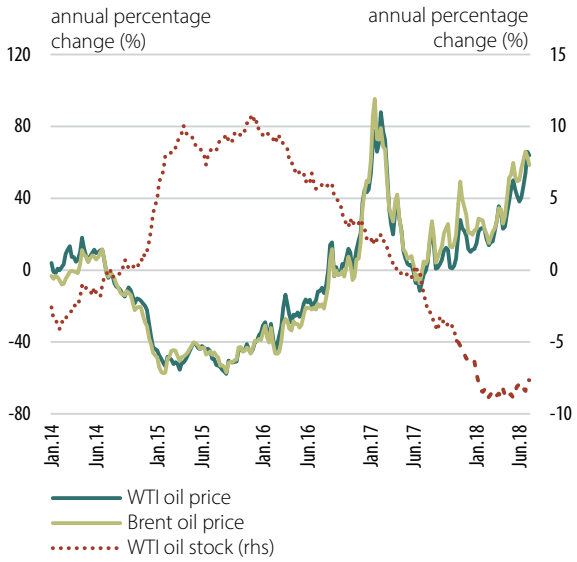
Box 2. Sensitivity scenario on oil price developments

After having reported 15-year lows in early 2016, the oil price entered an overall upward trend except for a short while in 2017 Q2. Behind this evolution stood mainly supply-side factors, among which mention should be made of the continuously shrinking oil stocks (Chart A), amid the OPEC+ agreement of December 2016 capping production, the deterioration in Venezuela's and Angola's production capacity, as well as the currently escalating geopolitical tensions[1]. However, the most recent developments foreshadow a possible slowdown in the growth rate, in the context of a new agreement within OPEC+ relating this time to the hike in oil production (in spite of persistent uncertainties about members' technical capacity to implement this hike) and of talks on using the US strategic oil reserves.

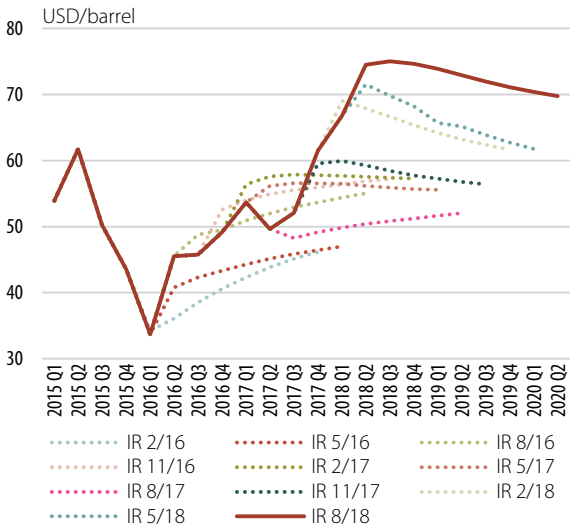
Chart A. Oil price and stocks



Source: U.S. Energy Information Administration

The enhanced uncertainty about the oil supply worldwide, together with demand fluctuations, increased the volatility of crude oil prices, which reflected in especially upward revisions of the trajectories of futures prices in the successive forecast rounds (Chart B) and which has recently been a major source of forecast errors[2].

Chart B. Revision of the Brent crude oil price trajectory in successive forecast rounds



Source: U.S. Energy Information Administration, Bloomberg, NBR calculations

In this context, this box looks into the sensitivity of the current macroeconomic projection to a possible upward deviation (of approximately USD 10 per barrel) of the oil price from the path considered in the baseline scenario. This value is based on the volatility of futures prices over the last year. The quantitative assessment of the impact of such a shock is carried out by using the model for analysis and medium-term forecasting (MAMTF)[3].

