparent stemming from the geopolitical developments and recent protectionist discourse.

Chart 7.1.1: Export-Weighted Global Production Index* (Y-o-Y % Change)
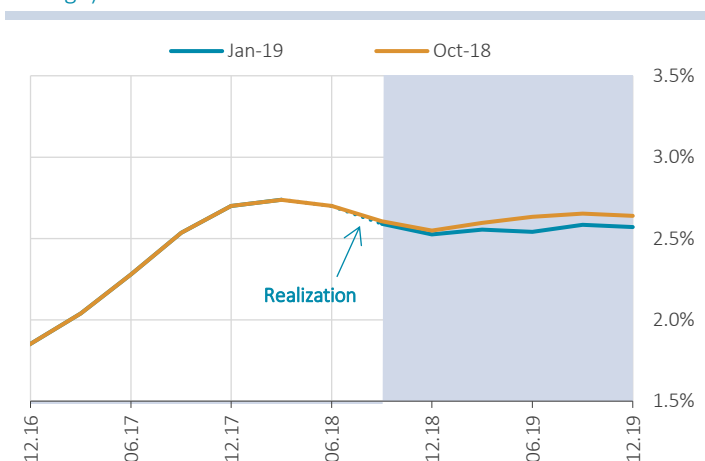
Source: Bloomberg, Consensus Forecasts, CBRT.

* Shaded area shows the forecast period.

Import Prices

The average annual increase in international oil prices and USD-denominated import prices remained below the October Inflation Report assumptions. Due to the recent fall in crude oil prices on spot and futures markets and the views about the course of factors setting the crude oil prices, the assumption for crude oil prices in the October Inflation Report was reduced to USD 63 from USD 80 for 2019 (Table 7.1.2, Chart 7.1.2). However, variation in the commitment to the OPEC's decision to cut down on production among countries, the ongoing foreign trade negotiations between China and the US, and the slowdown in the Fed's policy normalization weigh on the uncertainties over oil prices. Assumptions for the annual rate of increase in USD-denominated import prices were also revised downwards for 2019, albeit to a more limited extent than the assumption for oil prices (Table 7.1.2, Chart 7.1.3).

Chart 7.1.2: Revisions in Oil Price Assumptions*
(USD/Barrel)
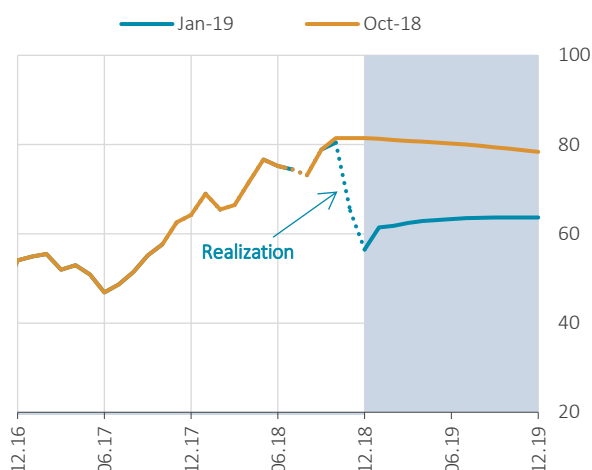
Source: Bloomberg, CBRT.
* Shaded area shows the forecast period.

Chart 7.1.3: Revisions in Import Price Assumptions*
(Index, 2010=100)
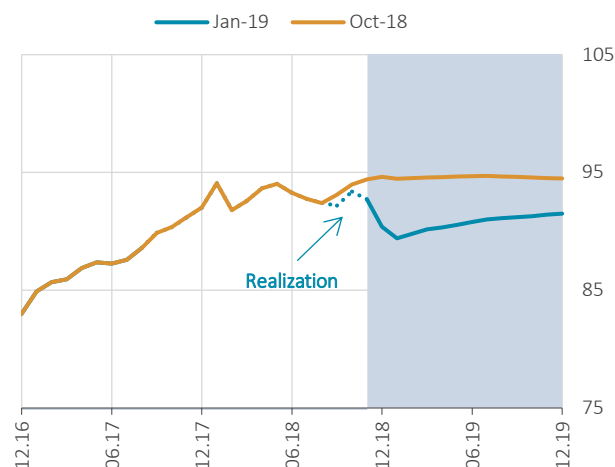
Source: Bloomberg, CBRT.
* Shaded area shows the forecast period.

Monetary Policies of Advanced Economies

Normalization in monetary policies of advanced economies has continued since the publication of the October Inflation Report. In line with expectations, the Fed completed 2018 with four rate hikes. Meanwhile, the ECB terminated asset purchases. Expectations grew stronger that the normalization processes of advanced economies would lose pace in the period ahead. Policy rates implied by options were revised downwards for the Fed, the ECB, the UK and Japan (Table 2.3.1). Moreover, the number of median rate hikes for 2019, which was raised to three in the Fed's meeting in March 2018, was reduced to two in December again. Accordingly, the exogenous assumption for the foreign interest-rate path in the making of medium-term forecasts was revised slightly downwards as of 2019 compared to the October Inflation Report. Our forecasts are based on the assumption that the global risk sentiment will not worsen further over the upcoming period.

Unprocessed Food Prices

Another external variable underlying the medium-term forecasts is the path of unprocessed food prices. Inflation in unprocessed food prices was high at 27.1%. Year-end inflation forecasts for 2019 and 2020 remained intact at 13% and 10%, respectively (Table 7.1.2).

Fiscal Policy, Administered Prices and Tax Adjustments

The fiscal policy contributed to the balancing process in economic activity in the last quarter of the year in line with the projections of the October Inflation Report. The reduction in electricity and natural gas prices in the start of the year as well as the stable course of the exchange rate coupled with the fall in oil prices reduced the need for an upside adjustment in energy prices, which resulted in a downward revision in energy inflation assumptions for 2019 in the inter-reporting period. Medium-term projections are based on an outlook where macroeconomic policies are determined with a medium-term perspective and in a coordinated manner with a focus on bringing inflation down. Thus, it is assumed that the fiscal policy will continue to be formulated in a way to contribute to the economic rebalancing in 2019 and prices under public administration will be largely determined to support the disinflation process.[2] The robust policy coordination to lower inflation and ensure macroeconomic stabilization is envisaged to improve the risk premium and perceptions of uncertainty gradually.

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[2] In Box 7.2, a theoretical evaluation is presented regarding the role of the fiscal policy in reducing the output gap and volatility in inflation.

