

Box 3.1

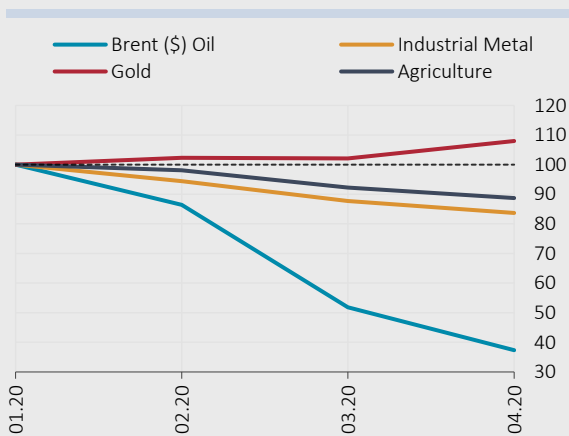
Possible Effects of the Pandemic on Inflation Outlook

In order to control the pandemic, strict measures have been taken such as social isolation, travel restrictions and temporary suspension of workplace activities. These measures may cause disruptions in production and distribution networks due to the interruptions in the supply chains, resulting in difficulties in the supply of certain goods and services. Additionally, losses in employment and in the income of employees as well as the measures reduce household consumption. Weakened global risk appetite puts pressure on the currencies of emerging economies, while commodity prices drop sharply due to the deteriorating global growth outlook. Hence, the course that began with the spread of the coronavirus significantly affects the main determinants of inflation through both the supply and demand channels.

Cost Channel

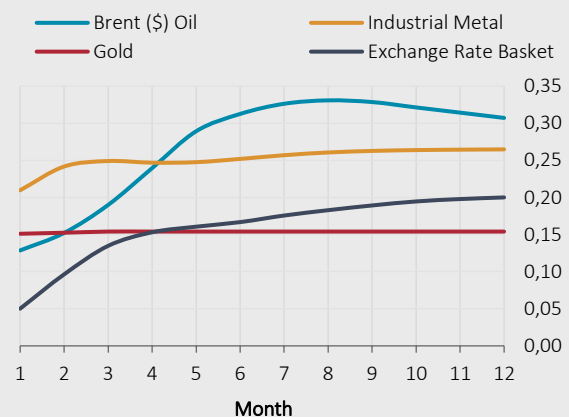
The decrease in global demand has led to sharp declines in international commodity prices, especially crude oil and metal prices (Chart 1). Calculations show that a 10-percent-change in international oil prices and in industrial metal prices change inflation by around 0.3 percentage points each on average in a period of one year (Chart 2).¹ As a matter of fact, the effects of oil prices on inflation became instantly manifest on fuel prices, which declined by 10.9% in February and March. Meanwhile, the increase in gold prices in search of safe assets in financial markets limited the lowering effect of oil and metal prices partially (Chart 1). In this context, commodity prices make a significant contribution to the decline in consumer inflation.

Chart 1: Brent Crude Oil Price (USD/bbl) and Goldman Sachs Commodity Price Indices (January 2020 = 100)



Source: Bloomberg (April data is the average of the first twenty six days).

Chart 2: Cumulative Effect of 10% Increase in Brent Crude Oil, Industrial Metal and Gold Prices and 1% Increase in Exchange Rate Basket on Inflation² (% Point)



Source: CBRT.

¹ The estimation period during which the calculations are made includes the effect of the sliding scale system implemented in fuel products in order to limit the effects of volatility in exchange rates and oil prices. In the estimations that address a period when the sliding scale application is not in effect, the impact of oil prices on inflation is somewhat higher (Akçelik and Ögünç, 2016).

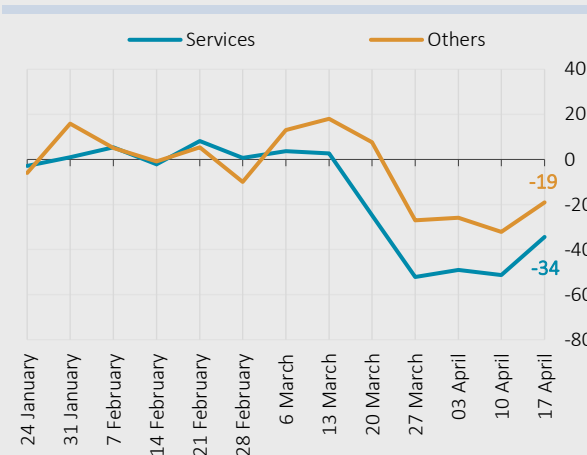
² In view of simplicity, average responses of inflation are presented according to the relevant variables, and the error bands are not included in the graphic representation. The impact of oil prices on inflation is based on updated results of the study of Akçelik and Ögünç (2016). For the exchange rate pass-through, studies such as Kara, Ögünç, Sarıkaya (2017) and Ögünç, Özmen, Sarıkaya (2018) can be examined. The impact of metal prices is based on the impulse-response analyses obtained from various VAR models using variables such as the USD/TL exchange rate, the industrial metal price index, the USD import price index, the output gap, the domestic producer price index and the D index. Similarly, to measure the effect of gold prices, VAR model results including international gold prices in US dollars, the US dollar / TL exchange rate and consumer gold prices were used.