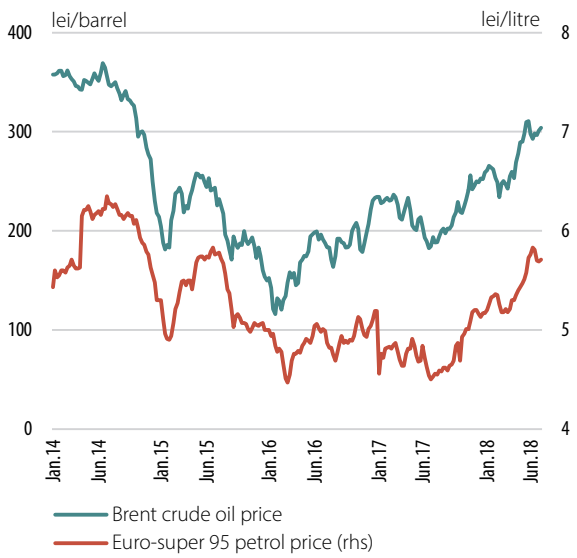
In Romania, the fluctuations in the international oil price pass through into the inflation rate both via the direct channel, i.e. the motor fuel price (Chart C) – a component of the fuel price, and the indirect channel, which relates to production costs in the consumer goods industry, including

1 Particularly relevant are the situations in Libya, where a domestic conflict led to the temporary suspension of oil exports, and Iran, which, in view of the sanctions imposed by the USA, could face a drop in oil exports. At the same time, the safety of the main crude oil shipping routes is fraught with uncertainty, as revealed by Iran's threats to close the Hormuz Strait, which enables the transit of more than 30 percent of global oil exports.

2 For further details, see Box 3 entitled "Assessment of Forecast Errors for the December 2017 Annual CPI Inflation" in the February 2018 *Inflation Report*.

3 A brief description of the model is available at: http://www.bnr.ro/Monetary-Policy-Transmission-Mechanism--3242.aspx.

Chart C. Oil price and petrol station price



Source: U.S. Energy Information Administration, EC

the transport costs of economic agents. Once a shock occurs, unless it is accompanied by a string of other shocks, the previously-described effects, called first-round effects, are temporary. The period of time during which the annual inflation rate reflects these effects depends, on the one hand, on the shock transmission speed, and, on the other hand, once they have affected the annual inflation rate, on the persistence on inflation for four quarters. To the extent to which economic agents' inflation expectations incorporate the temporary change in consumer prices and shift to a different level, persistent (second-round) effects[4] can also be considered.

A higher path of the oil price (on average by approximately USD 10 per barrel starting from current values – which accounts for an increase by about 13 percent), reflecting a stronger upturn in the global demand for oil over the medium term or a drop in the oil supply as a result of frequently escalating geopolitical tensions, would lead to a pick-up in the CPI inflation (by some 0.2 percentage points at a one-year horizon). Approximately half of this effect is associated with the direct channel, with the pass-through coefficient related to the changes in crude oil prices into the motor fuel price being, according to empirical estimations, of about 20 percent at a four-quarter horizon. The rise in production costs, also due to the pick-up in the price of energy imports, is reflected in the path of core inflation, which is roughly 0.2 percentage points higher at the same horizon, inter alia, in the context of second-round effects. Nevertheless, second-round effects, which pass through via economic agents' inflation expectations, are assessed to have a relatively low impact of about 0.04 percentage points, given that the frequent supply-side shocks over the last years (associated with changes in both oil prices and agri-food commodity prices) led to the revision of inflation expectations especially in the short run, whereas in the medium term they remained inside the variation band of the target. This outcome depends, however, on the country-specific context at the time of the shock. Thus, if the shock occurs in an environment affected by high uncertainty and growing macroeconomic imbalances, or by frequent shocks acting in the same direction[5], it can lead to stronger and more persistent second-round effects, which could call for a more restrictive monetary policy stance in order to offset them and help the inflation rate meet the price stability objective.

The impact on economic growth is assessed to be low (up to -0.1 percentage points at a one-year horizon), given that Romania is among the EU Member States the least dependent on imported energy (importing 22.3 percent of its needs compared to the 53.6 percent EU average in 2016, according to Eurostat, with lower levels being reported by Estonia and Denmark only).

4 For further details on the pass-through mechanism of international oil price fluctuations into the inflation rate in Romania, refer to the Box entitled "Oil Prices – Their Impact on Inflation and Economic Activity" in the February 2015 *Inflation Report*.

5 For instance, in 2014-2016, the oil price followed a steadily downward path.