Table 7.1.2: Revisions in Assumptions*

	2018	2019	2020
Export-Weighted Global Production Index* (Annual Average % Change)	2.52 (2.55)	2.57 (2.64)	-
Oil Prices (Average, USD)	71.1 (74.6)	63.1 (80.0)	63.8 (76.2)
Import Prices (USD, Annual Average % Change)	5.3 (6.0)	-2.2 (1.3)	1.5 (-)
Food Price Inflation (Year-end % change)	25.1 (29.5)	13.0 (13.0)	10.0 (10.0)

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

7.2 Medium-Term Projections

With a tight policy stance that focuses on bringing inflation down through enhanced policy coordination, inflation is projected to converge gradually to the target. Accordingly, inflation is projected to be 14.6% at the end of 2019, 8.2% at the end of 2020 and 5.4% at the end of 2021 and to stabilize around 5% over the medium term. With a 70% probability, inflation is expected to be between 11.9% and 17.3% (with a mid-point of 14.6%) at end-2019 and between 5.1% and 11.3% (with a mid-point of 8.2%) at end-2020 (Chart 7.2.1).

Chart 7.2.1: Inflation and Output Gap Forecasts*
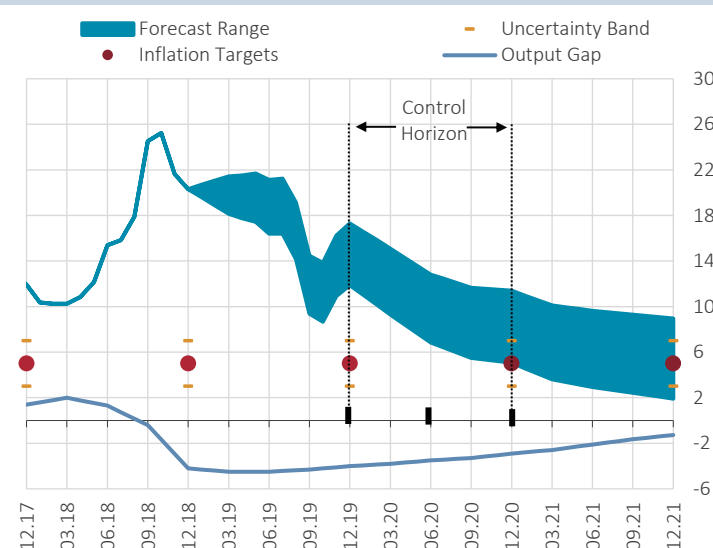
Source: CBRT, TURKSTAT.
* 70% confidence interval.

Following the October Inflation Report, appreciation in the Turkish lira coupled with the fall in crude oil prices pulled TL-denominated import prices down, while tax cuts in certain products accompanied by the weak domestic demand made the underlying trend of inflation lose pace. With increased support from demand conditions to the disinflation process coupled with the decelerated underlying trend of inflation, assumptions for oil and import prices were pulled considerably downwards particularly for 2019 and were influential in the downward revision in inflation forecasts (Charts 7.2.2 and 7.2.3). Reasons for the downward revision in inflation forecasts for 2019 and 2020 are indicated in Table 7.2.1.

Table 7.2.1: Revisions in and Reasons for Year-end Inflation Forecasts for 2019 and 2020

	2019	2020
2018-IV (October 2018) Forecast	15.2	9.3
2019-I (January 2019) Forecast	14.6	8.2
Revisions in Forecasts Compared to 2018-IV	-0.6	-1.1
Reasons for Forecast Revisions		
TL-denominated Import Prices (Exchange rate, Oil and Import Prices)	-0.5	-0.3
Deviation from Inflation Forecast/Underlying Trend of Inflation	-0.4	-0.4
Output Gap	-0.3	-0.4
Taxes and Administered Prices	0.2	-
Wage Adjustments	0.4	-

Source: CBRT.

The inflation forecast for end-2019 was revised downwards to 14.6% from 15.2%. The decline in the assumption for TL-denominated import prices drove the year-end inflation forecast down by 0.5 points. Meanwhile, consumer inflation in the last quarter of the year proved 3.2 points less than the October Inflation Report forecasts and the fall in the underlying trend of inflation excluding the tax cut effect is believed to reduce the year-end inflation forecast by 0.4 points. Moreover, despite the downside effects stemming from the cuts in electricity and natural gas, tax adjustments coupled with the revision in assumptions for administered prices is projected to add to the inflation forecast by 0.2 points. In addition, the output gap, which is expected to contribute more to disinflation in the period ahead, is likely to limit the 2019 inflation forecast by 0.3 points. Nevertheless, the unit labor cost is projected to add 0.4 points to the year-end inflation forecast. Thus, the year-end inflation forecast for 2019 was revised downwards by 0.6 points compared to the October Inflation Report.

The inflation forecast for 2020 was pulled down to 8.2% from 9.3%. Of the 1.1-point downward revision, in the inter-reporting period, 0.4 points stem from the downward revision of the inflation forecast for end-2019 and the expected recovery in the underlying trend of inflation. Moreover, demand conditions, which are expected to prove weaker as of the second quarter of 2019 compared to the previous Report, are expected to have further curbing effects on inflation in 2020. This follows that the revision in output gap forecasts has pulled the inflation forecast for end-2020 down by 0.4 points since the previous reporting period. Given the assumptions of a decline in oil prices and mild appreciation in the real exchange rate, TL-denominated import prices are projected to pull inflation in 2020 down by 0.3 points.

Chart 7.2.2: Inflation Forecast
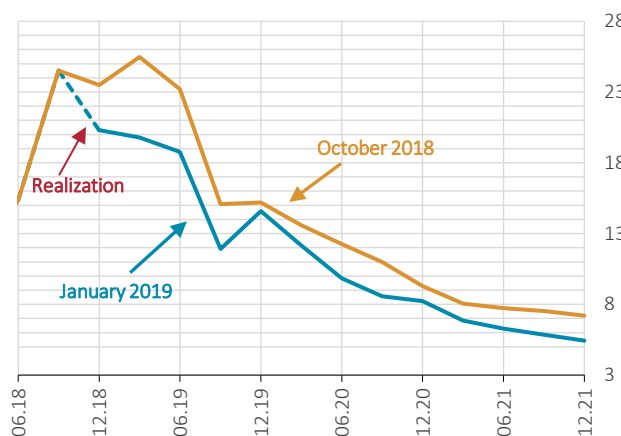
Source: CBRT, TURKSTAT.

Chart 7.2.3: Output Gap Forecast
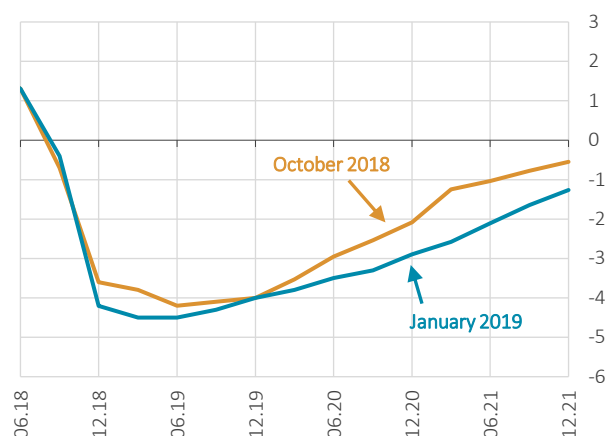
Source: CBRT.

