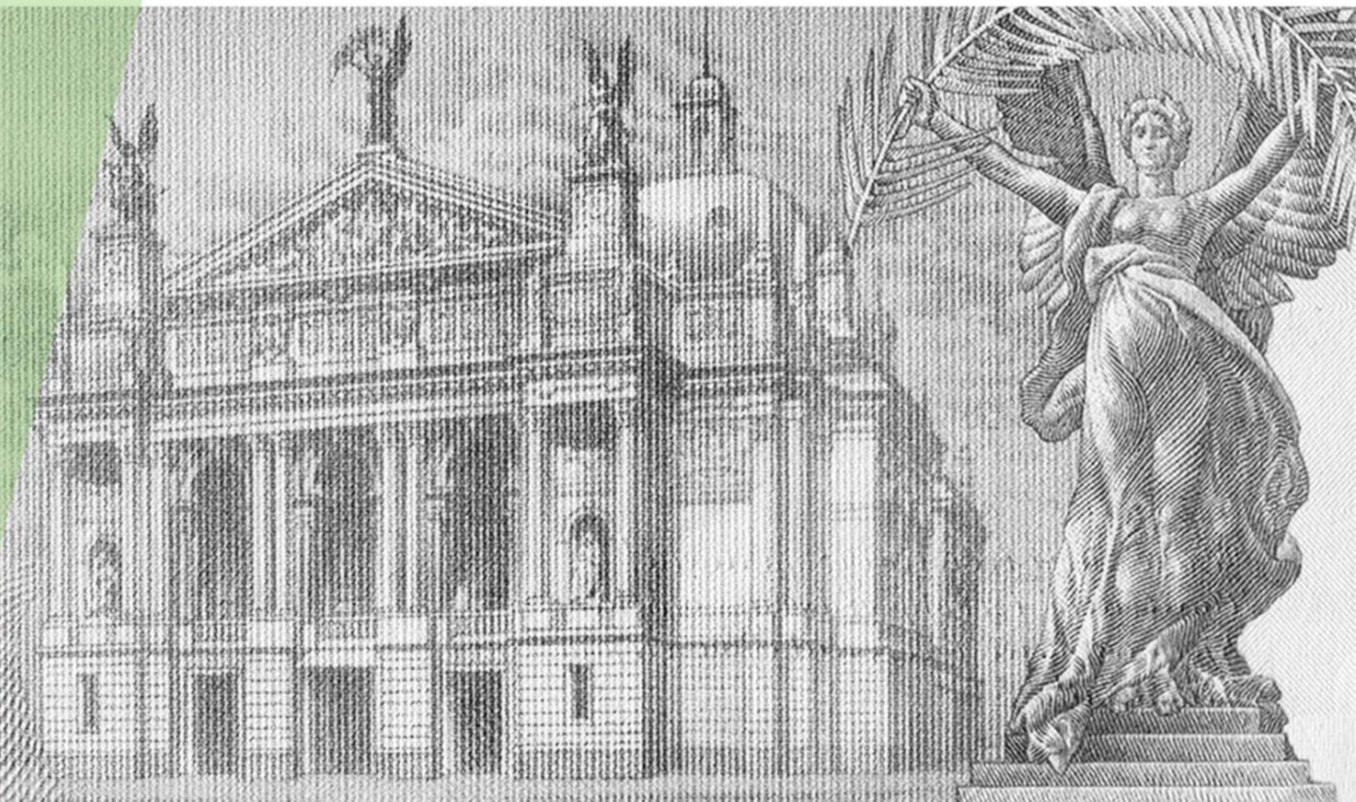
National Bank of Ukraine

Inflation Report

July 2023



Despite the full-scale war, the NBU remains committed to its mandate to ensure price and financial stability, which are the keys to achieving sustainable economic growth. At the same time, the lower effectiveness of market instruments and high uncertainty have rendered it temporarily impossible to conduct monetary policy in the conventional inflation targeting framework. The approaches to fulfilling the NBU's priority functions, as well as the objectives and principles of monetary policy, have had to be changed, and these changes were set forth in the Monetary Policy Guidelines for the Duration of Martial Law.

Maintaining exchange rate sustainability remains the key stabilization measure to ensure steady disinflation and support the adaptation of the economy to the conditions of full-scale war. Not only does it have a direct restraining effect on the growth in the cost of goods and services, it also eases underlying price pressures through its positive influence on expectations.

Among other things, FX market stability is supported by the NBU's active FX interventions, the keeping and calibration of a number of administrative restrictions (in particular, restrictions on FX transactions and capital movement), ceasing monetary financing, and ensuring that hryvnia assets are attractive. The NBU directs its interest rate policy, adapts its operational design, and applies other monetary policy instruments (in particular, the adjustment of reserve requirements) primarily in order to ensure the sufficient attractiveness of hryvnia term instruments . This restrains demand for foreign currency and helps to protect international reserves and maintain exchange rate sustainability – thus supporting further disinflation amid still-high risks, high uncertainty, and an unavoidably large state budget deficit. Such policy of the NBU also contributes to the creation of proper preconditions for implementing the approved Strategy for Easing FX Restrictions, Transitioning to More Flexible Exchange Rate, and Returning to Inflation Targeting.

The analysis in the current Inflation Report (July 2023) is based on the data available at the date of its preparation. Thus, for some indicators, the time horizon of the analysis may vary. The cut-off date for the data in this report is 26 July 2023 for the majority of indicators. The Inflation Report contains a forecast for the economic development of the country in 2023–2025, which was prepared by the Monetary Policy and Economic Analysis Department, and approved by the NBU Board at its monetary policy meeting on 27 July 2023[1].

The NBU Board will continue to decide on the level of the key policy rate and the use of other monetary tools in line with the schedule that it publishes in advance. The decisions the NBU Board makes in January, April, July, and October are based on new macroeconomic forecasts. At the remaining four meetings (taking place in March, June, September, and December), the NBU Board takes its interest rate decisions based on the results of assessments of risks and uncertainly, taking into account the economic developments in Ukraine and beyond that have emerged since the latest forecast.

The NBU Board announces its decisions on setting the level of the key policy rate and the use of other monetary instruments at a press briefing held after the NBU Board's monetary policy meeting, on the same day, at 2 p.m. A press release that explains the NBU Board's consensus position on its monetary policy decisions is published at the same time. The Summary of the Discussion on the Key Policy Rate at the Monetary Policy Committee is published on the 11th day after the decision is made. In contrast to press releases on monetary policy decisions, the summary shows the depersonalized opinions of all MPC members on the optimal monetary policy decisions to be made. It includes dissenting views and the reasoning behind them.

Previous issues of the Inflation Report, presentations of the Inflation Report, the forecast of the main macroeconomic indicators, and data for tables and figures are available here.

[1] NBU Board decision No. 256 *On Approval of the Inflation Report* dated 27 July 2023.

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Summary

The baseline scenario of the NBU's macroeconomic forecast assumes that Ukraine will consistently meet its commitments under the Extended Fund Facility with the IMF and pursue coordinated monetary and fiscal policies, and that quasi-fiscal imbalances will be gradually eliminated, in particular those in the energy sector. In addition, the baseline scenario assumes a significant decline in security risks from the middle of 2024, which would contribute to the complete unblocking of seaports, a decrease in sovereign risk premium, and the return of forced migrants to Ukraine.

Inflation declined markedly in H1, including thanks to the NBU's measures

Consumer inflation decelerated to 12.8% yoy in June, down from more than 26% yoy at the start of the year, which exceeded the NBU's expectations. In addition to the base effect, supply factors played an important role – in particular, the saturation of the food and fuel markets and a decrease in global energy prices.

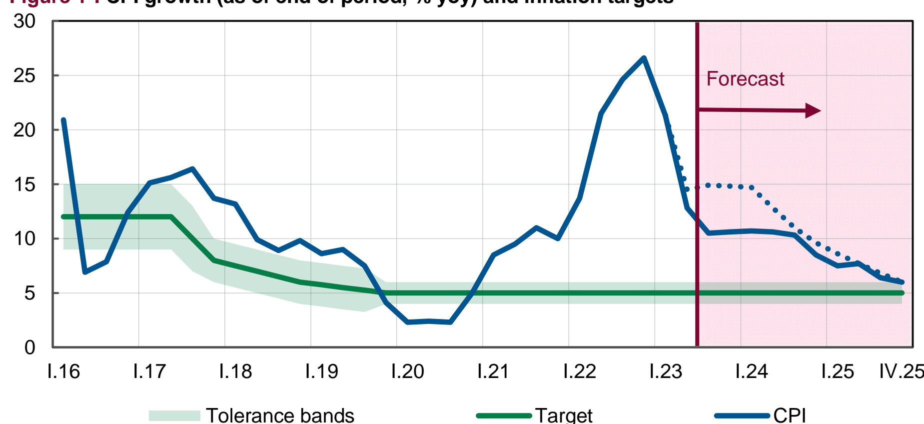
The measures taken by the NBU – in particular, an increase in reserve requirements and a change in the operational design of monetary policy – also had a significant impact on price developments. These steps helped make hryvnia assets more attractive, including thanks to a larger increase in bank interest rates on term deposits, and the strengthening of the cash exchange rate of the hryvnia. The NBU's financial monitoring and currency supervision measures also contributed to FX market sustainability. The exchange rate evolution eventually pushed inflation down both directly, through the prices of goods, and indirectly, through an improvement in expectations. The latter was also supported by the absence of the monetary financing of the budget this year.

The NBU has improved its inflation forecast for the current and next years. At the same time, further disinflation is expected to be slower than in H1

After considering the favorable dynamics of H1, the NBU revised its 2023 inflation forecast significantly downward, from 14.8% to 10.6%. The growth in prices will slow due to a gradual decline in global inflation and monetary conditions remaining tight in Ukraine. The NBU will safeguard the sustainability of the FX market and keep hryvnia assets attractive enough, which will restrain price pressures. Tariffs being frozen for the majority of utility services will also play an important role.

At the same time, further disinflation will be slower than in the previous months. This will be due to the waning of the base effect, returning to the pre-war level of the fuel taxation, and the increase in electricity prices for households in June. Moreover, russia's terrorist attacks in the south of Ukraine – particularly, the destruction of the Kakhovka Hydro-Power Plant – will have an impact on price dynamics.

Figure 1[2]. CPI growth (as of end of period, % yoy) and inflation targets



Source: SSSU, NBU staff estimates.

The disinflation trend will continue in the coming years. Lower security risks will make it possible to restore the optimal logistics routes and increase industrial production and crop harvests. Furthermore, this will enable a resumption of investment inflows into Ukraine. A further decline in global prices, in particular for energy, will also contribute to the slowdown in inflation. The said factors will outweigh the pro-inflationary impact of an increase in domestic demand, a rise in wages, and a correction of some utility tariffs in the post-war period. Therefore, the NBU expects inflation to decline to 8.5% in 2024 and to 6% in 2025.

[2] Unless specified otherwise, a dashed line in the figures indicates the previous forecast.

The economy has proven to be resilient to the new challenges of war and will grow by 2.9% this year

The stable functioning of the energy system and macrofinancial sustainability, coupled with an increase in domestic demand, contributed to the further revival of economic activity. On the other hand, economic growth was restrained by ongoing missile attacks, the blocking of the grain corridor, and more damage inflicted on infrastructure. In addition, the trade barriers imposed on Ukrainian agricultural products by a number of EU countries had an adverse effect on business. These factors drove a decrease in exports from Ukraine in Q2, and will be a drag on the country's economic recovery going forward. At the same time, the actual results of Q1 turned out to be better than envisaged in the previous macroeconomic forecast. Economic activity continued to pick up in Q2, in both the manufacturing and services sectors. Taking this into account, the NBU revised its real GDP growth forecast for 2023 moderately upward, from 2.0% to 2.9%.

Further on, economic growth will accelerate, based on the NBU's forecast assumption about a decline in security risks in mid-2024. Exports will recover more actively after maritime logistics is restored and attacks on infrastructure cease. The gradual return of migrants will spur consumer demand, and investment will pick up during the country's reconstruction. A loose fiscal policy will remain important for stimulating the economy: the budget deficit will remain significant due to the need to support the country's defense capability and economic recovery. Taking this into consideration, the NBU forecasts real GDP growth at 3.5% in 2024 and 6.8% in 2025.

Regular inflows of official financing helped bring international reserves to an all-time high. Continued international support remains crucial

Since the start of the year, Ukraine has received almost USD 27 billion in loans and grants from its international partners. This significantly exceeded the NBU's sales of foreign currency to balance the FX market. Thanks to the regular inflows of external assistance, Ukraine's international reserves had reached an all-time high of USD 39 billion by the end of June. Thanks to the external support and revival of domestic borrowings the government was able to cover the wide budget deficit without resorting to monetary financing. International assistance is expected to reach USD 42 billion this year. These inflows will restrain an increase in the current account deficit and will be more than enough to cover it.

International support will remain very important for maintaining macrofinancial stability in the coming years. Considering the still high expenditures on defense, financing the budget deficit in 2024 will require no less than USD 37 billion. Even after active hostilities are over, the need for external financing will remain high due to Ukraine's limited export potential and significant import needs to support the country's post-war recovery. Ukraine needs to continue its successful cooperation with the IMF and other international partners.

In view of the rapid decline in inflation, lasting stable conditions on the FX market, a high level of international reserves, and the effectiveness of previous measures to boost the attractiveness of hryvnia assets, the NBU has started a cycle of key policy rate cuts earlier than envisaged in the previous forecast

The NBU's previous measures significantly tightened competition among the banks for hryvnia term deposits. In summer, the banks continued to raise their interest rates on hryvnia deposits. At the same time, a rapid decline in inflation and a stable FX market encouraged depositors to refocus on hryvnia term deposits even more. In addition, the NBU's ability to safeguard exchange rate sustainability increased markedly, thanks to international assistance, which adds optimism to depositors' expectations.

Favorable developments have provided the NBU with room to launch a cycle of key policy rate cuts more quickly. The NBU cut the key policy rate by 3 pp, to 22%. The central bank also decreased the interest rate on overnight certificates of deposit by 2 pp, to 18%, and by 3 pp, to 24%, on refinancing loans. The interest rate on three-month certificates of deposit will continue to equal the key policy rate.

Taking into account an improvement in inflation expectations and expected further disinflation, hryvnia savings will remain attractive even if interest rates are cut. This is an important element for ensuring exchange rate sustainability when FX restrictions are eased and the NBU makes the exchange rate more flexible. At the same time, the cut in NBU interest rates will support economic recovery on the back of continued macrofinancial stability.

