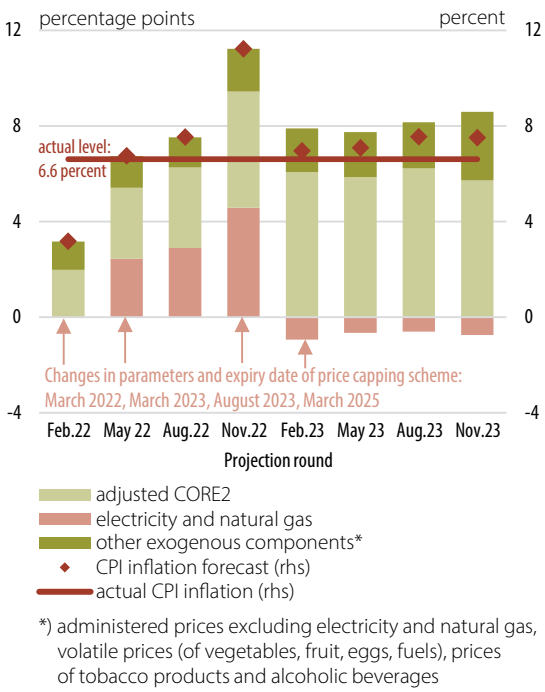
Box 2. Assessment of the accuracy of macroeconomic forecasts on the December 2023 annual CPI inflation rate[1]

This Box is part of the annual exercise designed to assess the accuracy of NBR projections on the annual CPI inflation rate at the end of the prior year, i.e. December 2023 in this case. The December 2023 annual CPI inflation rate was subject to eight forecasting rounds corresponding to the *Inflation Reports* published February 2022 through November 2023. Except for the February 2022 round, the projected values ran above the actual level (6.6 percent), indicating mainly overestimations.

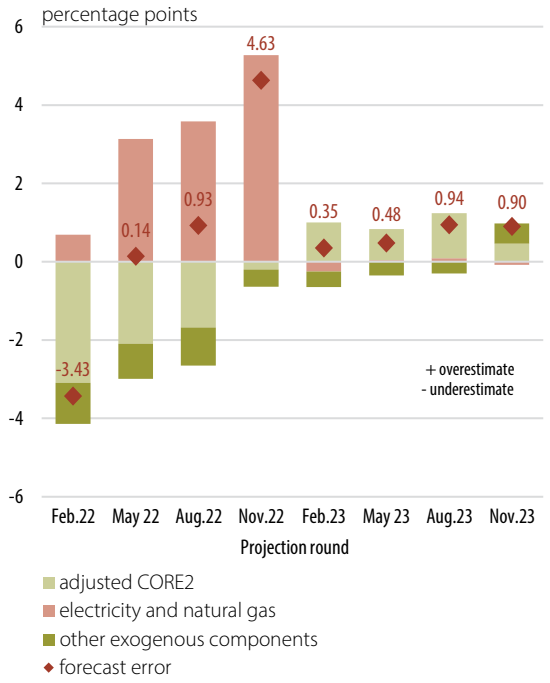
Chart A. Forecasts on the December 2023 annual CPI inflation rate – breakdown by CPI components



*) administered prices excluding electricity and natural gas, volatile prices (of vegetables, fruit, eggs, fuels), prices of tobacco products and alcoholic beverages

Source: NIS, NBR projections

Chart B. Forecast errors for the December 2023 annual CPI inflation rate – breakdown by CPI components



Source: NIS, NBR projections and calculations

The first part of 2022 was marked by the shock wave sent by the outbreak of the Russia-Ukraine war to commodity markets, particularly energy and agri-food markets, whose effect overlapped with that of the energy crisis that emerged in mid-2021[2]. The rise in production costs reflected in substantial increases in inflation rates worldwide[3] and implicitly in the inflation forecasts made after the onset of the war (in the NBR's case, starting with the May 2022 projection round). With a view to containing the negative effects of energy market developments on household consumers, the Romanian government introduced, on 1 November 2021, support

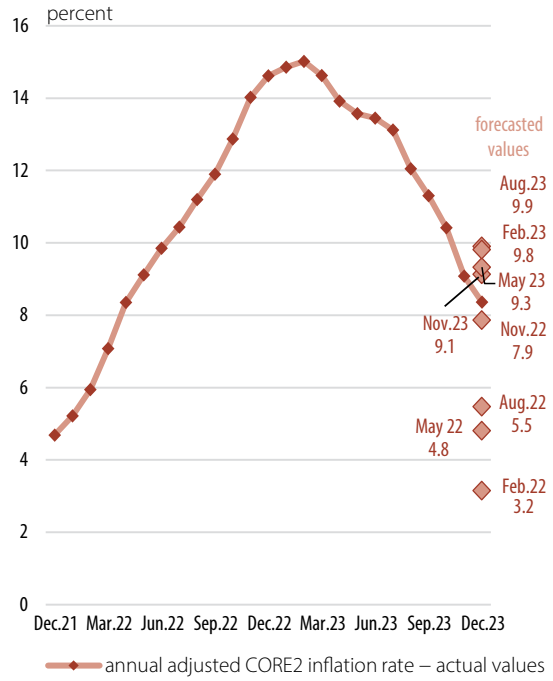
1 Forecast errors are defined as the difference between the forecast and the actual outcome, a positive value representing an overestimation and a negative value an underestimation.