The above-mentioned forecasts are based on a framework in which there would be no additional deterioration in the global risk appetite and the recent recovery in Turkey's risk premium would continue moderately. Projections rely on an outlook in which decisive implementation of a tight monetary policy stance would continue, and the monetary policy will focus on bringing down inflation to single digit figures in the second quarter of 2020 and ultimately to the 5% target. The tight monetary policy stance coupled with the rebalancing process expected to continue in the current account deficit will contribute to the improvement in the country risk premium, thereby containing exchange rate volatility.

Strengthened coordination between macroeconomic policies and particularly the policies supporting financial stability are expected to contain downside risks to the credit market and domestic demand, thereby contributing positively to macro balances and the disinflation process. These projections are consistent with an outlook that entails improvements in banks' external financing conditions, the credit supply and confidence and efficient functioning of the credit channel. Meanwhile, demand conditions are projected to support disinflation throughout 2019 (chart 7.2.3).

Accordingly, the determinants of the fall in inflation in 2019 are judged to be the moderation of cost pressures driven by a modest appreciation trend in the real exchange rate and the expected slowdown in domestic demand. Under a tight monetary policy stance and strengthened policy coordination, it is forecasted that consumer inflation will come down to single-digit figures in the second quarter of 2020 and come closer to the 5% target by the end of 2021.Breaking the backward-indexation behavior with the support of the stable course of exchange rates and strengthened macropolicy coordination targeting disinflation, and pulling medium-term inflation expectations to levels consistent with forecasts and targets are crucial for the success of the disinflation efforts.

Unpredictable price fluctuations in items beyond the monetary policy domain, such as unprocessed food, alcoholic beverages and tobacco products, are a major factor causing deviation in inflation forecasts. For this reason, forecasts about the core inflation indicators are also publicly announced as well. Chart 7.2.4 shows inflation forecasts excluding unprocessed food, energy, alcoholic beverages, tobacco products and gold (B index). Annual inflation in the B index is projected to trend downwards and converge to the 5% target gradually in the medium term.

Chart 7.2.4: B Index Annual Inflation Forecast*
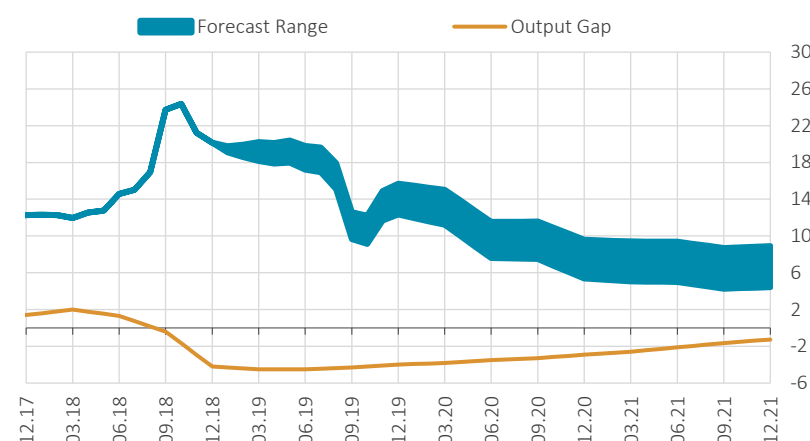
Source: CBRT, TURKSTAT.
* 70% confidence interval.

Comparison of the CBRT's Forecasts with Inflation Expectations

The current high level of inflation appears to have been triggered not only by cost increases and demand-side pressures, but deterioration in the pricing behavior and inflation expectations also contribute to the economy-wide diffusion of the tendency to raise prices. Currently, 24-month forward expectations of the respondents of the Survey of Expectations hover above those projected by the CBRT (Table 7.2.2). Contributions from the fiscal policy to the rebalancing process and setting of administered pries and taxes in a way that weakens the backward-indexation mechanisms and remains consistent with the inflation targets will offer significant contribution to the expectations management. To contain the risks posed by elevated levels of inflation and inflation expectations to the pricing behavior, maintenance of the tight monetary policy stance is significant in the period ahead.

Table 7.2.2: CBRT Inflation Forecasts and Expectations

	CBRT Forecast	CBRT Survey of Expectations*	Inflation Target
2019 Year-end	14.6	16.5	5.0
12-Month Forward	13.8	15.9	5.0
24-Month Forward	7.8	12.0	5.0

Source: CBRT.
* Data from January Survey of Expectations.

7.3 Key Risks to Inflation Forecasts and the Likely Monetary Policy Response

The outlook underlying the medium-term projections presented in the Inflation Report is based on the Monetary Policy Committee's judgments and assumptions. Nevertheless, various risks to these factors may affect the inflation outlook and necessitate changes in the monetary policy stance envisaged in the baseline scenario.

The major macroeconomic risks that have the potential to change the outlook of the baseline scenario are as follows:

- Uncertainties over pricing behavior and rigidity in expectations
- Risks to the coordination between monetary and fiscal policies (administered prices, tax adjustments)
- Uncertainties pertaining to backward-indexation behavior
- Possible volatility in food prices
- The course of capital flows towards emerging market economies
- Supply-side tightening in bank loans
- Volatility in international crude oil prices.

Evaluations on the channels through which these risks may change inflation forecasts and the direction of this change are summarized in Table 7.3.1.

Recently-released data show that the real adjustment in economic activity continues and rebalancing has become more noticeable. The impact of weak demand conditions on inflation has become stronger and is likely to support disinflation throughout 2019. Nevertheless, several factors such as the elevated level of inflation expectations, volatility in exchange rates and deferred cost pressures keep upside risks to the inflation outlook in place.

The recent fall in inflation is attributed to the weakened aggregate demand and tightened monetary policy as well as the tax cuts of the last quarter of 2018 that are projected to expire in the first quarter of 2019 and some transitory factors that appeared in the short term. The outlook for the short-term inflation path to emerge while these temporary effects are taken back will be largely dependent on the firms' pricing behavior.

The impact of the surge in inflation on wage increases in 2019 remains as a risk factor for the medium-term inflation outlook. Wage increases in 2019 may push inflation up through the aggregate demand channel. However, it is projected that further state subsidies to employers would limit potential cost pressures to some extent. Despite the alleviating effect of the slowdown in economic activity and weak employment opportunities on wages other than the minimum wage, the strong backward-indexation behavior in wages may slow the decline in inflation.

Elevated levels of inflation and inflation expectations remain as risk factors to the inflation outlook through the pricing behavior channel. Economic agents have not yet fully attributed the recent improvement in inflation to the medium-term trend of inflation.[3] These developments in expectations sustain the upside risks to the inflation outlook through the channels of wage adjustments and the pricing behavior.