The NBU will continue to cut its key policy rate, provided the FX market remains sustainable and inflation declines. When easing FX restrictions and transitioning to a more flexible

exchange rate, the NBU will take into account the need to maintain the high attractiveness of hryvnia assets

The revised macroeconomic forecast envisages further key policy rate cuts. The NBU will decrease the key policy rate gradually so as not to undermine the tendency towards a steady decline in inflation or FX market sustainability. The main prerequisite for this is maintaining the attractiveness of hryvnia assets at a sufficiently high level, which would protect hryvnia savings from being eroded away by inflation.

When easing FX restrictions and transitioning to a more flexible exchange rate, it is crucial to maintain high confidence in the hryvnia. In late June, the NBU approved the Strategy for Easing FX Restrictions, Transitioning to More Flexible Exchange Rate, and Returning to Inflation Targeting, which was one of the structural benchmarks under the IMF's Extended Fund Facility. Some FX restrictions have already been eased. Preconditions are being formed for transitioning to a more flexible exchange rate with limited fluctuations. The transition will be gradual and in line with the interest rate policy and the progress achieved in easing the restrictions.

The NBU is not compelled to stick to its key policy rate forecast. Further decisions on the optimal interest rate policy will largely depend on whether or not forecast assumptions materialize, as well as on the developments of key macroeconomic and financial indicators.

The key risk to this forecast is that the war may last longer and be fiercer than anticipated

The NBU's new forecast is based on the assumption that security risks will decline considerably in mid-2024. If the full-scale war lasts longer than expected, it could result in additional losses of economic growth, in particular through greater damages and higher migration. This could also adversely affect price movements, mainly due to higher pressures on exchange rate and inflation expectations. There are other significant risks as well. They include:

- international aid arriving in lower amounts or on a less regular basis;
- the resumption of significant power shortages because of the substantial damage sustained by energy infrastructure, which would restrain economic activity and exports, lead to stronger needs for imports and, consequently, to higher pressures on the FX market;
- new large-scale terrorist attacks, which would exert a severe toll on export logistics and the country's economic potential in general;
- the emergence of additional budget needs (to support the country's defense capability, recover from terrorist attacks, etc.) and substantial quasi-fiscal deficits, including in the energy sector;
- continued difficulties with exporting agricultural products, in particular if some EU countries extend or expand existing trade restrictions.

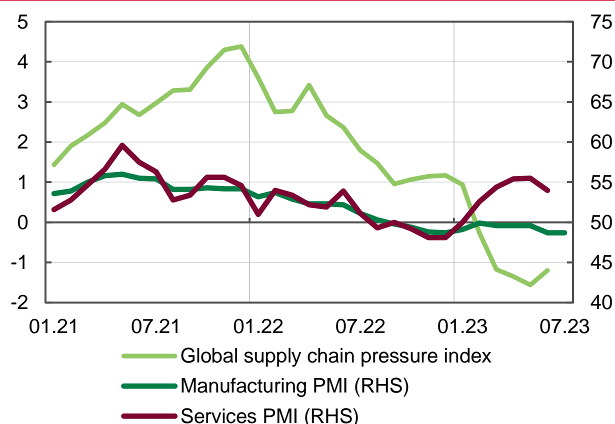
The new macroeconomic forecast is based on the conservative assumption that the grain corridor will remain nonoperational. The resumption of its operation or the expansion of alternative routes will help heighten export opportunities, facilitating more robust economic recovery.

At the same time, a faster-than-currently-expected decline in security risks could have the most significant positive impact on economic development. The implementation of large-scale projects for Ukraine's reconstruction could considerably speed up economic growth.

Part 1. External Environment

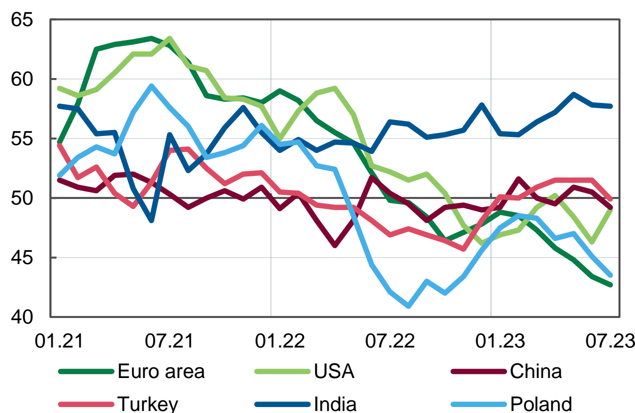
- This year, economic growth in Ukraine's main trading partners (MTPs) will remain sluggish due to geopolitical tensions and tighter financial conditions. Going forward, a gradual decline in inflation, coupled with resilient labor market conditions, will contribute to the acceleration of economic growth.
- Despite the acceleration in economic growth, prices on global commodity markets will tend to decline, as supply increases more rapidly than demand.
- As inflation slowly declines from high levels, financial conditions will remain tight. However, the differences between the paces at which inflation is slowing and approaching its targets in different countries is causing central banks to act asynchronously: the leading central banks will keep rates high for a long time, while more and more central banks in emerging markets (EMs) will gradually reduce them.

Figure 1.1. Global PMI and Global supply chain pressure index



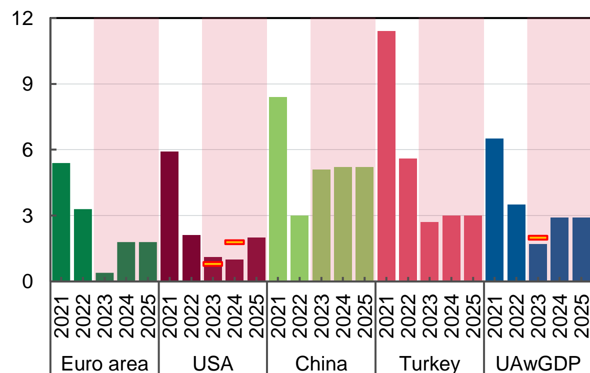
Source: J.P.Morgan, S&P Global, FRB of New York.

Figure1.2. Manufacturing PMI of selected countries



Source: S&P Global.

Figure1.3. Real GDP of selected countries and weighted average of annual GDP growth of Ukraine's MTP countries (UAwGDP), % yoy



– previous forecast
Source: National statistical offices, NBU staff estimates.

This year, economic growth in Ukraine's MTPs will be sluggish. Later, it will be revived by resilient labor markets amid a gradual decline in inflation

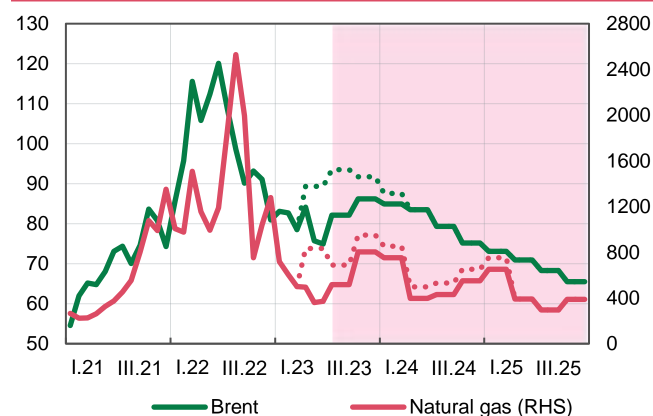
In Q2, the growth of the global economy and the economies of the developed MTPs of Ukraine lost their initial momentum, which was mainly generated by China's rapid exit from COVID-19 quarantine. Growth in all types of services started to slow due to high interest rates and the rising cost of living. Despite the improvement in supply chains, the decline in manufacturing deepened due to a sharp drop in demand. Business expectations for the next 12 months deteriorated significantly. This came at the same time as a further weakening in global trade. The latter recovered sluggishly due to the weaker trade intensity of the services sector compared to manufacturing sector, as services were the driver of global economic growth at the start of the year. At the same time, the global Goods Trade Barometer showed some improvement in Q2, but its level still remained below its trend. Overall, the barometer's dynamics are in line with the forecast of 1.7% growth in global merchandise trade in 2023, which is expected to accelerate in the following years (among other things due to a larger number of measures to promote exports).

The difference in growth rates among emerging market MTPs of Ukraine has increased. The economies of most CEE countries have gone into recession due to high inflation, which has led to a decline in investment and lower real household income. In contrast, Asian economies have grown, thanks to significantly looser monetary conditions amid lower inflation, which has helped revive domestic demand, and the re-opening of China, which has supported the service sector.

Despite the overall weakening of the economies of Ukraine's MTPs, their labor markets remained strong. In most countries, wage growth was steady due to the need to compensate for high inflation, and unemployment remained relatively low. Growth in the service sector, despite slowing, contributed to job creation.

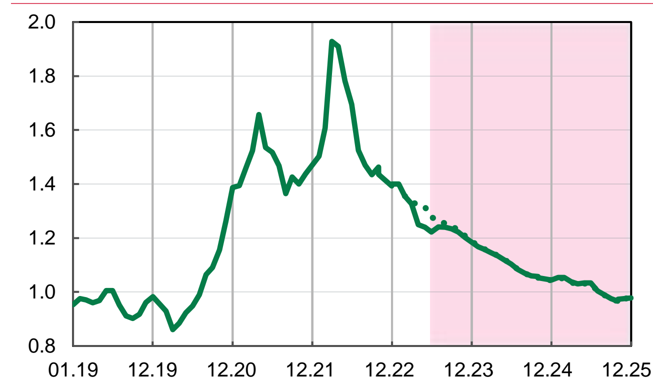
The effects of high inflation, tightening financial conditions, and geopolitical tensions are expected to restrain global economic growth until at least the middle of 2024. High interest rates and slow output growth will have an increasingly more pronounced effect on fixed asset investment. The growth forecast for Ukraine's MTPs in 2023 has been slightly downgraded due to a deeper-than-expected contraction in the CEE economies in Q1, and because of the increase in their share of Ukraine's foreign trade turnover. In the coming

Figure 1.4. World crude oil prices (USD/bbl) and Netherlands TTF natural gas prices (USD/kcm)



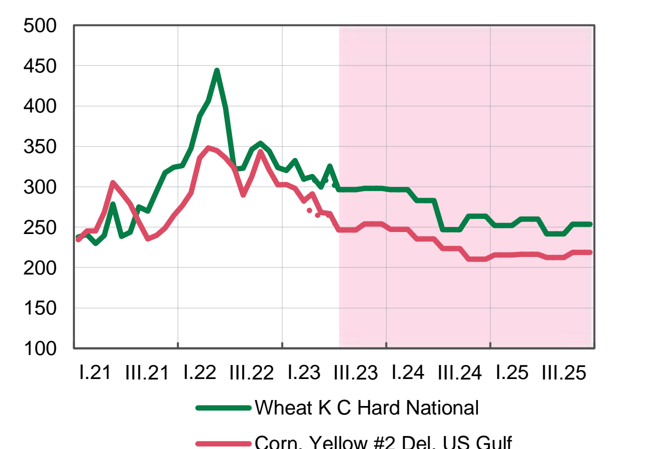
Source: Refinitiv, NBU staff estimates.

Figure 1.5. External Commodity Price Index (ECPI), Dec 2004 = 1



Source: World bank, NBU staff estimates.

Figure 1.6. World grain prices, USD/MT, quarterly average



Source: Refinitiv, World bank, NBU staff estimates.

years, growth will revive in the MTPs. This growth will be driven primarily by rising consumer demand, on the back of strong labor markets, and by an easing of inflationary pressures (among other things due to a further decline in energy prices).

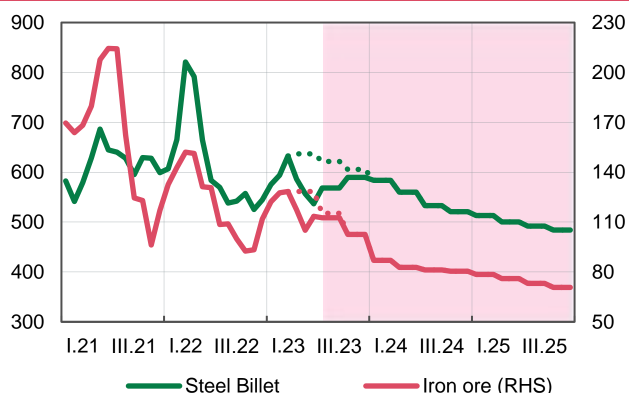
The outstripping of the growth in supply over that of demand will drive global commodity prices down. This will be one of the factors behind the easing of global inflationary pressures

Global energy prices will tend to decline after a short-term upward correction during the heating season. For example, crude oil prices were lower than expected: weak global demand and significant exports from russia outweighed OPEC+ restrictions (which accounted for about 5% of global demand). In H2, prices are expected to rise slightly, amid a pickup in the global economy, particularly in China. Going forward, crude oil prices will be under downward pressure as the United States and some Latin American and African countries actively increase production amid moderate growth in demand. The extension of OPEC+ restrictions until the end of 2024 and the setting of new, lower production targets next year will not be enough to restrain the fall in prices. Prices will be additionally pressured by exports of cheap russian oil, particularly to China, India, and Turkey.

European gas prices continued to decline and have approached their average pre-pandemic levels. Amid low consumption and the replacement of russian pipeline gas, the EU entered the season for replenishing its natural gas reserves with its gas storage facilities filled at a historically high level of over 55%. The European Commission has extended until the end of March 2024 the requirement to reduce natural gas consumption by 15% compared to the average for 2017–2022. Thus, achieving the target of filling 90% of the storage capacity by the start of the heating season is realistic. Over the forecast horizon, natural gas prices in the European market have been revised downward due to the active accumulation of stocks this year, increased production of liquefied natural gas (LNG) in the United States and other countries, and supplies of cheaper russian gas to China. The latter factor reduces competition for LNG from one of the largest Asian importers – despite the expected formation of strategic gas reserves by Japan and India.