2 The energy crisis broke out against the background of disruptions in supply chains in the pandemic context.

3 On the domestic front, the annual CPI inflation rate more than doubled (rising from 8.2 percent to 16.8 percent) between December 2021 and November 2022, when the disinflationary cycle started.

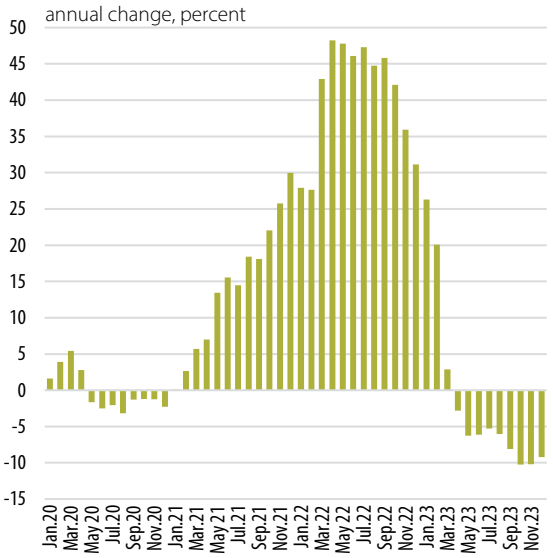
schemes aimed at capping and compensating final electricity and natural gas prices, which were subsequently amended several times. Apart from the broadly favourable revision of the conditions for beneficiaries, the changes also referred to the extension of the applicability period (the expiry month of the scheme was postponed successively from March 2022 to March 2023, August 2023 and March 2025 in the current version). These provisions were incorporated into NBR forecasts at the time they were enacted into law, in line with the standard practice of including in the baseline scenario solely information that is certain (Chart A).

Chart C. Annual adjusted CORE2 inflation rate – historical developments and forecasted values for December 2023



Source: NIS, NBR projections

Chart D. Agricultural producer price index

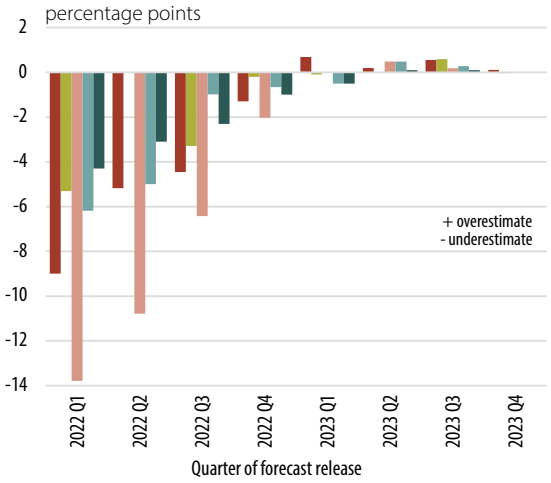


Source: ECB (farm-gate and wholesale market prices)

At the same time, the "Risks associated with the projection" section in *Inflation Reports* constantly emphasised the high uncertainty surrounding the future configuration of support schemes for household consumers, while the November 2022 *Inflation Report* included an impact estimation of an extension of the scheme in force at that time, which resulted in a 4.1 percentage point lower CPI growth rate at end-2023 as compared with the forecast at that moment. Under the circumstances, the contribution of the electricity and natural gas component to the forecast errors for the December 2023 annual CPI inflation rate (Chart B) declined significantly, to near zero, starting with the February 2023 projection round, when the set of information available at the time the forecast was prepared included the information on the support scheme being extended until 31 March 2025 (versus 31 August 2023 in the previous legal provision).

Alongside the electricity and natural gas component, the adjusted CORE2 index made an important contribution to explaining forecast errors. Over the first five forecasting rounds under review, the projections on the December 2023 annual adjusted CORE2 inflation rate were subject to successive upward revisions (Chart C), amid the sizeable increases in corporate costs driven by the developments in commodity markets, particularly agri-food markets (Chart D). Once commodity prices stabilised and, subsequently, embarked on a downward path, the forecast errors for this component declined markedly, the underestimation

Chart E. Some central banks' forecast errors for the core inflation rate*, annual average in 2023



*) indicator with a specific scope defined by each central bank

**) Poland releases only three forecasts per year (March, July, November)

***) taking into consideration the average value of the forecast interval

Source: websites of central banks and of national institutes of statistics, NBR calculations

trend in the course of 2022 being followed by a much more moderate overestimation trend in absolute terms during 2023, *inter alia* amid the measures to cap the mark-ups on some basic food products. The pattern of errors for the core inflation component is relatively similar to that in the forecasts made by the ECB and other central banks in the region (Chart E).

The contributions of the other CPI components to the forecast errors for the December 2023 annual CPI inflation rate were much smaller. Fuel prices tended to be overestimated over the eight projection rounds under review, amid lower-than-expected oil price dynamics at end-2023 (concerns about worsening global economic conditions contained the adverse effects of heightening geopolitical tensions). The overestimation of fuel prices was more than offset by the underestimation, except for the November 2023 forecasting round, of administered prices (excluding electricity and natural gas), under the impact of the August 2023 hikes in medicine prices due to the update in the National Catalogue of Prices of Prescription Medicinal Products for Human Use. Volatile food prices (VFE) and prices of tobacco products and alcoholic beverages made marginal contributions to the forecast errors under analysis.