In addition to the support that the macroeconomic rebalancing process offers to inflation, a decline in the indexation to past inflation in administered pries, taxes and wage adjustments that would weaken the backward-indexation mechanisms by anchoring expectations is significant to achieving a permanent fall in inflation.

Due to the persisting risks to price stability despite the partial improvement in recent months, the CBRT decided to maintain the tight monetary policy stance until the inflation outlook records a significant improvement. The essential element to shape the monetary policy decisions in the short term will be a trend of decline in inflation that can be considered as permanent.

There are also risks stemming from global monetary policies and risk appetite developments that may reduce capital flows towards emerging economies and feed into exchange rate volatility. In the last quarter of 2018, expectations became stronger that the subdued global growth and increased uncertainties regarding the global economy may lead to a normalization path in monetary policies of advanced economies that implies less tight policy stances compared to the previous period. This indicates

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[3] The course of indicators related to the perceptions of inflation uncertainty is analyzed in Box 3.1.

that portfolio flows towards emerging economies may follow a more favorable course in 2019.However, blurred global economic policies, high volatility in financial markets of advanced economies, and persisting geopolitical problems keep downside risk to portfolio flows to emerging economies brisk.

In the case of excessive market volatility due to fluctuations in global liquidity conditions and the risk sentiment, the CBRT may use liquidity measures intended for providing the market with the needed FX liquidity in a timely, controlled and effective manner. In addition, it may introduce additional tightening in monetary policy to contain the impact of these risks on inflation and inflation expectations.

Following a significantly stronger tightening than historical averages due to increased risk premiums in the third quarter of the year, credit conditions have registered a gradual easing since October. The rate and extent of this normalization are important to the prospects for economic activity. As cash flows and balance sheets of firms have been adversely affected by the increase in exchange rates and loan rates as well as the slowdown in economic activity, conducting the necessary assessments and analyses related to the asset quality of firms will have a role in shaping the credit market. Therefore, establishing coordination between the financial sector policies that restrict the balance sheet effects of the corporate sector and the monetary policy that focuses on inflation are crucial to prevent financial conditions from being caught in an inefficient tightening cycle.

The recent deceleration in economic activity driven by domestic demand indicates the presence of downside risks to inflation as well. Recently-mounting uncertainties over monetary policies of advanced economies and the prospects for global economic activity pose a downside risks to growth through the capital flows and foreign trade channels.

A weaker coordination between the monetary policy and the fiscal policy than envisaged in the baseline scenario is regarded as a risk with respect to disinflation and macroeconomic rebalancing. The fiscal policy outlook, on which the medium-term projections in the Inflation Report are based, incorporates a policy stance that focuses on disinflation and macroeconomic rebalancing and is coordinated with the monetary policy in line with the New Economy Program announced in September. Accordingly, the projections rest on an outlook where the fiscal policy implements a tight fiscal discipline. as envisaged in the New Economy Program. Moreover, it is assumed that administered prices and tax adjustments will be formulated in a way that will help reduce the backward-indexation behavior. If the fiscal policy significantly deviates from this framework leading to an adverse impact on the medium-term inflation outlook, the monetary policy stance may be revised.

The course of prices of crude oil and other commodities also constitute risks to inflation in the upcoming period. Although crude oil prices have recently plunged, the sustained sharp uptrend in the US shale oil production coupled with projections for muted global economic activity pose a downside risk to crude oil prices. Meanwhile, geopolitical developments as well as the persisting volatility in global financial markets is an upside risk factor for crude oil prices. On the other hand, increased protectionism in global trade stands out as a downward risk factor for commodity prices due to its possible adverse effect on global growth. If the trade negotiations between the US and China yield a positive outcome in the upcoming period, crude oil, some industrial metals and agricultural prices may register an upside movement due to the increased demand from China. Accordingly, the monetary policy response will be determined in such a way to curb a possible deterioration in inflation expectations and pricing behavior, taking into account the direct and secondary effects of respective risks on inflation.

Table 7.3.1: Key Risks to Inflation Forecasts and Possible Impact Channels*

Risk	Assessment of Risks as against the Baseline Scenario and Possible Impact on Inflation ($\uparrow$ | $\leftrightarrow$ | $\downarrow$)		Indicators Monitored
Uncertainties regarding the pricing behavior and expectation formation	**Pricing Behavior and Expectation Channel:** • High levels of inflation may lead to additional deterioration in pricing behavior, thereby strengthening backward-indexation. • Inflation and exchange rate expectations may give rise to a mutually reinforcing cycle, which may lead to weak anchoring of inflation expectations. • Cumulative cost pressures on firms and decrease in their profitability, coupled with increased working capital costs, may change the historical relationship between inflation and output gap. • A prospective adjustment in tobacco sector's prices in response to the tax adjustments in January indicates a risk to the inflation forecasts. • Uncertainties regarding the magnitude and duration of the discounts introduced under the "All-Out War on Inflation" program may affect short-term inflation forecasts.	$\uparrow$ $\uparrow$ $\uparrow$ $\uparrow$ $\leftrightarrow$	• Core inflation indicators • Diffusion indices • Survey of Expectations • Stronger backward-indexation tendency in inflation expectations • Inflation indicators by sectors and sub-categories • Various output gap measures • Financial statements of firms and NPLs by sectors • Expectations of inflation and exchange rates
Uncertainties pertaining to backward-indexation behavior	**Pricing Behavior and Expectation Channel:** • The strong backward-indexation mechanism in wages may limit the sensitivity of wage inflation to cyclical conditions, leading to slower disinflation. • Labor cost pressures may pass through to consumer prices to a greater extent, unless these pressures are compensated for by the government support for employers or productivity gains. **Demand Channel:** • The anticipated real wage increases in 2019 may have an upward effect on inflation through the demand channel.	$\uparrow$ $\uparrow$ $\uparrow$	• Real unit labor costs • Real wage and earnings • Partial labor and total factor productivity • Private sector wage formation • Indicators for consumption expenditures
The course of capital flows towards emerging economies	**Global Monetary Policies:** • Rising uncertainties regarding the monetary tightening process in advanced economies and the protectionist trade policies, high financial market volatility in advanced economies, and ongoing geopolitical problems may slow down capital flows towards emerging economies. **Global Risk Appetite:** • Protectionist trade policies may trigger concerns over global growth and affect the global risk appetite adversely. • Trade disputes between the US and China, ongoing uncertainties on Brexit, high public debt in Italy, the sharp fall in oil prices, and increasing volatility in advanced economies' currencies may limit the global risk appetite.	$\uparrow$ $\uparrow$ $\uparrow$	• Global risk appetite indicators • The course and composition of global capital flows, Turkey's share • Developments in Turkish banks' borrowing costs • Developments in firms' borrowing from abroad