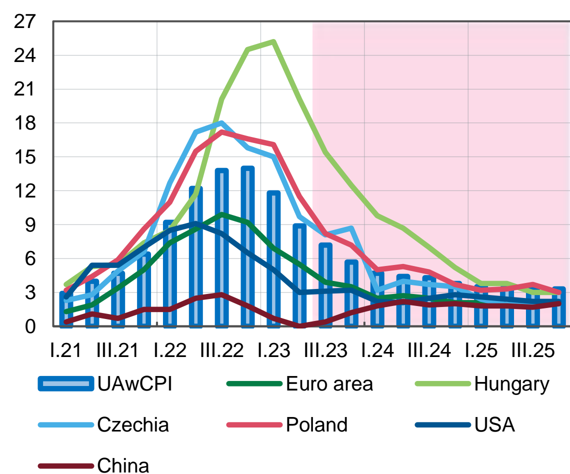
Global prices for Ukraine's main exports will also continue to decline. In particular, global wheat and corn prices will fluctuate in a relatively narrow range until the end of 2023. A weak harvest in the marketing year (MY) 2022/2023 amid a dry spring and the non-operating grain corridor will keep prices close to current levels, despite the market being saturated with the new large harvest. In the coming years, prices will decline due to a sizeable increase in supply and slower growth in demand. According to USDA estimates, global wheat production in the MY 2023/2024 will increase by 1.5% yoy thanks to better harvests in India, russia, and the EU. This will help to meet demand (expected to grow by 0.9% yoy), primarily from China, due to the deterioration in its own harvest because of heavy rain. Global corn production will increase by 6.3% yoy in MY 2023/2024 due to improved harvests in Brazil, which will more than offset weaker exports from Argentina. At the same time, consumption will increase by only 2.9% yoy, with the EU contributing most to the growth.

Figure 1.7. World steel and iron ore prices*, USD/MT



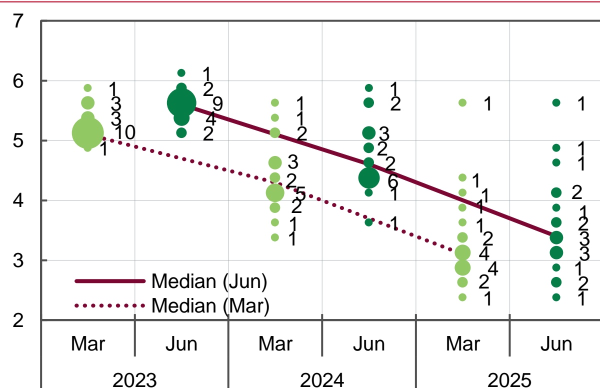
* Steel Billet Exp FOB Ukraine and China import Iron Ore Fines 62% FE spot (CFR Tianjin port).
Source: Refinitiv, Delphica, NBU staff estimates.

Figure 1.8. UAwCPI and consumer inflation of selected countries (eop), % yoy



Source: National statistical agencies, NBU staff estimates.

Figure 1.9. The number of FOMC members that expect the respective policy rate



Source: Fed.

As a result, inventories will grow by 5.5% yoy. An additional factor of downward pressure on prices will be increased competition in the market between suppliers. In particular, this concerns a new agreement between China and Brazil. As a result of its signing, U.S. suppliers will have to compete with cheap Brazilian grain on the Chinese market. In addition, Mexico plans to limit imports of genetically modified corn, which accounts for around 90% of the U.S. crop.

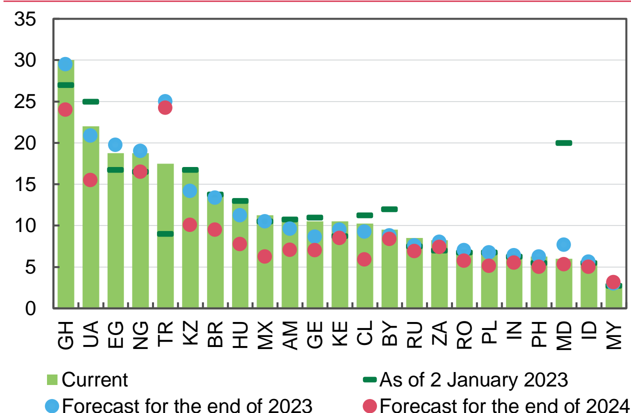
Global steel and ore prices will remain rather volatile until the end of the year (for more details, see the box *Short-Term Forecasting of Global Steel and Iron Ore Prices* on page 12). Prices have been revised downward for 2023 primarily due to the mismatch between the actual urban reconstruction in Turkey and the stated goals of the Turkish government. Monetary easing conducted by the People's Bank of China to stimulate growth in the Chinese economy, and the real estate market in particular, will support the steel and iron ore markets in H2 2023. However, global prices will continue to decline gradually: the revival of economic activity in all regions of the world will be accompanied by an accelerated increase in supply (primarily the supply of iron ore) due to strong competition. Supply will be more than sufficient to cover demand.

The need to deal with still-high inflation will result in tight financial conditions. Leading central banks will keep interest rates high, while more and more EM central banks will cut their rates

Inflationary pressures in Ukraine's MTPs are easing on the back of falling energy and food prices. Meanwhile, core inflation is still persistently high due to the strong labor markets. Commodity prices are expected to continue to decline as logistics are fully restored and delivery costs become cheaper. However, inflation is expected to remain relatively high in the coming years due to the active recovery of the services sector. This will have both a direct effect on inflation through more stable prices for market services, and an indirect effect through the pressure from rising wages, especially in advanced economies. On the other hand, global demand-driven price pressures on the commodity markets are currently at their lowest level in two-and-a-half years. At the same time, high interest rates have a significant restraining effect on core inflation. Therefore, continued tight financial conditions, or their tightening, will be a key factor in bringing inflation closer to its targets.

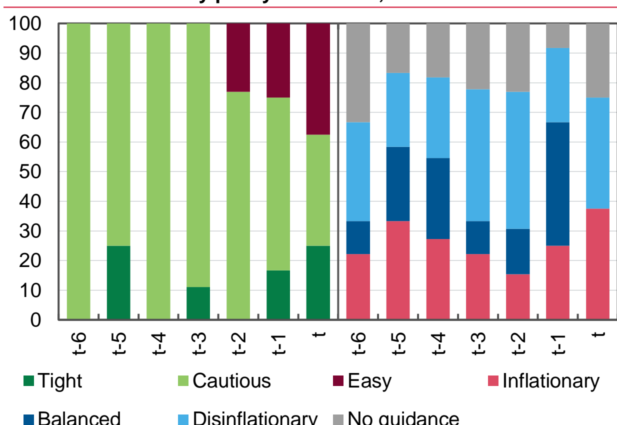
The rapid, simultaneous increase in interest rates by the world's central banks, which helped reduce inflationary pressures from their peak levels, has come to an end. According to the CFR's Global Monetary Policy Tracker, based on an analysis of 54 central banks, monetary policy tightening peaked in H2 2022. After that, there were signs of stabilization, with a tendency for a slight easing. Overall, however, monetary policy remains rather tight, and financial market participants expect it to remain so at least until the end of 2023. Differences in the paces at which inflation is declining and approaching inflation targets in different countries have led to divergent policies by central banks in advanced economies and emerging markets. Therefore, an increase in interest rates, combined with a decrease in the volume of assets on major central banks' balance sheets, will

Figure 1.10. Key policy rates in selected EM countries, %



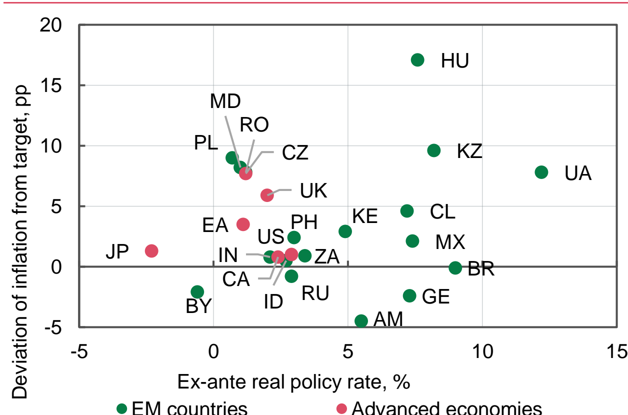
Source: official web pages of central banks, Focus Economics, Oxford Economics, as of 31.07.2023.

Figure 1.11. Balance of EM CBs' sentiments according to press releases on monetary policy decisions*, % of CBs



* t – meeting in Jul 2023, t-1 – Jun 2023, t-2 – May 2023, t-3 – Apr 2023, t-4 – Mar 2023, t-5 – Feb 2023, t-6 – Jan 2023.
Each indicator accounts only for those CBs, which held their meetings in the respective period.
Source: official web pages of central banks, as of 31.07.2023.

Figure 1.12. Deviation of inflation from target in June of 2023 and ex-ante real rate* in selected advanced and EM countries



* Nominal rate in June 2023 deflated by forecasted average consumer inflation in 2024.

Source: official web pages of central banks, IMF forecast (April 2023, average CPI in 2024), NBU staff estimates.

offset the easing of monetary policy in EM countries. As a result, global financial conditions will remain relatively tight.

Leading central banks will keep their monetary policies tight due to the need to continue countering inflation amid strong labor market conditions. In particular, in June, the Fed revised the projections for the federal funds rate for the end of 2023 significantly upward (by around 50 bp) compared to March. Although the expectations of financial market participants are somewhat lower due to signs of a slowdown in economic growth in the United States, the majority no longer expect the rate to be cut before 2024. For its part, the ECB will continue to raise rates (the forecast for the peak in interest rates has been shifted upward due to persistent core inflation) and will keep them at their maximum levels for longer than previously expected.

Further interest rate hikes in the advanced economies are increasing risks to macrofinancial stability in the EMs. Debt servicing is becoming more expensive, especially if a large part of the debt is denominated in U.S. dollars. Depreciation pressures on national currencies are growing, and the narrowing spread between yields on U.S. Treasury bonds and foreign-currency sovereign bonds increases the likelihood of capital outflows. Thus, around a quarter of 62 EMs currently have spreads of more than 10 pp, and more than 40% of their sovereign debt is due in the next three years (in particular, it will be due in low-income countries). The increased volatility of the financial markets (both foreign and domestic), large external debts, and significant banking risks on domestic sovereign debt are deepening the vulnerability of EMs to a tightening of global financial conditions.

On the other hand, inflationary pressures in the EMs are declining faster, and the downward trajectory of core inflation is more sustainable than in the advanced economies. An important factor in this dynamic was that the EMs started an aggressive monetary policy tightening earlier (in 2021). In addition, the real key policy rates (ex-ante) of EM central banks are well into positive territory. This gives grounds to expect an increasingly active policy easing in H2 2023 and H1 2024.

Box 1. Short-Term Forecasting of Global Steel and Iron Ore Prices

Global commodity prices are characterized by high volatility over the short term. Given the significant share of steel and iron ore in Ukraine's exports, building reliable forecasts of global steel and iron ore prices is an important component when modeling macroeconomic indicators. This improves the quality of macroeconomic forecasts and provides grounds for better informed monetary policy decisions. For short-term forecasting of prices for these commodities (six months ahead), the NBU chose the VAR and VECM vector models. They have high predictive power, and their results are incorporated into the long-term forecast of global steel and iron ore prices.

Need for short-term models. While in the long run global commodity prices tend towards their equilibrium levels, their dynamics in the short run are characterized by high volatility. In countries that export or import these commodities, such volatility can have a significant impact on domestic macroeconomic processes. Before russia's full-scale invasion, Ukraine had been an important global exporter of steel and iron ore. Even in the face of war, destroyed and damaged production facilities, and limited logistics, the mining and metals industry still accounts for around 1/5 of merchandise exports. Therefore, a set of models have been developed for short-term (six-month) forecasts of global prices for these commodities. Their results serve as a starting point for the long-term estimates of global and export prices, which is also part of the process of preparing the macroeconomic forecast that informs monetary policy decisions.

General Approaches. It is a common practice to forecast spot steel and iron ore prices on the basis of futures contracts. However, a growing number of empirical studies show that this approach has low predictive power (Alquist, Kilian and Vigfusson, 2011, Nixon and Smith, 2012, Chinn and Coibion, 2014) due to the so-called speculative component contained in futures contracts. Using fundamentals to model prices improves the quality of forecasts and helps eliminate this problem.

Figure 1. World iron ore and steel prices, USD/MT

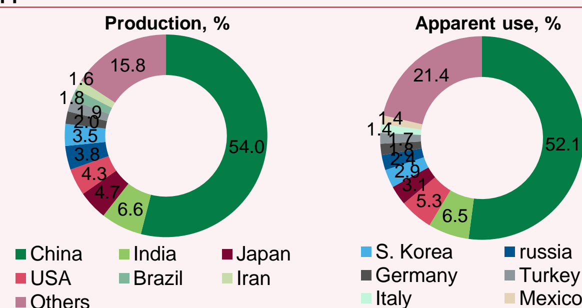
Source: Refinitiv, Bloomberg, World Bank, Delphica.

Price drivers. The processes of forecasting iron ore and steel prices are interconnected, as almost 2/3 of iron ore production is used to make steel. Thus, the demand for iron ore is mainly driven by the demand for steel. China has a decisive influence on the global iron ore market, being the world's largest consumer of iron ore (60%) and the world's leading steel producer (approximately 54%).

Empirical studies show that global iron ore prices are influenced by factors such as China's economic growth (Wårell, 2018), China's steel production, and changes in port stocks (Ma and Zhen, 2020). The price of steel is influenced by capacity utilization, which in turn depends on investment, the development of the Chinese real estate and construction sectors, and ore prices (Mei and Chen, 2018). Studies also show an increase in the role of crude oil prices in the pricing of ferrous metals, as oil-derived fuels are used for maritime commodity transportation (Chou et al. 2012, Asmoro, 2017).

Methodology. Vector autoregressive (VAR) models are used to optimally capture the fundamental factors that influence price dynamics. They are usually more accurate for short-term price forecasting (Baumeister and Kilian 2013, Kilian and Murphy 2014). If long-term cointegration relationships between variables are confirmed, the model is replaced by a vector error correction model (VECM) through introducing an error correction term. In order to better analyze the factors influencing prices, four models are used for each commodity group, with different combinations of these factors and specifications. The models are based on monthly data starting from 2004–2005 for iron ore and from 2008 for steel.

Figure 2. Geographical distribution of world steel production and apparent use



Source: World Steel Association, 2022.

Iron ore. The global benchmark is the CFR China 62% Fe iron ore price. The models are built in such a way as to forecast the real price (nominal, deflated by the U.S. CPI) and the consumer price index, and on their basis to calculate forecast nominal prices (similar to Beckers and Beidas-Strom, 2015). To model global iron ore prices, the following explanatory variables were used in various combinations[3]: steel production growth in China (as a proxy for global iron

[3] The variable of steel production in China is used in all four models. Models 1 and 2 also include changes in the BDI index, Brazilian iron ore exports, and the U.S. CPI as endogenous variables, and a vector of constants as exogenous variables, but these models have different lag orders. In model 3, the Chinese manufacturing PMI is used instead of the Brazilian exports variable. Model 4 is a combination of the previous models, and includes China's steel production, BDI change, Brazil's ore exports, the PMI, and the U.S. CPI as endogenous variables, as well as a vector of constants and a binary variable of recession in the United States (NBER indicator) as exogenous variables. The number of lags is chosen according to statistical criteria.

ore demand), changes in the maritime freight index, the Baltic Dry Index (BDI), changes in iron ore exports by Brazil (one of the world's main producers and largest suppliers of ore to China), China's manufacturing PMI, and the CPI in the United States. In addition to their combinations of variables, the models differ by the number of lags.