On the other hand, with the deterioration in global risk appetite, the Turkish lira has depreciated against the US dollar similar to currencies of other emerging economies. In this period, prices increased in some of the core goods that are highly sensitive to exchange rate such as automobiles and electronics. That the exchange rate pass-through may vary according to many different factors such as demand conditions, foreign currency indebtedness, inflation and exchange rate expectations, is one of the sources of uncertainty for the upcoming period.³ Evidence that the pass-through is below the average in periods of weakened economic activity supports the projected improvement in the inflation outlook. As will be discussed in more detail in the following sections, the future course of inflation expectations, which converged rapidly to the CBRT forecasts during the global financial crisis, will also be decisive in this regard.

Demand Channel

Since the second half of March, there has been a marked weakening in aggregate demand due to the pandemic. The recession in the global economy and the measures enforced worsen the prospects for exports and tourism through the external demand and travel restrictions (Box 2.1, Box 4.1) In March, losses in activity in the services sector on a global scale are much more pronounced compared to those in the manufacturing industry. As a matter of fact, the expenditure indicators for domestic consumption show that the decrease in the expenditures for the services sector has been more apparent than for others (Chart 3).

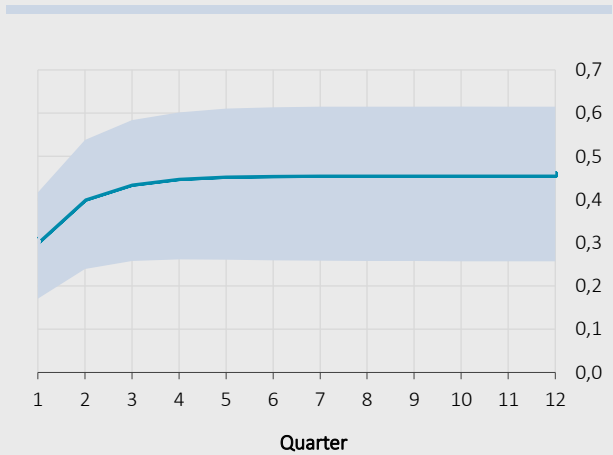
Chart 3: Bank and Credit Card Spending* (Weekly, Percentage Change Over the Same Week of the Previous Month)



Source: CBRT.

*Services data is the sum of car rental, airlines, service sectors, accommodation, entertainment, travel, insurance, telecommunication and food items.

Chart 4: Cumulative Effect of 1 Percentage Point Change in Output Gap on Inflation (% Point)



Source: CBRT.

Note: The calculations covering the 2005Q2- 2020Q1 period are derived from impulse-responses of Bayesian VAR analysis using Brent oil price, import prices in US dollars, exchange rate basket, output gap, real unit labor costs, inflation expectations and D index as variables. The darker lines denote the median response of inflation to a shock corresponding to the 50th percentile, and the light-shaded interval shows the range of impulse responses corresponding to 25th and 75th percentiles of the distribution.

Studies of the effect of demand conditions on inflation indicate that a one-point change in output gap changes consumer inflation (index D) by 0.5 points on average in one year. However, while evaluating the demand-side effects, it will be useful to mention some critical issues exclusive to the current period. Firstly, since the impact of demand conditions on inflation varies

³ Discussion of how the effect of the pass-through from exchange rate to inflation varies according to cyclical factors can be found in Kara, Ögünç, Özmen and Sarıkaya (2017).