Table 7.3.1: Key Risks to Inflation Forecasts and Possible Impact Channels*

Tight conditions in firms' access to finance	**Balance Sheet Channel:**		• Developments in loan growth with a breakdown by public and private banks
	• Exchange rate- and input-cost-led deterioration of real sector's balance sheets and the slowdown in cash flows may lead to more significant slowdown in economic activity compared to Inflation Report projections.	↓	• Developments in loan and deposit rates
	• The increase in the number of insolvent firms may affect the country risk premium negatively.	↑	• NPL breakdown by sectors and loan types, bad cheques and protested bills
	• Deceleration in the rate of increase in residential and commercial real estate prices may decrease the value of collaterals that the firms put up against loans, and firms may be exposed to tighter credit conditions.	↓	• Unemployment insurance and Wage Guarantee Fund recipient statistics
	Bank Lending Channel:		• Yield spread on corporate bond issues
	• The decline in banks' CARs might affect credit supply adversely.	↓	• Credit conditions (Bank Loans Tendency Survey)
			• Financial and corporate sector balance sheets, financial flows
			• Residential and commercial real estate prices (nominal/real)
			• House sales, construction sector value added
Risks to the effective coordination between monetary and fiscal policies	**Demand Channel:**		• Envisaged fiscal policy measures as part of the New Economy Program and the 2019 budget
	• The disinflationary effect from demand conditions may be reduced, should direct or indirect supportive impact of fiscal policy on domestic demand and economic activity be stronger than envisaged in the current Inflation Report.	↑	• Developments regarding the interaction of monetary and fiscal policies
	Risk Premium:		• Domestic demand indicators
	• A significant deviation of the budget balance from the levels envisaged in the New Economy Program, through a fall in tax revenues due to the slowdown in economic activity or increased government spending, may cause an increase in the country risk premium, by raising the public sector borrowing requirement.	↑	• Developments in expenditure items sensitive to fiscal policy measures
	Administered Prices and Tax Adjustments:		• Administered prices and tax adjustments
	• The disinflation process may be delayed, should the path of administered prices and tax adjustments significantly exceed the path envisaged in this Report.	↑	• Budget, current account and other balance of payments indicators
			• Output gap forecasts
A rise in financial market volatility caused by domestic factors	**Risk Premium:**		• Implied FX volatilities
	• Deterioration in risk perceptions towards Turkey due to factors that determine the risk premium or contagion effect that might arise from possible fluctuations in global financial markets may have an adverse impact on the country risk premium.	↑	• Risk premium indicators
			• Global risk appetite indicators
			• Exchange rates
Adverse effects of global protectionist trade policies on economic activity,	**Foreign Demand:**		• Developments in protectionist trade policies
	• Protectionist trade policies may have a downward effect on the global growth outlook, primarily in the US and China. The additional	↓	• Export-weighted global economic activity index

Table 7.3.1: Key Risks to Inflation Forecasts and Possible Impact Channels*

trade volume and prices	customs tariff keeps the downward risks to the European Union's economic activity alive. In such a case, a likely weakening in Turkey's foreign demand might reduce capacity pressures. • Sectoral capacity pressures may be experienced should demand head towards Turkey from countries exposed to protectionist measures in some sectors. ↑ **Global Inflation and Financial Conditions:** • The monetary policy response to protectionism-driven inflation in related countries may tighten global financial conditions and lead to the depreciation of the Turkish lira. ↑	• Global trade volume and inflation developments • Data on sectoral activity and prices • Monetary policy response in advanced and emerging economies
Crude oil and import prices	**Import Prices:** • Geopolitical developments and volatility in global financial markets pose upside risks for crude oil prices. ↑ • Risks regarding the weakening global growth are likely to cause a downward effect on commodity prices in the medium term. ↓ • There are upside risks to crude oil, some industrial metals and agricultural prices, should the trade negotiations between the US and China yield a positive outcome in the upcoming period, due to the increased demand from China. ↑	• Crude oil prices and supply/supply balance • OPEC decisions • Arrangements on domestic fuel oil prices • Imports and current account balance
Possible volatility in food prices	**Unprocessed Food Prices:** • Inflation expectations may be affected adversely due to a later-than-anticipated correction in unprocessed food prices that have recently soared relative to long-term trends. ↑ • There may arise additional inflationary pressure, should cost increases, which have been postponed for some time in certain sectors, particularly in food groups such as bread-cereals, milk and meat, be reflected onto consumer prices. ↑	• Developments in food prices by categories and sub-categories • Deviation of unprocessed food prices from historical trend • Food Committee measures and their implications

* Each risk row of the table presents evaluations on the channel through which inflation forecasts may change, along with the direction of that change, if the respective risk materializes. The signs ↑, ↓ indicate the direction in which the risks influence the inflation forecast (upside and downside, respectively). The sign ↔ denotes circumstances where the net effect on the inflation forecast is not clear. Indicators used in monitoring the risks are listed in the right column.

Box 7.1

An Evaluation of End-2018 Inflation Forecasts

Under the inflation targeting regime, the CBRT provides the public with comprehensive reviews of inflation developments through reports. This box gives a summary of the end-2018 inflation forecasts announced in Inflation Reports throughout 2018, along with the changes in the main assumptions underlying these forecasts.

Upward revisions to output gap forecasts and TL-denominated import prices stemming from the increase in oil prices during the first half of 2018 played a major role in revisions to year-end inflation forecasts. In the second half of the year, upward revisions to assumptions for Turkish lira-denominated import prices, food prices and the underlying inflation, due to the sharp depreciation in the Turkish lira, pushed the year-end inflation forecast markedly higher. The increased volatility in financial markets prompted tightening of financial conditions more than anticipated which resulted in downward revisions to the output gap (Table 1).

Table 1: Inflation Report Assumptions for 2018

	January IR	April IR	July IR	October IR	Actual
Food Prices (year-end % change)	7.0	7.0	13.0	29.5	25.1
Export-Weighted Global Production Index (annual average % change)	2.7	2.9	2.6	2.5	2.5*
Import Prices (annual average % change)	7.4	4.8	6.3	6.0	5.3*
Brent Crude Oil Prices (annual average,USD/bbl)	66	68	73	75	71

Source: CBRT.
* Forecasts as of January 2019.

Inflation hit 20.3% at the end of 2018. The depreciation of the Turkish lira amid global and geopolitical tensions was one of the key drivers of the increase in inflation throughout the year. These developments pushed inflation significantly upwards after the second half of the year in items sensitive to the exchange rate in particular, whereas increased perceptions of uncertainty deteriorated inflation expectations and pricing behavior. Additionally, the volatility in food prices, especially stemming from the unprocessed food prices, were among factors creating inflationary pressures in 2018.