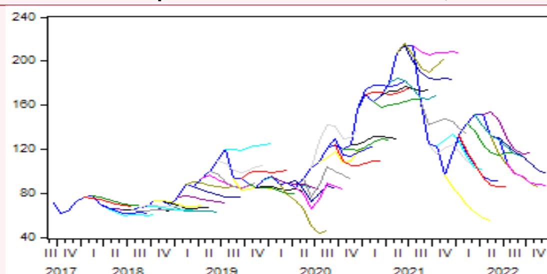
To evaluate the forecasting ability of the models, out-of-sample simulations were performed: the sample was divided into two parts so that the models used data up to 2018 as training data, and from January 2018 onwards, the models made six-month-ahead rolling forecasts in one-month increments. The errors of the simulated forecasts are compared with the errors of the simplest random walk (RW) benchmark model.

Table 1. The relative RMSEs* of the models – Iron ore

	p	Forecast horizon, months ahead					
		1	2	3	4	5	6
VAR 1	2	0.82	0.77	0.69	**0.63**	**0.67**	**0.69**
VAR 2	1	**0.79**	**0.75**	**0.69**	0.63	0.68	0.69
VAR 3	5	0.94	0.84	0.74	0.70	0.71	0.72
VAR 4	2	0.84	0.78	0.71	0.64	0.68	0.70

* The ratio of the Root Mean Square Errors (RMSEs) to RMSEs of a random walk (RW) model. Numbers below 1, highlighted in green, indicate a forecast improvement relative to a RW. 'p' refers to the number of lags.
Source: NBU staff estimates.

Figure 3. Out-of-sample simulations 2018:1–2023:2, VAR 3



Source: NBU staff estimates.

Steel. Given Ukraine's high share in global steel exports, the forecast uses the global price for Ukrainian billets (Steel billet Exp FOB Ukraine) or, as its proxy, an estimated indicator based on prices for steel billets Turkey C&F or Black Sea billet FOB UA. The variables in the selected models are characterized by cointegrating long-run relationships, so VECMs are used.

Table 2. The relative RMSEs* of the models – Steel billet

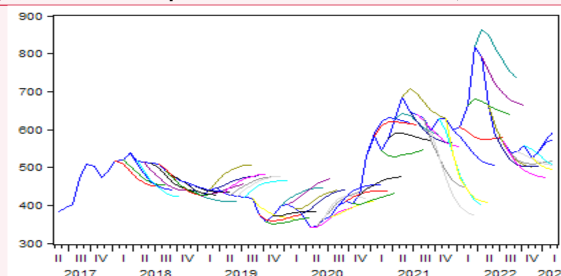
	p	Forecast horizon, months ahead					
		1	2	3	4	5	6
VECM 1	1	**0.89**	**0.70**	**0.68**	**0.73**	**0.74**	0.71
VECM 2	1	0.90	0.75	0.76	0.80	0.78	0.71
VECM 3	2	0.96	0.93	0.85	0.81	0.75	**0.70**
VECM 4	2	1.06	0.88	0.86	0.95	0.86	0.75

* Numbers above 1, highlighted in red, mean that the model has a worse forecasting performance relative to a RW.

Source: NBU staff estimates.

The explanatory variables for modeling steel prices include: iron ore and Australian coal prices, the global price of Brent crude oil, China's manufacturing PMI, and the change in the BDI[4].

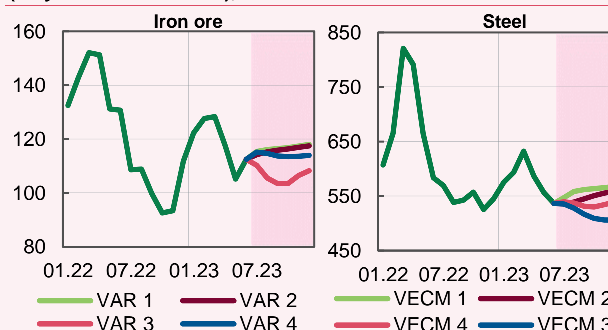
Figure 4. Out-of-sample simulations 2018:1–2023:2, VECM 2



Source: NBU staff estimates.

Application. Overall, all selected models for forecasting iron ore and steel prices improve the RW forecast. Given the high forecasting power of all models, and given that some specifications are good at picking up moments of price trend change (model 2 for steel) or have better forecasting performance in volatile periods (model 3 for iron ore), for short-term forecasting purposes, the models are used both separately for different periods and in combination to build forecasts under a range of scenarios.This makes it possible to take advantage of their strengths in order to build more reliable short-term forecasts. The current macroeconomic forecast uses the average of the results of all four calculation models for each commodity, which are included in the long-term forecast of global steel and iron ore prices (for more details, see the *External Environment* section on page 8).

Figure 5. Short-term forecasts of global prices for iron ore and steel (July – December 2023), USD/MT



Source: Refinitiv, World Bank, Delphica, NBU staff estimates.

The full version of the study *Short-Term Forecasting of Global Energy and Metal Prices: VAR and VECM Approaches* will be made available in the journal Visnyk of the National Bank of Ukraine (No. 254, 2023).

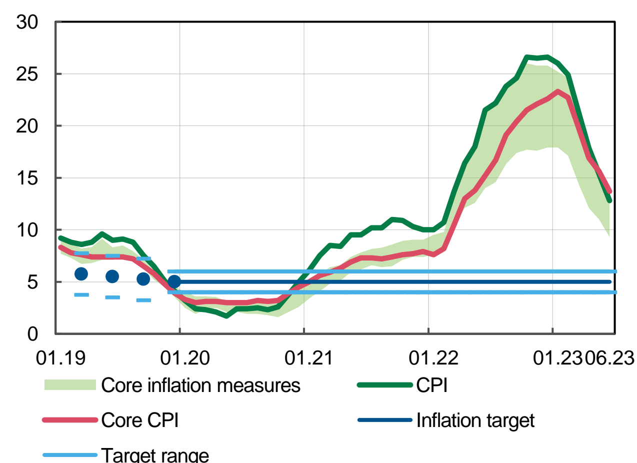
[4] The combination of variables in model 1 includes steel, iron ore, and coal prices, the Brent crude oil price, China's PMI, and BDI change as endogenous variables, and a binary recession variable in the exogenous variable vector. Model 2 has a simplified specification and uses only steel and iron ore prices and the changes in the BDI. Model 3, for analytical purposes, considers only price variables (steel, iron ore, coal, and crude oil prices). Model 4 is similar in specification to the first model, but does not include crude oil data and has two lags instead of one. The lag order of the variables is determined on the basis of statistical criteria.

Part 2. Economy of Ukraine

2.1. Inflation Developments

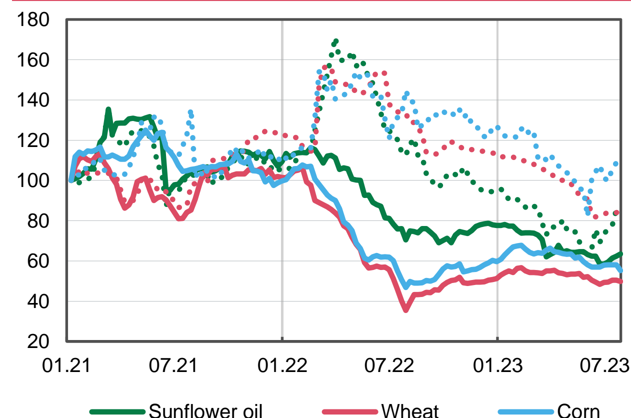
- Consumer inflation has declined rapidly. This was driven by an ample supply of food and fuel, a stable situation in the energy sector, and the NBU's measures to increase the attractiveness of the hryvnia and reduce pressure on the cash foreign exchange market.
- Inflation will continue to decline under the influence of tight monetary conditions, a modest recovery in demand, and slower global inflation. Disinflationary processes will accelerate after security risks subside, logistics are optimized, and harvests increase.
- Inflationary pressures will persist in the coming years due to the significant business costs incurred due to the war, the need to adjust administered prices and tariffs, and the uneven recovery in consumer demand.

Figure 2.1.1. Consumer inflation and underlying inflation trends*, % yoy



* Read more in the January 2017 Inflation Report (pages 20–21).
Source: SSSU, NBU staff estimates.

Figure 2.1.2. Prices for major agricultural commodities in Ukraine and on foreign markets* in U.S. dollar terms, Jan 2021 = 100



* Solid lines refer to prices for agricultural products in Ukraine on EXW terms, and dashed lines are prices in foreign markets on FOB terms.
Source: APK-Inform, NBU staff estimates.

Inflation declined faster than expected due to supply-side factors. It will continue to decelerate, despite the challenges of war

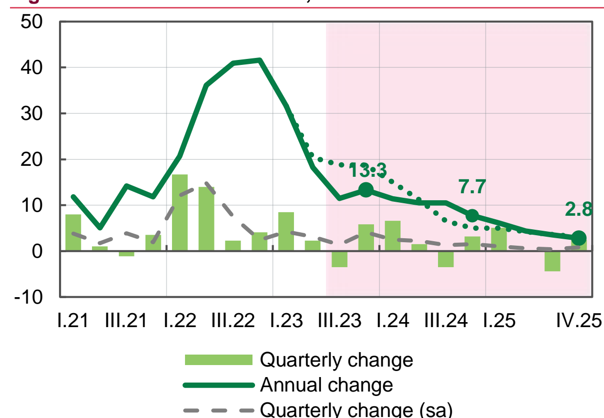
In Q2 2023, inflation continued to decelerate (to 12.8% yoy in June). The actual rate of price growth was lower than the NBU's April forecast, primarily due to a sufficient supply of food and fuel, and a stable situation in the energy sector. Inflation was also restrained by the effects of the appreciation of the hryvnia cash exchange rate and the moratorium on tariff increases for certain utility services. These factors outweighed the effects of higher business costs incurred as a result of the war, and higher electricity tariffs for households. The destruction of the Kakhovka Hydro-Power Plant (HPP) has not yet had a significant impact on inflation. However, the NBU estimates that this terrorist attack will still have a minor impact on consumer prices this year, primarily due to the complications in the operation of a number of businesses in the region and the partial loss of crops (for more details, see the box *Consequences of Destruction of Kakhovka Hydro-Power Plant* on page 21).

The supply of agricultural products remained sufficient to meet domestic needs, despite last year's low harvests and the consequences of the destruction of the Kakhovka HPP. Moreover, global prices for these commodities continued to decline, and export prices for Ukrainian crops and other agricultural products were even lower due to logistical difficulties and high risks – in particular, due to disruptions in the operation of the grain corridor. An additional factor was the uncertainty associated with restrictions on food transit through neighboring EU countries. As a result, prices for flour and cereals declined, while the rise in prices for dairy products and sunflower oil slowed. This led to a slower growth in the raw food price index (18.2% yoy in June). This limited the growth in prices for processed foods (14.7% yoy).

At the same time, prices for borshch vegetables (including cabbage, onions, and carrots) rose at a fast pace due to the earlier-than-usual depletion of last year's stocks and the supply from the early harvest in Ukraine. Meat prices rose faster due to insufficient domestic supply and weak imports amid higher global prices. Egg prices continued to grow at a fast pace due to base effects and larger exports.

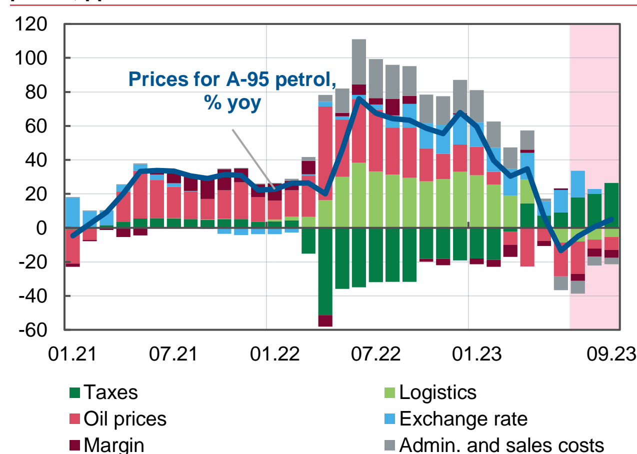
These factors, as well as the effects of higher fuel prices in H2, will prevent food inflation from declining this year. A limited supply of fruits and vegetables from the southern

Figure 2.1.3. Raw food inflation, %



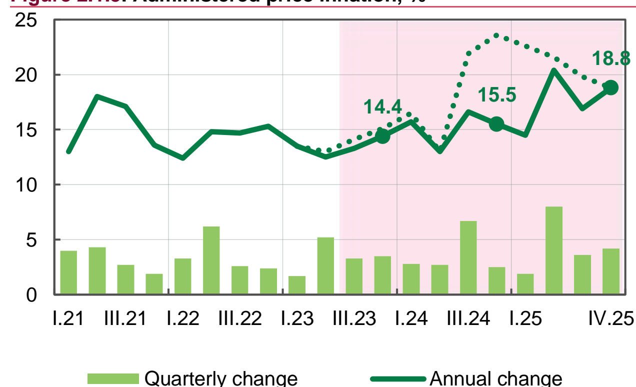
Source: SSSU, NBU staff estimates.

Figure 2.1.4. Contributions of factors to the change in price of A-95 petrol*, pp



* Data for July–September 2023 reflects NBU staff estimates.
Source: SSSU, minfin.com.ua, NBU staff estimates.

Figure 2.1.5. Administered price inflation, %



Source: SSSU, NBU staff estimates.

regions will keep raw food inflation at double-digit levels until the next harvest. After the anticipated decline in security risks, food inflation will slow as production in the war-affected areas resumes, and as harvests in other regions increase. The drop in global food and energy prices that is expected over the forecast horizon will also be an important factor. With new products entering the market in 2024, raw food inflation will fall to single digits. In 2025, it will decline to around 3%, provided that there are no new supply shocks. Only the return of migrants and a recovery in consumer demand will keep raw food inflation from decreasing more significantly.