according to subgroups, the average effect can differ depending on the relative size of the shocks coming to each subgroup.⁴ Despite the apparent slowdown across services such as accommodation, restaurants, transport, entertainment and culture in the current period, the fact that supply-side effects (closing of production units, loss of labor and productivity, etc.) play an important role necessitates a cautious approach to the extent of the reflection of the weak activity on prices. Actually, it is difficult to provide a clear picture of the pricing behavior, since firms with interrupted cash flows have fixed costs and debt repayment burdens. Secondly, the difficulties in decomposing the decrease in production into supply and demand components constitute a significant uncertainty about output gap measurement. Supply-side factors such as the closure of workplaces may disrupt the price setting process and limit the variation in inflation in some goods and services. From a technical point of view, although its magnitude contains uncertainties, it is necessary to reflect a significant part of the decrease in production to potential output while estimating the output gap based on filters. In this practice, where the entire decline in production is not attributed to demand-side effects, the output gap will be estimated as "less negative" compared to statistical filters, which means that the disinflationary contribution of demand conditions will be more limited. Finally, it should be taken into account that the downward effect of output gap on inflation at extreme values may be more limited even if the output gap is measured correctly. Against this background, although it is estimated that the disinflationary contribution of aggregate demand conditions will increase as of the second quarter of the year, there is significant uncertainty regarding the size of the impact.⁵

Food Prices

Due to the measures taken against the pandemic, price pressures have recently been observed in certain products with the rapid increase in demand for food products. However, in general, the decline in agricultural commodity prices, limited export opportunities in some products as well as the weakening of aggregate demand, in particular tourism, are expected to slow down food inflation in the upcoming period.⁶

Global Financial Crisis in Comparative Perspective

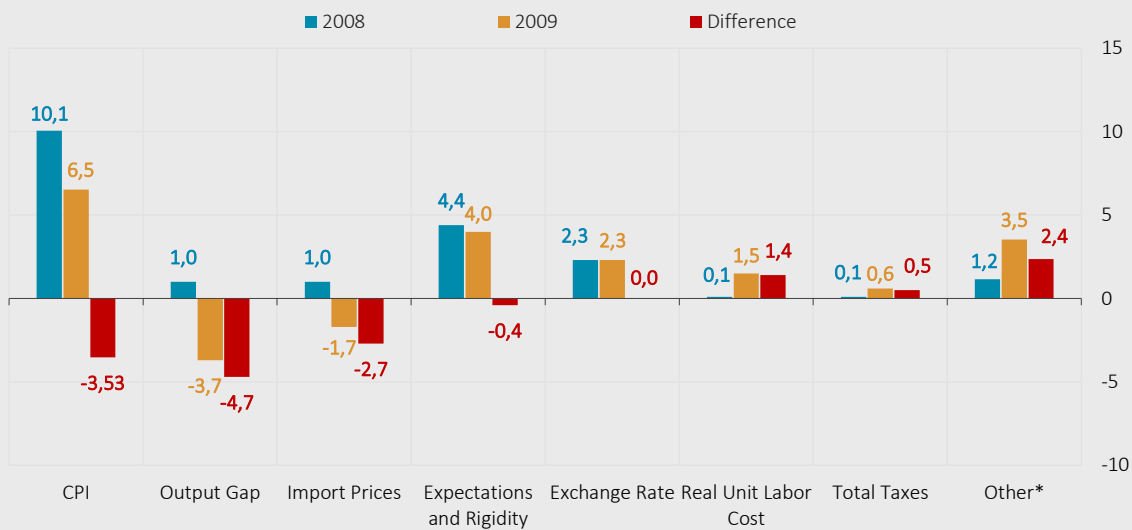
Similar to the current period, there was a marked contraction in global demand in 2009 and despite the depreciation in the Turkish lira, a strong downward effect was seen on inflation through import prices and the demand channel (Chart 5). Although the effects may vary in size, it seems likely that a similar picture will emerge in the coming period regarding the contribution of import prices and output gap to inflation. Meanwhile, the exchange rate and real unit labor cost are expected to have an upward effect on inflation. Another difference from the 2009 period is that the relatively high inflation rigidity, especially in the services sector, and supply shocks disrupting supply networks may limit the fall in inflation.

⁴ Özmen and Sarıkaya (2014), showed that service group prices were more commonly affected by the output gap compared to core goods.

⁵ Also, due to the closure of some outlets, where prices are collected, as well as the inability to collect prices from the field for some products, consumer price index calculations are likely to be affected by methodological changes.

⁶ In a box study published in the October 2016 Inflation Report, the effect of 30 percent decrease in the number of tourists in 2016 on food inflation was calculated as approximately 1.7 points (CBRT, 2016).

Chart 5: CPI Inflation (Yearly % Change) and Contributions of Subcategories (% Points)



Source: CBRT (2020).

* "Other" term includes the contribution of unprocessed food, contributions from alcohol-tobacco products other than tax adjustments and estimation errors of the equation.

In summary, despite the recent depreciation of the Turkish lira, the fall in international commodity prices affects inflation outlook favorably. The restrictive impact of aggregate demand conditions on inflation is expected to become evident starting from the second quarter of the year. In the light of these developments, it is considered that the year-end inflation outlook has improved compared to the January Inflation Report period.

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