January Inflation Report (2018-I)

Cost pressures on inflation increased as of the second half of 2017. This upsurge was driven by the depreciation of the Turkish lira against the currency basket, its cumulative effects and also increases in import prices, especially oil. Besides the cost channel, stronger-than-anticipated aggregate demand conditions depending on the robust economic activity contributed to the upward pressure on inflation. In this period, medium-term forecasts were based on the assumption that the CBRT's policy stance would be tight and the cost pressures on inflation would gradually weaken, thereby contributing to the disinflation process in 2018. Furthermore, milder course of economic activity and credit growth in addition to the continued strong coordination between monetary and fiscal policies were indicated among factors supporting the disinflation process in 2018. In this framework, with a tight policy stance that focuses on bringing inflation down, consumer inflation was projected to decline to 7.9% at end-2018 from its level of 11.9% at end-2017.

Chart 1.a: Revisions to Average Output Gap Forecasts (%)
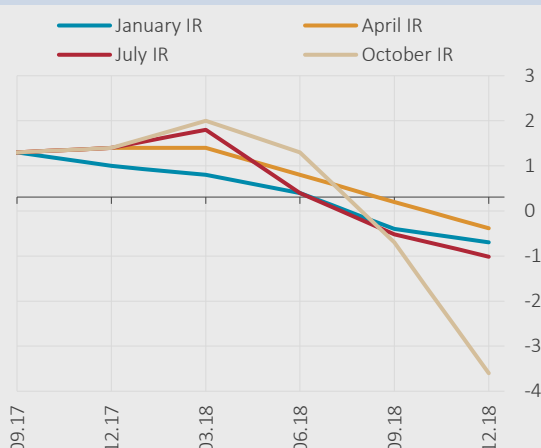
Source: CBRT.

Chart 1.b: Revisions to Inflation Forecasts in 2018* (%)
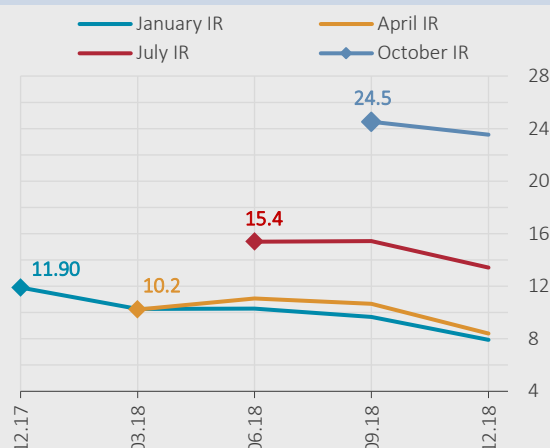
Source: CBRT, TURKSTAT.
*The series show the projected inflation path from the start of the corresponding period to the end of year.
**The initial points in series show the actual inflation values.

April Inflation Report (2018-II)

Although consumer inflation was in line with January Inflation Report projections as of the first quarter of 2018, developments in exchange rates and oil prices increased upside risks to the near-term inflation outlook, especially after mid-March. Besides cost pressures, aggregate demand conditions also drove inflation higher due to the robust course of the economic activity. In fact, upward revision in the national income data and the solid economic activity in the first quarter of 2018 prompted an upward revision to output gap forecasts over the inter-reporting period (Chart 1.a). Thus, based on the revisions to the output gap and to TL-denominated import prices because of the developments in oil prices and exchange rates, the year-end inflation forecast for 2018 was revised up to 8.4%.

July Inflation Report (2018-III)

In the second quarter of 2018, consumer inflation overshot the April forecast significantly. The main drivers of the deviation in inflation forecasts were the markedly higher-than-expected import prices in Turkish-lira terms and food prices, particularly for unprocessed food.

In the first quarter of 2018, economic activity was slightly stronger than the April forecast. However, due to the sharp depreciation of the Turkish lira and heightened uncertainty perceptions, financial conditions became tighter than expected. Thus, having estimated that demand conditions would slow in the second quarter at a faster rate than envisaged in its April Inflation Report, the Bank revised its 2018 output gap forecasts downwards for the last three quarters relative to the previous report (Chart 1.a).

Oil and commodity prices continued to rise in the second quarter of 2018, and unprocessed food inflation significantly exceeded the April Inflation Report assumptions. Considering these developments, assumptions for oil, import and food prices were revised upwards. In this regard, the year-end annual consumer inflation forecast was revised upwards by 5 points to 13.4%. This rise was mainly driven by the upward revision made to the TL-denominated import price assumption in the July Inflation Report because of the developments stemming from oil prices and exchange rates.

October Inflation Report (2018-IV)

Consumer inflation, which surged in the third quarter, remained significantly above the forecasts of the July Inflation Report. The deviation of inflation forecasts was mainly driven by the cumulative impact of the depreciation of the Turkish lira and the deterioration in pricing behavior impaired by expectations and backward indexation.

Data releases and the backward revisions indicated that the economic activity in the second quarter was slightly stronger than the forecasts of the July Inflation Report. Accordingly, the output gap forecasts for the second quarter were revised slightly upwards. As a result of the tighter-than-anticipated financial conditions, the slowdown in demand conditions was expected to gain pace, and the output gap was projected to widen significantly in the last quarter (Chart 1.a).

After the July Inflation Report, import prices denominated in Turkish lira exerted upside pressure on inflation. The bulk of this pressure stemmed from the rapid depreciation of the Turkish lira along with the increase in the pass-through from exchange rates to inflation. Furthermore, energy prices excluding fuel remained above the assumptions of the previous report. Moreover, the outlook for food inflation deteriorated in the third quarter. Accordingly, the inflation forecast for end-2018 was revised up to 23.5%, implying a 10.1- point rise compared to the July Inflation Report.

Actual Inflation at the end of 2018

Remaining 3.2 points below the October Inflation Report forecast, the year-end consumer inflation realized as 20.3%. The main drivers of the deviation in inflation forecasts were the lower-than-expected import prices denominated in Turkish lira caused by the appreciation of Turkish lira and the decline in oil prices in the last quarter. Additionally, waning of the elevated volatility in financial markets affected pricing behavior positively in this period. Weaker domestic demand conditions owing to slowdown of economic activity drove the underlying inflation down during the last two months of the year in particular. Following the October Inflation Period, special consumption tax (SCT) on automobiles, white goods and furniture was lowered temporarily, causing core goods inflation and consequently the consumer inflation to decline. The last column of Table 2 displays how each of these factors contributed to the deviation of 3.2 points between expected and actual year-end inflation rates.

Table 2: Revisions to end-2018 Inflation Forecasts

	January IR	April IR	July IR	October IR
Inflation Forecasts (%)	7.9	8.4	13.4	23.5
Sources of Revisions*				
	Apr-Jan	Jul-Apr	Oct-Jul	Dec-Oct
Food	0.0	1.4	3.8	-1.0
Import Prices (TL)	0.4	2.3	4.1	-0.6
Underlying Inflation	0.0	1.3	2.5	-0.5
Output Gap	0.1	-0.1	-0.3	-0.1
Adjustments to Alcoholic Beverages, Tobacco Products and Other Taxes	0.0	0.1	0.0	-1.0

Source: CBRT.