Large inventories, lower global crude oil prices, increased competition in the retail market, and a high comparison base led to a drop in fuel prices (by 20.3% yoy in June). However, in Q3, price growth will resume as the fuel tax returns to pre-war levels, which will directly add around 0.7 pp to the CPI growth in 2023. In addition, this will have an indirect impact on inflation through the pass-through of fuel prices to the prices of other goods and services, including transportation. Starting next year, fuel prices will stabilize due to a gradual decline in global crude oil prices.

The moratorium on tariff increases for certain utility services continues to restrain inflation, but the need to raise utility prices will be a significant pro-inflationary factor after the war

The moratorium on raising tariffs for certain utility services, including natural gas, hot water, and heating, remained an important factor in restraining inflation. In June, electricity tariffs for households rose slightly more than the NBU had expected, but this did not prevent administered inflation from declining further. The annual growth rates of administered prices decreased to 12.5%. The growth in prices for alcoholic beverages, medicines, bread, and transportation services slowed due to the eased pressure from production costs and subdued demand. Prices of tobacco products grew more slowly, reflecting the impact of the exchange rate factor and, likely, pressure from shadow market supply.

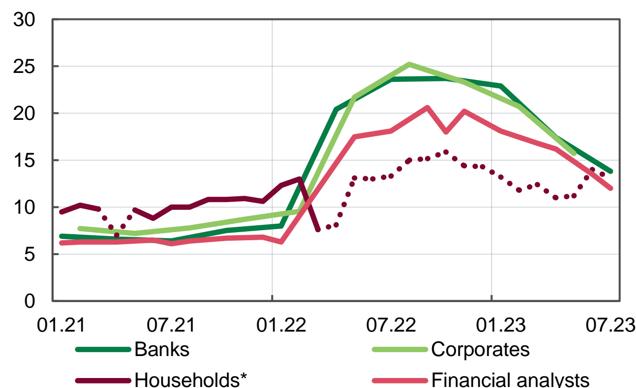
Administered inflation will remain high over the forecast horizon. In 2024, it will rise to 15%, primarily due to a further rise in prices for tobacco products (as a result of higher excise taxes) and tariffs for some utility services. In 2025, administered inflation will accelerate to 19%, primarily due to the expiry of the moratorium on raising tariffs for natural gas, hot water, and heating, and as the government faces an actual need to increase them. Given the high social significance of this issue, it is expected that tariffs will be raised in stages over several years, with an expansion in social assistance occurring in tandem.

Underlying inflationary pressures eased as expected and will continue to decline thanks to tight monetary conditions and lower security risks

Core CPI growth slowed to 13.7% yoy in June 2023. This primarily reflected improved inflation[5] and exchange rate

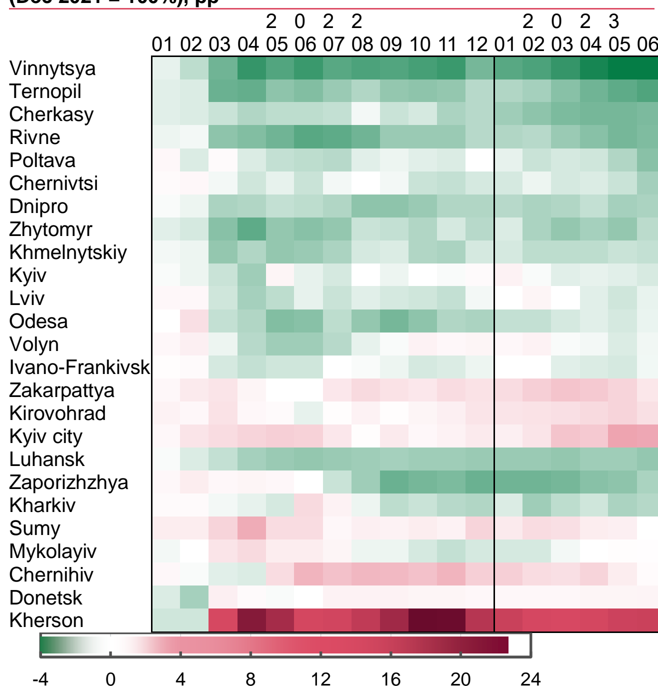
[5] In June, households' inflation expectations deteriorated, likely reflecting a reaction to the increase in electricity tariffs, the return of fuel taxes to prewar levels, and the destruction of the Kakhovka Hydro-Power Plant. In particular, according to T. Yukhymenko (2021), household inflation expectations in

Figure 2.1.6. 12-month-ahead inflation expectations*, %



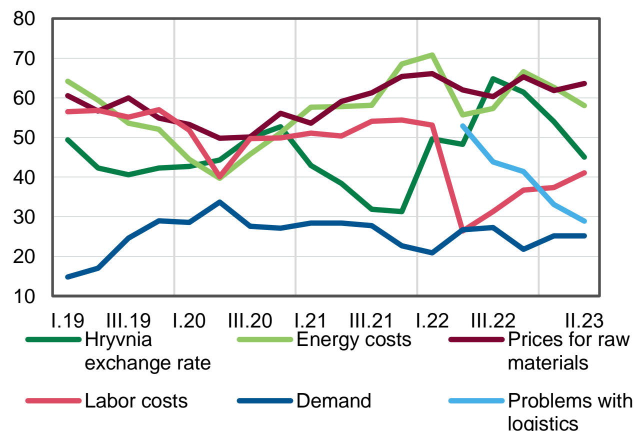
* The dotted line indicates a change in the method of survey for a telephone interview.
Source: NBU, Info Sapiens.

Figure 2.1.7. Deviation of regional CPIs from the all-Ukrainian index (Dec 2021 = 100%), pp



Source: SSSU, NBU staff estimates.

Figure 2.1.8. Major factors affecting businesses' expectations of price changes for their goods and services, % of respondents



Source: NBU.

expectations. These were driven by a steady decline in inflation in previous months, the strengthening of the hryvnia cash exchange rate, including due to measures taken by the NBU, the building up of supply channels, lower cost pressures amid stability in the energy system, and unchanged natural gas and heating tariffs. Another source of optimism was the decision to cease monetary financing of the budget deficit in 2023.

Thanks to the favorable FX market and improved expectations, prices for personal care products, clothing and footwear, electronics, toys, furniture, household appliances, household goods, cars, and imported food grew more slowly than in the previous quarter. The same factors, along with the base effects, slowed the rise in prices for medical, veterinary, and sports services, rent, window installation services, restaurant services, and car maintenance. As a result, the range of estimates of the underlying inflation trend narrowed, but it still remains wide and is lower than the official core inflation rate (Figure 2.1.1).

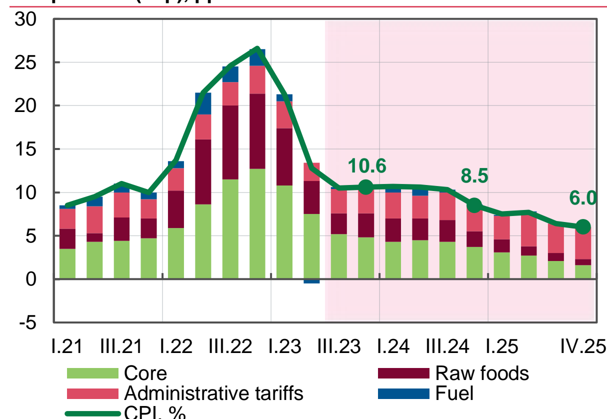
High inflation was propelled by consumer demand being unevenly distributed across goods and services. For example, prices for beauty salon services and hotel accommodation grew faster, probably driven by the further recovery of demand amid restrained supply. Large price growth discrepancies persisted across all regions. Prices grew relatively faster in the frontline regions due to higher security risks and more difficult logistics, while in Kherson oblast it was also driven by the consequences of the destruction of the Kakhovka HPP. In some western regions and in the capital price growth accelerated on the back of stronger demand, including due to the higher concentration of internally displaced persons.

The slowdown in inflation will be restrained by significant business costs and structural changes in demand

Despite the persistence of significant security risks, inflation will decline to almost 10% this year, and core inflation will fall below 9%, driven by tight monetary conditions, easing global price pressures, and weak domestic demand. This is consistent with the results of the Business Outlook Survey in Q2 2023. In particular, the influence of most major factors on companies' expectations of prices for their goods and services weakened, including such factors as the "hryvnia exchange rate against foreign currencies," "energy prices," and "logistics problems". This was, among other things, the result of the high adaptability of Ukrainian businesses to the difficult environment. On the other hand, assessments of the impact of "prices for raw materials and supplies" and that of "cost of labor" increased. These factors support high growth rates in prices for certain goods and services, and will be a significant source of inflation over the forecast horizon. Mismatches on the labor market will lead to increased underlying pressures, for which monetary policy is directly responsible.

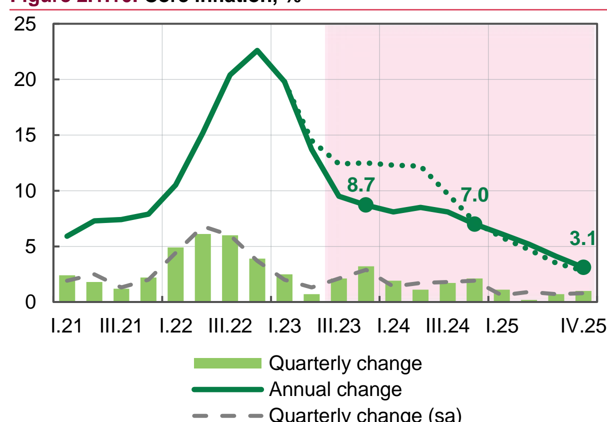
Ukraine have a positive correlation with the amount of news about utility tariffs in the month preceding the reporting month. Information about the increase in electricity tariffs appeared in late May.

Figure 2.1.9. Contributions to annual CPI growth by main components (eop), pp



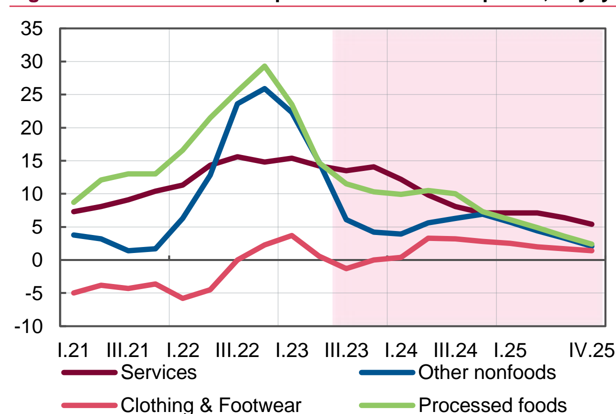
Source: SSSU, NBU staff estimates.

Figure 2.1.10. Core inflation, %



Source: SSSU, NBU staff estimates.

Figure 2.1.11. Core CPI components at the end of period, % yoy



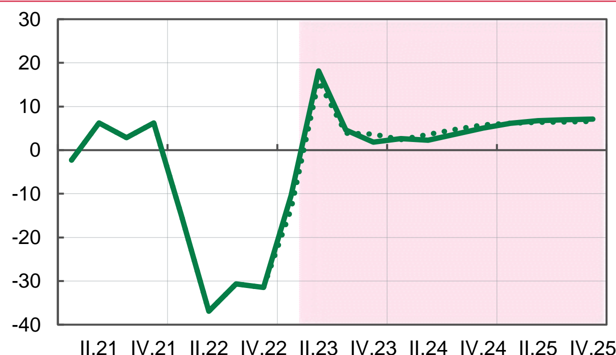
Source: SSSU, NBU staff estimates.

The expected decline in security risks starting in the middle of next year will contribute to a decrease in inflation expectations and further vanishing of the pro-inflationary effect of supply shocks. The restoration of optimal logistics links and production capacity will result in lower business costs and higher supply (in particular due to higher harvests). This will ease inflationary pressures even as the economy grows. Consumer demand will recover gradually (for more details, see the section *Demand and Output* on page 18), which will also restrain price growth. As a result, headline and core inflation will continue to decline, although in 2024 they will remain high due to the second-round effects of supply shocks related to the war. In addition, inflation will be spurred by fundamentals related to the economic recovery and rising domestic demand. At the same time, this recovery will be uneven across sectors due to structural changes, which will put pressure on certain components of inflation. In particular, inflationary pressures will increase due to rises in prices of certain services, such as housing repairs, tourist travel, transportation, and so on. However, maintaining tight monetary conditions amid a negative GDP gap will help reduce core inflation to almost 3% in 2025 and bring headline inflation back to its target range.

2.2. Demand and Output

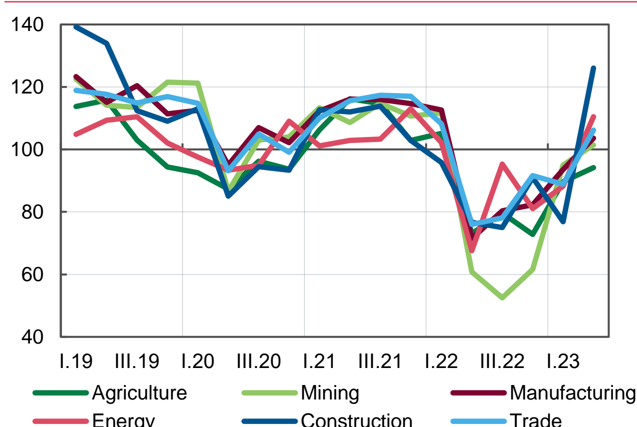
- The rebound in domestic demand, coupled with a stable functioning of the energy system, contributed to the faster-than-expected economic revival. Therefore, the NBU has revised upwards its real GDP growth forecast for 2023, to 2.9%, despite high security risks, the destruction of the Kakhovka HPP, and hampered exports.
- Economic recovery will accelerate after security risks subside in mid-2024. In spite of that, the economy will remain below its potential for a long time because of disrupted supply chains and the slow recovery of the labor market.

Figure 2.2.1. Real GDP, % yoy



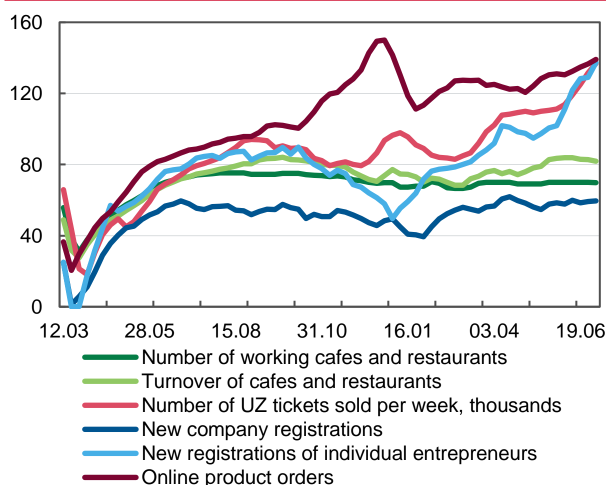
Source: SSSU, NBU staff estimates.