* The first three columns show the sources of revisions in the inter-reporting period, while the last column shows the sources of the deviation between actual inflation and the October Inflation Report forecast. Inflation ended 2018 at 20.3%.

In conclusion, end-2018 inflation forecasts were increased gradually throughout the year due to the rise in TL-denominated import prices, the developments in food prices, and deterioration in pricing behavior (Chart 1.b). The deviation between the actual inflation rate in December and the year-end forecast in October was caused by the rapid fall in TL-denominated import prices driven by the mild course of the Turkish lira coupled with the decline in oil prices and the correction in food prices as well as the underlying inflation due to the effects of tax adjustments. The CBRT has explained revisions to forecasts and their reasons transparently to the public through Inflation Reports, fulfilling the commitment of accountability on a regular basis.

Box 7.2

The Interaction Between Monetary and Fiscal Policies in a Structural General Equilibrium Model

As the Turkish economy has faced many global and geopolitical shocks in recent years, the interaction and coordination between monetary and fiscal policies have gained greater importance in order to limit the effects of these shocks and to diminish policy trade-offs. While the monetary policy stance has been gradually tightened because of a rise in inflation mainly stemming from the exchange rate and import prices since the last quarter of 2016, many fiscal policy measures were taken by using the fiscal space generated by fiscal discipline in order to prevent the slowdown in the economy and to prevent the contraction in loans from causing a negative cycle. Thus, fiscal policy supported economic activity in 2017 while tax adjustments were set to limit the rise in inflation at the same time (Chart 1, Chart 2). The sliding scale tariff applied to fuel prices in 2018 is an important example of how recent fiscal policy has sought to reduce the volatility in inflation (Box 3.2). In this context, while the monetary policy framework is given in this box, it is emphasized how inflation and output gap volatility are affected in a situation where fiscal policy is established to ensure debt stability as well as to minimize the fluctuations in inflation and output gap.

Chart 1: Contribution of Tax Adjustments to Inflation (%)
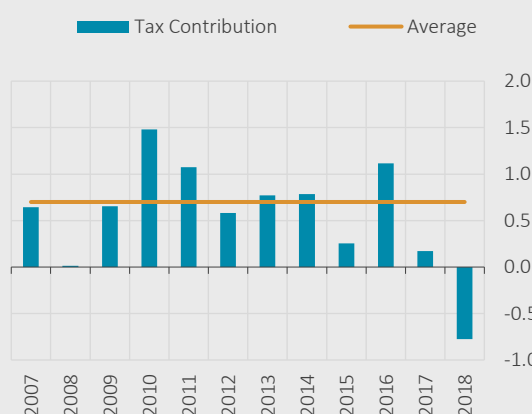
Source: CBRT, TURKSTAT.

Chart 2: Cyclically-Adjusted Primary Budget Balance (As a share of potential GDP, %)
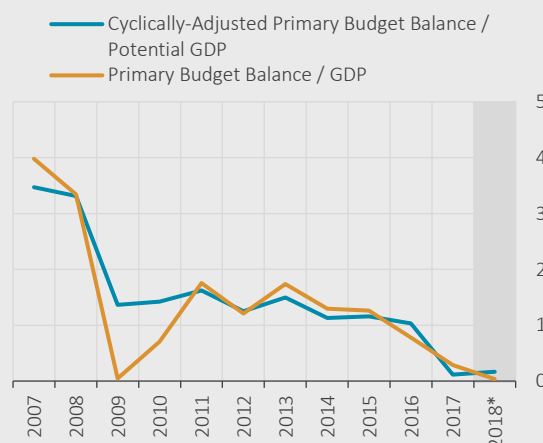
Source: Ministry of Treasury and Finance, CBRT calculations.
* Estimation.

In this box, the interaction between monetary and fiscal policies in Turkey is examined through a small-scale structural dynamic general equilibrium model. The model used consists of total supply, total demand, a monetary policy interest rate rule, fiscal policy spending and tax rules, and debt dynamics equations. A detailed explanation of the model can be found in Büyükbaşaran, Çebi, and Küçük (2018). For this analysis, fiscal policy spending and tax rules are important:

Spending Rule $$\hat{g}_t = \rho_g \hat{g}_{t-1} + (1 - \rho_g)\left[g_y \hat{y}gap_{t-1} + g_b \hat{b}_t\right] + \epsilon_t^g \qquad (1)$$

Tax Rule $$\hat{t}_t = \rho_t \hat{t}_{t-1} + (1 - \rho_t)\left[t_y \hat{y}gap_{t-1} + t_b \hat{b}_t\right] + \varepsilon_t^t \qquad (2)$$

The fiscal policy rules described in Equations (1) and (2) respond to debt stability and the output gap. $\widehat{ygap}$ represents the output gap, i.e. the percentage deviation from the potential value of the gross domestic product (GDP). $\hat{g}_t$, $\hat{t}_t$ and $\hat{b}_t$ denote the ratio of budget expenditures, tax revenues and public debt stock to GDP, respectively. The parameters g_y and g_b in equation (1) show the sensitivity of public expenditures to output gap and debt stock, respectively. The parameters t_y ve t_b in equation (2) display the sensitivity of tax revenues to output gap and debt stock, respectively. The fiscal smoothing parameters (ρ_g and ρ_t) play an important role in determining the sensitivity of fiscal policy instruments to debt stock and the output gap. It is assumed that the public sector can change parameters g_y, g_b, t_y and t_b with the changes made in expenditures and tax policies.

In short, different expenditure and tax policies correspond to different g_y, g_b, t_y and t_b parameter values. When constructing fiscal policies, important variables are taken into consideration in terms of macro economy such as budget balance, growth and inflation. If more than one variable is included in the policy objective function at the same time, different fiscal policies can be applied depending on the priority given to a variable in case of trade-offs between these variables. Differences in fiscal policy implementations cause changes in resource allocation and macro balances in the economy.

For example, in a period when the debt stock is relatively high, a fiscal policy framework that prioritizes debt stock stability may choose to make a relatively larger cut in public spending, given the low tax revenues due to low growth, while a fiscal policy that prioritizes the growth outlook may decide to increase spending, at the expense of increasing the debt stock. In this box, an analysis is made to show how the implications of budget discipline, growth and price stability in the objective function of the fiscal policy can have consequences for macro balances. Four different objective (loss) functions have been selected to represent different priorities of fiscal policy:

$$L1 = 0.01var(\pi) + 0.2var(ygap) + 1.0var(b) \qquad (3)$$

$$L2 = 0.01var(\pi) + 1.0var(ygap) + 0.2var(b) \qquad (4)$$

$$L3 = 1.0var(\pi) + 1.0var(ygap) + 0.2var(b) \qquad (5)$$

$$L4 = 1.0var(\pi) + 1.0var(ygap) \qquad (6)$$

Here, *var(x)* represents the variance (volatility) value from the structural general equilibrium model of variable *x*, inflation π, output gap *ygap* and debt stock *b*. Fiscal policy is assumed to select the parameters g_y, g_b, t_y and t_b to minimize L1, L2, L3 and L4 loss functions. Here, L1 prioritizes debt discipline, L2 prioritizes the output gap outlook, L3 gives priority to the inflation outlook and output gap without ignoring budget discipline and L4 is constructed to represent a fiscal policy that gives equal importance to inflation and growth. Table 1 shows the optimal parameter selections (g_y, g_b, t_y and t_b) for each objective function as well as what these parameters imply in terms of inflation, output gap and debt stock volatility.