Figure 2.2.2. BEI by type of activity, %



Source: NBU.

Figure 2.2.3. High-frequency indicators of economic activities in the services sector, % to the level preceding the full-scale invasion (4-week moving average)



Source: Opendatabot, Poster, NBU staff estimates.

Despite wartime challenges, the economy is reviving faster than expected, making it possible to revise the 2023 GDP forecast upwards

In Q1 2023, real GDP contracted by 10.5% yoy. The decline was smaller than envisaged in the previous macroeconomic forecast (negative 13.5% yoy). Economic activity continued to recover in Q2, in both the manufacturing and services sectors. The recovery was shored up by improved business and consumer sentiment and rebounding domestic demand, amid the stable functioning of the energy system and substantial fiscal support. As a result, on the back of the low base effect real GDP grew by 18.1% yoy in Q2, the NBU estimates.

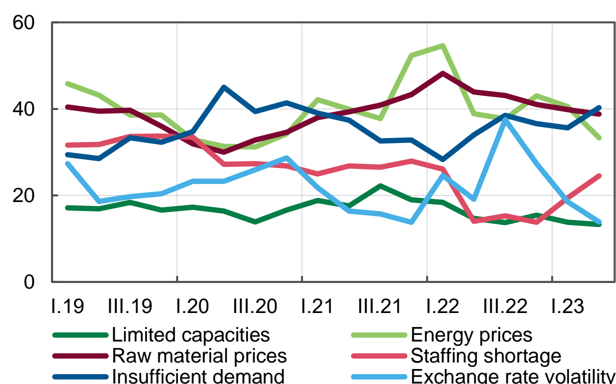
The performance of the metals industry and ore production, animal breeding and the food industry improved thanks to the stable electricity supply and reviving external demand, on the back of the expanding throughput at Western border crossings. Repairs in the energy sector supported the mining and machine building industries, while demand for fertilizers propped up the chemical industry. Budget financing contributed to further growth in the industrial sectors that meet defense needs, as well as in some budget-financed sectors (the public administration and defense sectors, and healthcare). Construction was supported by the rebuilding of housing and infrastructure and by the development of logistical hubs on the western border. Reviving consumer demand facilitated the recovery of the retail trade and services sectors, as evidenced by several high-frequency indicators.

Nevertheless, wartime challenges and security risks have remained significant. Economic activity was dampened by massive missile attacks and the destruction of the Kakhovka HPP, although the impact of the destruction was relatively small (read more in the Box *The repercussions of the destruction of the Kakhovka HPP* on page 21). The blocking of the “grain corridor” and the restrictions on exports of Ukrainian foods imposed by some EU countries affected the operation of transport. Furthermore, according to the latest Business Outlook Survey, the negative impact of shortages of qualified staff was reported to have increased in Q2 (read more in the *Labor Market and Household Income Section* on page 23).

Economic activity will continue to pick up, despite there being war-related challenges. The faster recovery in domestic demand, a stable energy system and a revised harvest assessment enabled the NBU to improve its 2023 real GDP growth forecast, to 2.9%.[6] Hampered exports, the

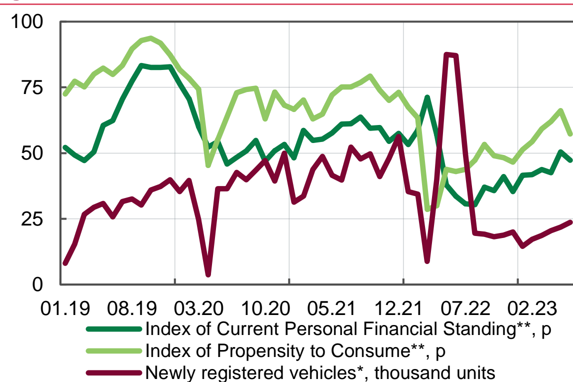
[6] The 2023 harvest forecast has been slightly improved, largely due to the publication of SSSU statistics about the 2022 harvest. More specifically, according to revised SSSU data, the 2022 harvest of grain and oilseeds was higher than forecast earlier, mainly due to an increase in harvested areas.

Figure 2.2.4. Assessment of the factors that will restrain production growth over the next 12 months, % of answers



Source: NBU.

Figure 2.2.5. Selected consumer demand indicators

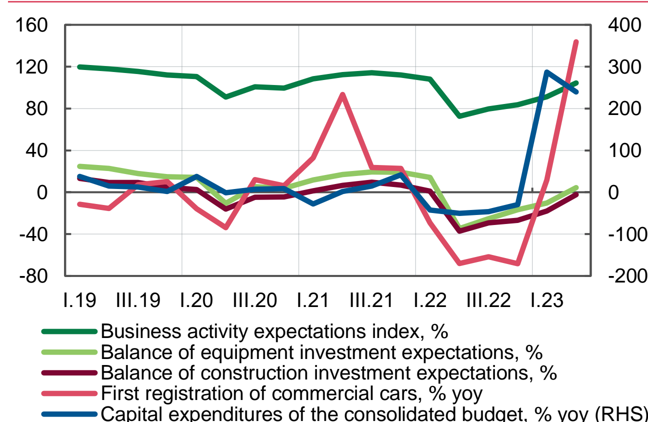


* New and used ones, excluding cars imported with violation of customs regulations.

** Change of the survey method from face-to-face to the phone interview from March 2022.

Source: Info Sapiens, Ukravtoprom.

Figure 2.2.6. Selected indicators of investment demand



Source: SSSU, STSU, NBU, Ukravtoprom.

repercussions of the destruction of the Kakhovka HPP and the difficulties the energy sector could potentially experience during the 2023/2024 heating season prevented the NBU from improving the forecast to a greater extent.[7] At the same time, longer-lasting security risks were mainly responsible for the downward revision of the 2024 economic growth forecast, to 3.5%.

Domestic demand will be the main driver of economic growth, both in 2023 and over the forecast horizon

Substantial budgetary spending and the improved financial health of households helped revive consumer demand in Q2. In spite of that, given the extent of last year's deep economic downturn and still active migration, private consumption, as well as GDP overall, remains well below the level before the full-scale invasion.

Investment returned to growth, propelled by both budgetary spending (to enhance the country's defense capabilities and to rebuild housing and infrastructure) and by activity in the real sector[8]. The latter was fueled, among other things, by companies' improved financial performance.[9] Overall, however, investment activity remains weak. It will be dampened by high security risks, both in the current period and over the forecast horizon. Investment activity will keep on growing further, but it will gain significant momentum only after security risks subside.

According to NBU estimates, export volumes surged year-on-year in Q2 2023, despite exports being impeded by russia's hampering of the operation of the "grain corridor" and the restrictions on Ukraine's agricultural exports imposed by some neighboring EU countries. The growth was mainly due to the low base effect and the boosted throughput of alternative shipment routes. Import volumes also returned to growth to meet domestic consumer and investment demand. At the same time, imports grew at a much slower pace than exports. As a result, according to NBU estimates, the contribution of net exports to real GDP growth became positive, just as during the Covid-19 pandemic in 2020. However, russia's blockade of maritime transport will limit exporter's capabilities. Shifting shipments to more expensive logistical routes will worsen the financial stance of Ukrainian companies.

Once security risks subside, economic activity will continue to rise, propelled by improved business and consumer sentiment, and persisting loose fiscal policy. The complete opening of Black Sea ports will restore the optimal logistical

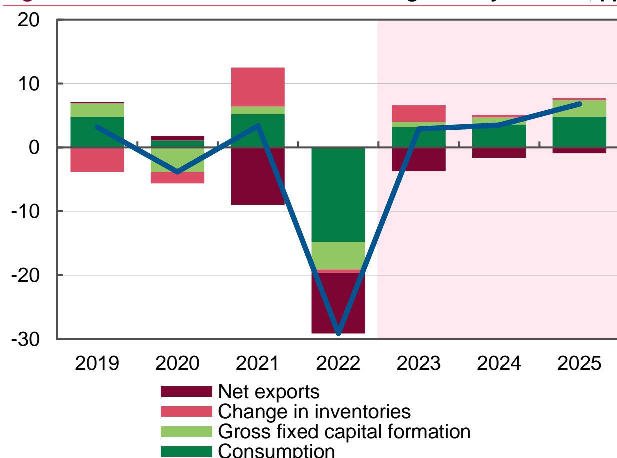
What is more, according to the SSSU, the areas sown with winter crops to be harvested in 2023 exceeded the estimates of the Ministry of Agrarian Policy, which the NBU used as its previous assumptions, and this year's spring sowing campaign ended better than expected. This provided the grounds for revising upwards the July sowing area estimates compared to the April forecast (by 11.3% for wheat, by 5.2% for corn, and by 8.6% for sunflowers). As a result, with practically unchanged yield assumptions (apart from those for sunflowers and corn), the expected harvest increased slightly, but still remained below its 2022 figures.

[7] Expectations of power shortages in the energy system for 2023–2024 were unchanged on the April 2023 Inflation Report: Q3 is expected to see a small shortfall of 3%, which will slightly increase, to 5%, in Q4 2023 and Q1 2024.

[8] Among other things, Ukraine continues to bolster its logistical capabilities in its western regions and on the Danube River. Meanwhile, agricultural companies are still enhancing their storage capabilities, as food industry and agro-processing companies are continuing to build new and to expand their existing production facilities. Private investment (including foreign investment) in the production of construction materials is rising. Purchases of new commercial vehicles are also increasing.

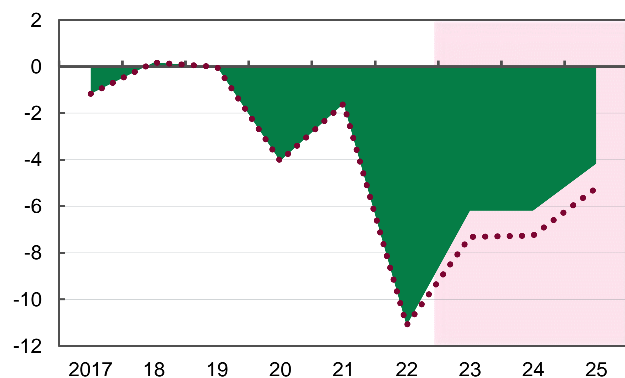
[9] More specifically, according to the preliminary data of the companies that submitted reports, the industrial sector, trade, transportation and financial activities returned to profit in Q1 2023.

Figure 2.2.7. Contributions to annual GDP growth by final use, pp



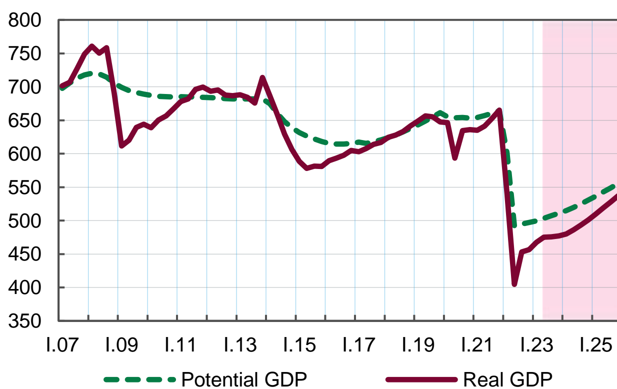
Source: SSSU, NBU staff estimates.

Figure 2.2.8. Output gap, % of potential GDP



Source: NBU staff estimates, SSSU.

Figure 2.2.9. Real and potential GDP, sa, at 2016 constant prices



Source: SSSU, NBU staff estimates.

routes for Ukrainian exports, which will improve the financial position of exporters. This will help rebuild the production facilities of the metals industry, while also facilitating recovery in the agricultural sector. However, the agricultural sector will suffer for a long time from the significant share of sown areas that have been mined, as well as from lower yields in the regions that depended on water supplies from the Kakhovka Reservoir.

Consumer demand will pick up, driven by the return of forced migrants to Ukraine, and by improved consumer sentiment. Considerable impetus will be provided by real wages gradually returning to growth.

The rebuilding of infrastructure and production facilities will significantly increase investment spending. Increased capital expenditures from the budget, investment in maintaining the country's defense capabilities and a loose fiscal policy will make a substantial contribution to the growth. European integration reforms will boost the country's investment attractiveness and help revive the inflow of foreign investment. This will make investment the fastest-growing GDP component.

The economy will be below its potential for a long time because of security risks, the slow loading of production capacities and the sluggish recovery of lost markets

The structure of the economy has changed dramatically since the start of the full-scale russian invasion. Destroyed production facilities, disrupted supply and technological chains, the occupation and mining of territories and the migration of people have greatly undermined the economy's productive capacities, thus markedly reducing its potential GDP. Potential GDP returned to growth, as households and businesses adapted to the conditions of a full-scale war. This growth will accelerate when supply chains are reestablished, migrants return, and European integration processes speed up. This macroeconomic forecast does not take into account Ukraine's large-scale recovery plan, which is why potential GDP will not return to its pre-war level over the forecast horizon due to considerable capital and labor force losses.

Real GDP fell more pronouncedly than potential GDP because of domestic demand shocks and the loss of export opportunities. The substantial negative GDP gap will persist over the forecast horizon due to security risks, which will dampen investment and consumption. Even after the risks subside, the situation will be difficult, due to the long process of loading production facilities and the slow return of exporters to the markets they have lost.

Box 2. The Repercussions of the Destruction of the Kakhovka HPP

The blowing up of the Kakhovka Hydro-Power Plant (HPP) by russia primarily has significant humanitarian and ecological consequences for both the affected region and for neighboring regions. The effect on the economy will be moderate in the current year – an up to 0.2 pp negative contribution to real GDP growth, an up to 0.3 pp positive contribution to consumer inflation, and a widening in the deficit in the trade in goods by USD 0.4 billion. All this is factored into the NBU's latest forecast. At the same time, the losses will be permanent and will affect potential GDP in the coming years. In part, these losses could be offset by investing in the recovery of affected areas and sectors, and by shifting production to other oblasts, which together with a rise in imports, will also curb inflation. The Kyiv School of Economics and the Ministry of Economy estimate that the expenses to recover the losses will be high – direct losses alone total at least USD 2 billion – and will depend on which scenario for rebuilding the HPP and the reservoir is chosen. The final reconstruction decision should take into account economic costs, the return on investment, the duration of the work, and the environmental consequences.

The terrorist act has had significant humanitarian and ecological consequences. Russia's blowing up of the Kakhovka HPP destroyed the plant and the Kakhovka Reservoir, while also flooding the surrounding areas.[10] As a result, property was lost, infrastructure was destroyed or damaged, and the risks to the life and health of the population increased significantly.[11] Almost 80 towns and villages, including Kherson, both those in the flooded area and those located upstream, faced water shortages. The ecological consequences include the flooding of the areas below the reservoir and the drying out of the areas above the dam, decreased levels of groundwater and in the basins of nearby rivers, the destruction of the ecosystem, epidemiological risks, climate change (waterlogging and dust storms), the pollution of the Black Sea coast and Dnipro River areas with agrochemicals, hazardous substances from industrial companies, and mines, and the death of plants and animals across a large area.

The effect on the economy will be moderate in 2023. Since October 2022, the Kakhovka HPP had not contributed any power to Ukraine's Integrated Energy System because of the occupation.[12] That is why the loss of production capacities will have no influence on electricity generation this year. However, it is likely that the maneuverability of the energy system will worsen, which will make it more difficult to keep it in balance during peak consumption hours. At the same time, water is an important production element for a number of sectors, the production facilities of which are located in southeastern oblasts, in particular, metallurgical and mining companies, food industry companies, and so on. Even a temporary reduction in water supplies will curtail their operations, which will have a negative impact on GDP. More specifically, even in June, some metallurgical plants had already reduced their capacity utilization due to water shortages. This halted the industry's recovery, which had begun in early 2023, and decreased export earnings.

At the same time, some companies have a closed water circulation system. What is more, water from other reservoirs and sources could be used, and some companies have already announced the construction of their own water pipelines. It is expected that the reduction in water supplies will be temporary, and that the industrial sector will be mainly affected in 2023.

Figure 1. Daily average production volumes of steel, cast iron, rolled steel per month, thousand t

Source: NBU calculations based on Ukrmetalurgprom data.

According to preliminary estimates by the Ministry of Agrarian Policy, the total area of flooded agricultural land exceeded 70,000 hectares. However, only 10,000 hectares were in the Ukrainian-government-controlled territories of the right bank of Dnipro River. At the same time, the loss of the reservoir affected irrigation systems, which, according to NBU estimates based on the distribution of areas by regions, irrigated up to 350,000 hectares, not only in the flooded areas but also in neighboring regions. Before the full-scale invasion, the affected regions were leaders in the production of vegetables and grain crops.[13] However, in the current year, the negative impact of the terrorist attack on the economic activity of the agricultural sector will be marginal, since a large part of the land has been occupied since last year, and the winter crop, in particular the wheat crop, was already at a late stage of vegetation and required no irrigation.

The harvest of vegetables and some fruit is at greater risk. However, according to NBU estimates, the loss of this harvest will also be moderate (up to 5%), thanks to the

[10] In terms of its water volume, 18.2 km^3, the Kakhovka Reservoir was the largest in Ukraine, while the area of its water surface, 2,155 km^2, was the second largest in Ukraine after the Kremenchuk Reservoir.

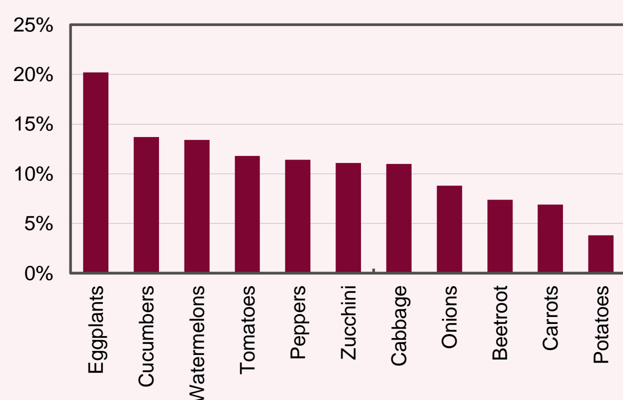
[11] The three affected oblasts were home to about 14% of the population before the full-scale invasion.

[12] The design capacity of the Kakhovka HPP was 335 MW, allowing the plant to contribute up to 3% to electricity generation during peak consumption hours in Ukraine.

[13] The NBU estimates that the areas that are at risk of drying out produce about 10% to 11% of the wheat and sunflower harvest, and about 5% of the corn harvest.

sufficient deposits of moisture in the soil and the stepped-up production of vegetables in other oblasts (Odesa, Mykolaiv and Cherkasy). The fishing industry has suffered significant losses due to the mass deaths of fish and the destruction of fish farms. However, the fishing industry accounts for a small share of total agricultural production. These losses, together with higher production and logistical costs and the decreased output of some food industry companies, will make an up to 0.2 pp negative contribution to real GDP growth and an up to 0.3 pp positive contribution to consumer inflation in 2023. The temporary decrease in the output of the metals industry, flooded areas and a lower vegetable harvest will push up the deficit in the trade in goods by USD 0.4 billion.

Figure 2. Vegetable harvest at risk of drying out, % of the harvest in the Ukraine-controlled territories



Source: SSSU, NBU staff estimates.

The destruction of the Kakhovka HPP will restrain economic activity in the medium term, mainly due to the damage suffered by the agricultural sector. The loss of a source of water for irrigation channels will make the irrigation of land much more difficult. Coupled with climate change, this will adversely impact the yields of agricultural crops in the region and, consequently, crop output (vegetables and melon crops will be mainly affected, while grain crops and oilseeds will be affected to a lesser degree). The region's dairy industry could also suffer because of the worsened condition of pastures. The food industry, mainly vegetable and vegetable oil processing, could be hit as well. All this will increase pressures on food prices, even after the war.

The blowing up of the Kakhovka HPP will also hinder the restoration of shipping in the lower part of the Dnipro River all the way to the Black Sea due to the shallowing of the Dnipro and the destruction of the port and river terminal infrastructure along the mouth of the Dnipro below the Kakhovka sluice. That said, the ports in the flooded region were not part of the "grain corridor" and shipping along the Dnipro River had not been widely used even before, despite it being a cheap way to transport goods. At the same time, the absence of the river navigation route to the Black Sea and difficulties with land transportation could increase logistical costs in the region, which will persist until transportation routes are restored.

The ecological disaster and water shortages could intensify migration processes and, consequently, reduce the labor force, mainly in industrial giants, such as the cities of Kryvyi Rih, Nikopol and Marhanets. This will make the recovery of the region more difficult.

At the same time, the NBU estimates that GDP losses will be smaller in the coming years than in 2023, thanks to investment in the recovery of the affected areas and sectors, and due to production being shifted to other oblasts. The latter factor, coupled with a rise in imports, will rein in inflationary pressures. However, these losses will be permanent and will directly affect potential GDP over a long period of time until the hydraulic facilities can be restored.

The costs of restoring the hydraulic facilities are substantial, while the feasibility of the reconstruction should be studied by both economists and ecologists. The Ministry of Economy estimates the construction of a new HPP will cost about USD 1 billion. Additional funds are needed to build road and rail crossings, which could cost another USD 0.5 billion. The construction will take at least five years. Therefore, until permanent crossings are built, additional funds will be required for the construction of temporary bridges.[14] However, whether or not it is worthwhile to rebuild the HPP and/or the reservoir and other facilities should be scrutinized by economists and ecologists, taking into account all the pros and cons, and whether or not there are funds available for the reconstruction.

Taking into account the extent of the areas that are at risk of drying out, the amount of investment needed to restore the irrigation system of the affected regions could approximate USD 1-1.5 billion. At the same time, the Ministry of Agrarian Policy assessed the damage suffered by the irrigation and drainage systems at UAH 150-160 billion (over USD 4 billion). Whether or not it is worthwhile to restore these systems should also be thoroughly studied, as installing modern irrigation systems could be more efficient and cheaper.[15] However, the bulk of this work can only be done after the area is deoccupied and security risks subside noticeably.

The blowing up of the Kakhovka HPP is on a par with the greatest terrorist acts in modern history. It will have a long-lasting negative effect on the country's economy, even if the infrastructure is quickly restored. What is more, this terrorist act will have large-scale and long-lasting consequences for the ecological system of the entire Black Sea region.

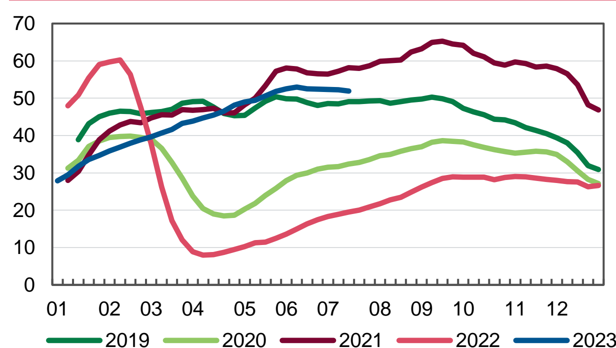
[14] Arguments for rebuilding the Kakhovka HPP and filling the reservoir with water again are based on the need to ensure the safety of the Zaporizhzhia NPP, support economic development, in particular the metals industry and the agricultural sector, and to restore transport connections. At the same time, arguments against it are voiced exclusively by ecologists. They say that reservoirs have a destructive effect on the environment. Therefore, it would be more worthwhile to restore the flow of the Dnipro River and to shift the economy of the south from arable farming to breeding grazing animals, which is sustainable in the modern climate and reasonable in view of the region's progressive desertification.

[15] Experts estimate the cost of installing an irrigation system at USD 3,000-3,500 per hectare.

2.3. Labor Market and Household Income

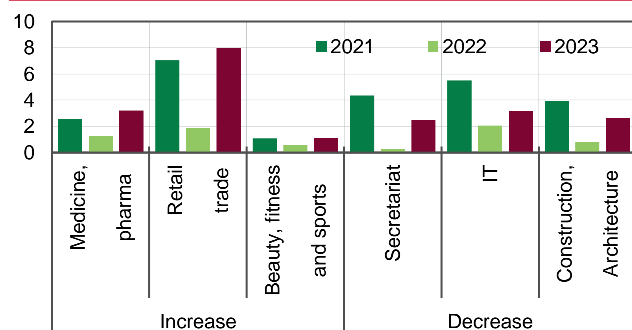
- Although demand for labor has been recovering, labor market conditions remain difficult: the unemployment rate decreased slightly during H1, but remained high, according to the NBU's estimates. The financial standing of households is gradually improving, but their incomes are still weak due to the effects of the war.
- The recovery of economic activity will contribute to the growth in employment and labor income in the private sector. However, unemployment will exceed the pre-war level, as the change in the structure of the economy will lead to mismatches in the labor market.

Figure 2.3.1. New job offers, thousands (4-week moving average)



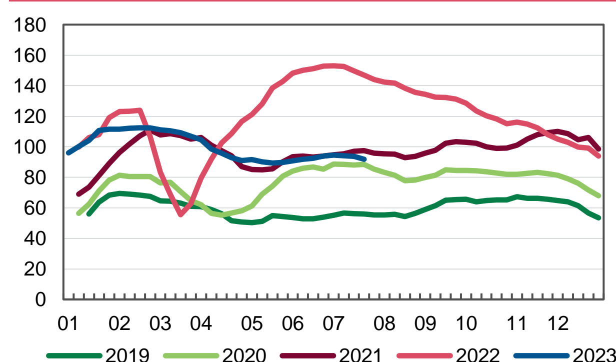
Source: work.ua, NBU staff estimates.

Figure 2.3.2. Demand for certain professions as of the start of July of the respective year, thousand new vacancies



Source: work.ua, NBU staff estimates.

Figure 2.3.3. New resumes, thousands (4-week moving average)



Source: work.ua, NBU staff estimates.

The unemployment rate is declining, albeit slowly, despite the revival of demand for labor. Its further improvement will remain gradual on the forecast horizon due to significant mismatches in the labor market

Labor demand has been growing since the beginning of 2023, driven by the economic recovery. The highest demand has been observed in professions related to the further adaptation of businesses to military conditions. Specifically, most new vacancies are in skilled labor professions, logistics, and wholesale and retail trade specialists. Under current conditions, the number of vacancies in healthcare and education is also rising, as are job openings in retail trade and the services sector, driven by the gradual upturn in domestic demand. In particular, this may be a consequence of large-scale migration abroad, primarily of women, who predominated in these sectors. Meanwhile, there remained subdued demand for workers in the humanitarian, cultural, administrative, and management fields, as well as in IT and construction. These labor demand dynamics are a reflection of significant changes in the structure of the economy.

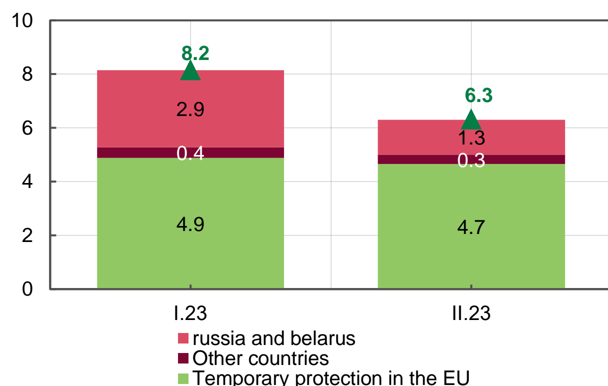
In contrast, labor supply developments have in recent months practically returned to their pre-crisis trajectory. This is due to the further adaptation of households to living under high security risks. Thanks to the rapid recovery of demand for labor, the number of employed Ukrainians has gradually risen since the start of 2023. Specifically, surveys[16] showed that employment was up both because people were returning to their habitual employment conditions and because they are finding new jobs. For instance, the situation with IDPs, among whom the unemployment rate used to be higher than the overall figure, has improved significantly. This is evidence that IDPs are settling in to their new places of residence.

Labor supply is constrained by the still significant number of migrants abroad, and military needs. The number of Ukrainian migrants in Q2 and early Q3 2023 remained significant[17] as adverse expectations for security loomed increasingly large, fueled by the continuation of air raids and the destruction of the Kakhovka HPP. Migrants also

[16] According to the Rating survey, the number of people who had a job before the full-scale invasion but are not working now decreased to 30% in June 2023, from 36% in February 2023. This is due both to people returning to their normal mode of work (36% in February and 41% in June), or because they have started working in a new job (8% in February, 13% in June). The share of IDPs with a job rose to 62% in June, up from 45% in February 2023, while the percentage of IDPs working in a new job increased to 31%, up from 15%. The proportion of jobless people in this group shrank to 36% in June, down from 51% in February 2023.