Table 1: Optimal Parameter Choices under Different Objective (Loss) Functions of Fiscal Policies

	Spending Rule		Tax Rule		Standard Deviation						
	g_y	g_b	t_y	t_b	Inflation	Output Gap	Debt Stock	L1	L2	L3	L4
Optimal L1	-1.0	-1.0	0.0	0.5	1.299	2.955	5.224	29.1	14.2	15.9	5.2
Optimal L2	-0.1	-0.3	0.5	0.9	1.298	2.288	5.483	31.1	11.3	12.9	3.5
Optimal L3	-0.2	-0.3	0.4	0.9	1.296	2.289	5.482	31.1	11.3	12.9	3.5
Optimal L4	-1.0	0.2	-0.6	0.3	1.242	2.042	16.245	264.8	57.0	58.5	2.9

According to this, fiscal policy implementations (such as L3), which give more importance to the volatility in inflation and output gap, are more successful in decreasing the volatility of inflation and output gap compared to the loss function that gives more importance to debt stability (L1)[1].

In order to understand what the alternative fiscal rule practices summarized in Table 1 imply for the interaction of monetary and fiscal policies, it would be useful to focus on the macroeconomic effects of the cost-push shock under different fiscal policy implementations. Within the framework of the structural general equilibrium model used, the inflation rate increases as the output decreases after the cost-push shock and this situation results in a trade-off in terms of monetary policy. The reason for the trade-off is that an increase in the interest rate against the rise in inflation following the shock will bring the output further down. On the other hand, following the cost-push shock in the model, fiscal policy responds, to varying degrees, by increasing public spending under all loss functions. In other words, a tight monetary policy and expansionary fiscal policy mix is preferred following the cost-push shock, and thus the decreasing effect of the inflation shock on the output is offset by expansionary fiscal policy implementations[2].

Interpreting the optimal parameter choices implied by the cost-push shock of alternative objective functions with different priorities described above, it is observed that the L1 loss function, which gives the most importance to debt stability, reflects a policy choice that reduces the volatility of debt stock at the expense of increasing the volatility in inflation and output. On the other hand, if a loss function, which gives more importance to reducing inflation and output volatility such as L4, is adopted, it is observed that the decrease in the output at the beginning is deeper than other specifications, but output recovery is realized faster due to the high increase in public spending. In such a case, it should be noted that such a fiscal policy preference would require relatively higher fiscal space, as the increase in public spending would increase the debt stock more than others, and the implementation of this kind of policy would be limited in periods when the country risk premium is sensitive to debt stock or budget developments.

The findings of the study indicate that fiscal policies which take into account inflation and output gap volatility without permanently giving up the fiscal discipline, are effective in reducing the volatility and limiting the effects of shocks.

References

Büyükbaşaran, T., Çebi, C. ve H. Küçük, 2018, "The Interaction between Monetary and Fiscal Policies in a Small Scale Structural Model", *CBRT Research Notes in Economics*.

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[1] Although the L2 loss function gives less importance to inflation stabilization than the L3 loss function, optimal response parameters and volatility levels related to fiscal policy rules are calculated in similar values for two loss functions. This is due to the fact that the output gap stabilization is largely sufficient for inflation stabilization because the real exchange rate and risk premium are not modeled clearly in the structural model used here.

[2] A more detailed explanation of impulse-response functions can be found in Chart 3 of Büyükbaşaran, Çebi, and Küçük (2018).

Charts

4.   SUPPLY AND DEMAND DEVELOPMENTS

Tables

Boxes in Previous Inflation Reports

Abbreviations

A-PPI	Agricultural Producer Price Index
AMA	Automobile Manufacturers Association
bbl	Barrel
BIST	Borsa İstanbul
BTS	Business Tendency Survey
CBRT	Central Bank of the Republic of Turkey
CGF	Credit Guarantee Fund
CPI	Consumer Price Index
D-PPI	Domestic Producer Price Index
ECB	European Central Bank
EMBI	Emerging Markets Bond Index
EPFR	Emerging Portfolio Fund Research
EU	European Union
EUR	Euro
FCI	Financial Conditions Index
FOMC	Federal Open Markets Committee
Fed	Federal Reserve Bank
FX	Foreign Exchange
G20	The Group of Twenty
GDP	Gross Domestic Product
IHS	Information Handling Services
IMF	International Monetary Fund
JPMVXEM	JPMorgan Emerging Market Volatility Index
JPMVXG7	JPMorgan G7 Volatility Index
LLW	Late Liquidity Window
MEDIAN	Median Inflation for Seasonally Adjusted 5-Digit Sub-Price Index
MSCI	Morgan Stanley Capital International
MTP	Medium-Term Program
OECD	Organization for Economic Cooperation and Development
OMO	Open Market Operations
OPEC	Organization of the Petroleum Exporting Countries
PMI	Purchasing Managers Index
PPI	Producer Price Index
PTT	The National Post and Telegraph Directorate of Turkey
Q-o-Q	Quarter-on-quarter
S&P	Standard and Poor's
SATRIM	Seasonally Adjusted Trimmed Mean Inflation
SCT	Special Consumption Tax
SME	Small and Medium-Sized Enterprises
SMEs	Small and Medium-Sized Enterprises
SSI	Social Security Institution
TCDD	The State Railways of the Turkish Republic
TL	Turkish Lira
TRY	Turkish Lira
TURKSTAT	Turkish Statistical Institute
UK	United Kingdom
ULC	Unit Labor Cost
US	United States
USA	United States of America

USD	United States Dollar
VAT	Value Added Tax
VIX	Volatility Index
WGMA	White Goods Manufacturers Association
Y-o-Y	Year-on-year

2019 Calendar for MPC Meetings, Inflation Report and Financial Stability Report

MPC Meetings	Summary of the MPC Meeting	Inflation Report	Financial Stability Report
16 January 2019	23 January 2019	30 January 2019	
6 March 2019	13 March 2019		
25 April 2019	30 April 2019	30 April 2019	
			31 May 2019
12 June 2019	19 June2019		
25 July 2019	31 July 2019	31 July 2019	
12 September 2019	19 September 2019		
24 October 2019	31 October 2019	31 October 2019	
			29 November 2019
12 December 2019	19 December 2019		