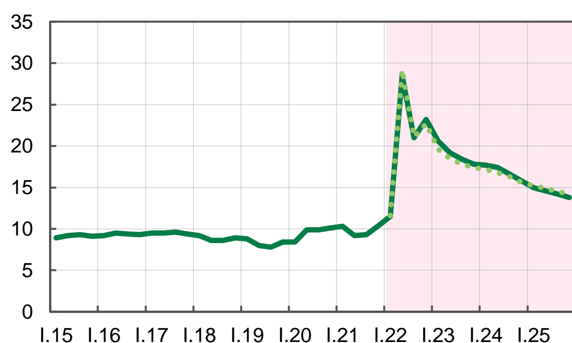
[17] In June 2023, the UNHCR revised its approach to estimating the number of Ukrainian migrants. Whereas previous estimations drew on migrant flow data from border crossings statistics, the new methodology used the number of migrants with temporary protected status or similar statuses/protection schemes as of when the host countries published relevant reports. The change of approach reduced the total estimated number of migrants to 6.3 million (down from 8.2 million, with the balance of border crossings at 8.9 million) primarily due to a drop in the number of Ukrainians in russia and belarus (down to 1.3 million, from 2.9 million). The UNHCR has made no retrospective revisions of such data, rendering it unfeasible to make comparisons between 2023 and previous years.

Figure 2.3.4. Estimates of the number of Ukrainian migrants abroad, million people



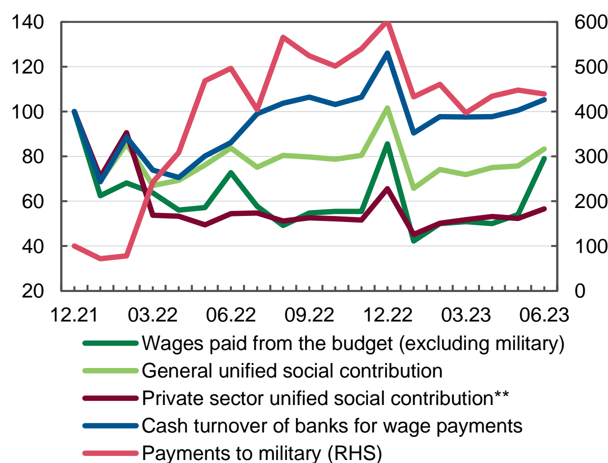
Source: UNHCR.

Figure 2.3.5. Unemployment sa, %



Source: SSSU, NBU staff estimates.

Figure 2.3.6. Indirect indicators for estimating real household income*, 12.21=100%, %



* Deflated by CPI.

** The private sector SSC is calculated as the difference between total SSC and SSC paid on budget sector wages.
Source: STSU, NBU staff estimates.

continued to adjust to life in their host countries[18]. A small number of these individuals are expected to come back in the coming months. However, their return will be restrained by still-high security risks. Overall, the number of migrants will remain almost the same at the end of 2023 as in late 2022. Their naturalization, potential energy supply issues during the 2023/2024 heating season, and a longer persistence of elevated security risks will discourage people in this group from returning next year as well. Their repatriation will pick up after wartime risks abate in H2 2024. At the same time, an outbound movement is also possible as some families decide to reunite outside of Ukraine and as individuals who have successfully adapted to recipient countries' conditions decide not to return. By opting to stay abroad in large numbers, these migrants will create a labor void that will pose a serious risk to Ukraine's economic recovery.

At the same time, professional and regional mismatches in the labor market – discrepancies between what employers need and what employees can offer – remain significant. Specifically, respondents in Q2 2023 Business Outlook Survey highlighted the increasingly adverse impact on their activities due to the lack of qualified personnel[19]. As a result, improvements in employment and reductions in unemployment were slower than in the previous macroeconomic forecast. The unemployment rate remains high.

Meanwhile, businesses improved their expectations for further growth in employment over the next 12 months[20]. The expected revival of economic activity will contribute to a gradual reduction in the unemployment rate. Up to the forecast horizon, however, labor market mismatches will remain significant, in part due to the effects of the war, including an uneven recovery across sectors and regions. Therefore, despite its gradual decline, the unemployment rate will in the medium term exceed its level before the full-scale invasion.

The financial standing of households is improving. Labor income will gradually rise as economic activity picks up

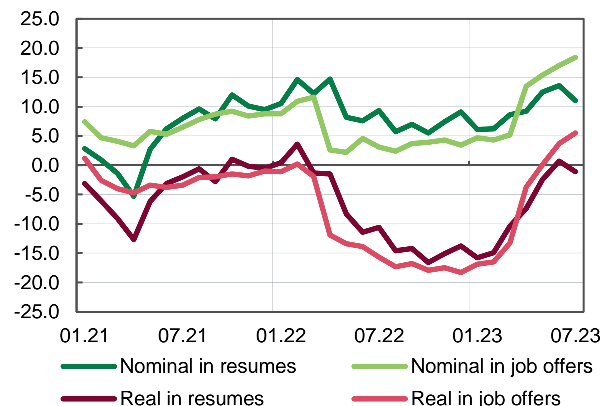
Households have seen their financial condition improve slightly as businesses competed for qualified workers, economic activity revived, and government employees received payments, including military allowances. Indirect estimates based on tax data, and salaries offered on job search sites, at least indicate that nominal wages are continuing to rise. And according to data on wage payments on bank accounts, real wages have also been rising. This is explained in particular by the drop in inflation. As before,

[18] The UNHCR survey of migrants and IDPs in April–May 2023 shows that 6% of migrants and 12% of IDPs are not planning to return. Some 42% of migrants and 54% of IDPs live in rented housing. About 48% of migrants and 43% of IDPs earn income from employment. According to a survey of migrants in Germany, 44% are planning to stay there (up from 39% in the summer of 2022).

[19] In Q2 2023, the negative impact of this factor was cited by 24.5% of respondents. This is almost the same as before the full-scale invasion (26.6% in 2021 on average) but higher than the 13.8% seen in Q4 2022 and the 19.4% recorded in Q1 2023. An IER survey yielded a similar outcome: the "lack of qualified labor" factor became the fourth-largest obstacle to doing business in June 2023. It was mentioned by 37% of respondents, up from 30% in March 2023.

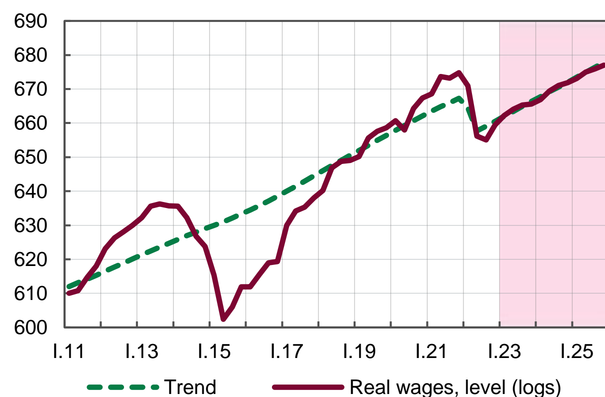
[20] In Q2 2023, the balance of expectations for changes in the number of employees in the coming 12 months improved to negative 3.8%, up from negative 16.4% in Q1 2023.

Figure 2.3.7. Average wage stated in job offers and resumes, % yoy



Source: work.ua, NBU staff estimates.

Figure 2.3.8. Real wages*, level (logs)



* Until 2022 - the average wages of full-time employees, since 2023 - wages in the compensation of employees according to the system of national accounts

Source: SSSU, NBU staff estimates.

social payments from the budget and indexation of pensions provided significant support to household incomes.

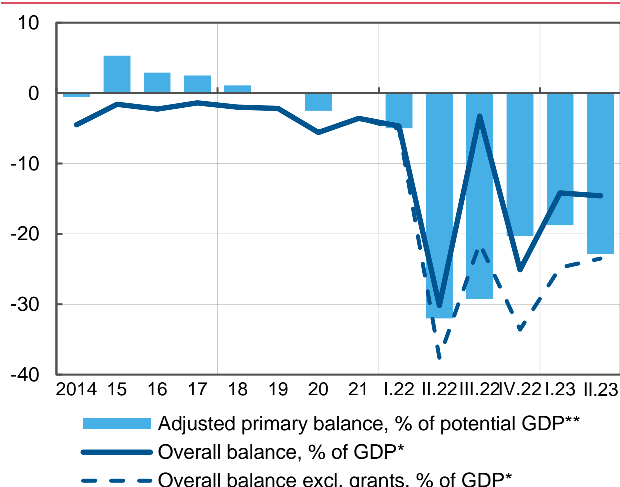
According to business outlook surveys, the growth in expenses on employee wages will continue[21]. This will be facilitated by companies adapting to doing business amid significant security risks, and the maintenance of a loose fiscal policy. The economy's recovery will drive a further revival of labor demand, which, with inflation still running high, will fuel significant increases in nominal labor income, especially in sectors with shortages of skilled workers. In the post-war period, the growth in nominal wages will be further facilitated by increased competition with foreign employers for mobile labor. The increase in real labor income will resume this year, but its pace will remain rather subdued due to persistently high inflation and sluggish productivity growth.

[21] In Q2 2023, the balance of expectations regarding changes in per-person expenses on the compensation of employees over the next 12 months rose to 44.6% from 35.3% in Q1 2023, compared to 62.2% on average in 2021.

2.4. Fiscal Sector

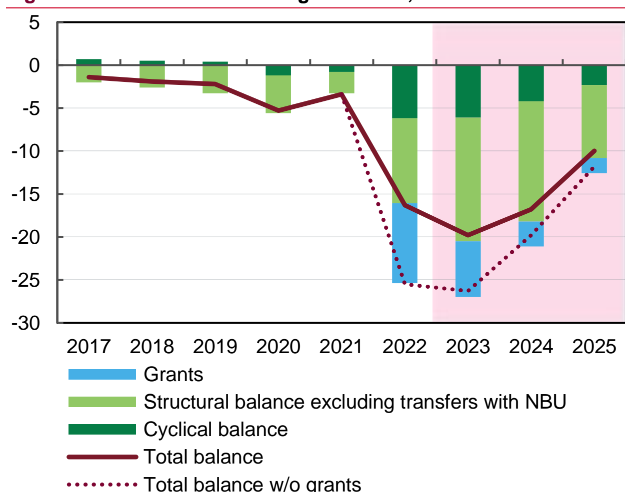
- The budget deficit remains significant and is primarily being financed with international aid. At the same time, efforts are underway to expand the resource base of the budget while at the same time strengthening the role of domestic market borrowing.
- The consolidated budget deficit will gradually narrow in the years ahead, but it will remain considerable due to defense and economic recovery needs. Although international aid will remain a significant source for meeting budgetary needs, domestic revenues will grow in weight.
- Significant budget deficits will lead to a high level of the debt-to-GDP ratio over the forecast horizon, but this will not exert significant pressure on public finances in the coming years, thanks to preferential conditions for international aid inflows.

Figure 2.4.1. General government fiscal balance



* Overall balance is the consolidated budget balance, taking into account loans to the PFU from the STA. ** Cyclically adjusted primary fiscal balance (CAPB) of the general government (% of potential GDP). CAPB is the difference between seasonally adjusted revenues, in the structure of which tax revenues are adjusted for cyclical changes in GDP, and seasonally adjusted primary expenditures. Additionally, one-off proceeds are subtracted from revenues. A positive value indicates tight fiscal policy, a negative value indicates expansionary fiscal policy.
Source: STSU, NBU staff estimates.

Figure 2.4.2. Consolidated budget balance, % of GDP



Source: STSU, SSSU, NBU staff estimates.

Budget deficits will remain significant, fueling economic growth in 2023–2025

In Q2 2023, fiscal policy continued to have a stimulating effect on the economy. Adjusted for the cyclical position of the economy, the primary negative balance actually edged higher compared to the previous two quarters. In Q2, the consolidated budget deficit widened to more than UAH 233 billion, and to UAH 369 billion after excluding grants[22], which is more than 24% of GDP by NBU estimates. The expansion of the deficit in Q2 is associated with the high cost of ensuring defense capabilities. As the war grinds on, substantial public expenditures are supporting economic activity and domestic demand. Specifically, significant defense spending is contributing to the development of a number of industries and service sectors and fueling households' purchasing power, which will have a multiplier effect on the rest of the economy. At the same time, a significant portion of defense spending goes towards import purchases. In addition, a significant share of assistance from international partners comes in the form of their own products, which, among other effects, stimulates their economies (for more, see the box "The Impact of Military Aid to Ukraine on the Economies of Partner Countries" on page 30).

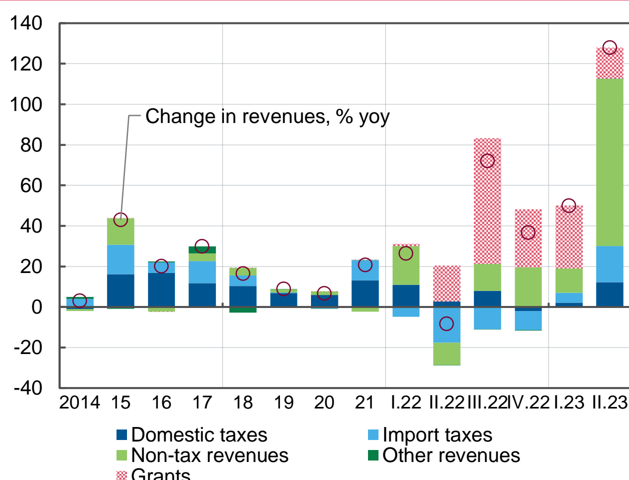
Excluding grants, the budget deficit in 2023 is expected to stay at last year's level of more than 26% of GDP. Going forward, the deficit will narrow thanks to an increase in revenues to almost 20% of GDP in 2024, and about 12% of GDP in 2025, excluding grants. Deficits are expected to be higher than in the previous forecast, primarily due to the persistence of security risks and thus the need for significant spending on security and defense. With this in mind, the expected amount of international aid to finance other expenses has been increased. The slight revision of the real-GDP forecast in 2024, despite the longer projected duration of security risks, is due to the loosening of fiscal policy.

Tax revenues will continue to grow thanks both to the economic recovery and to administrative measures

The growth in the tax revenues of the consolidated budget accelerated (to more than 43% yoy) in Q2 2023. This was the result of a revival in economic activity, still-high inflation, as well as the rollback of certain tax breaks[23] and a tightening of tax administration procedures. The low-base effect also played a significant role. Military allowances remained a

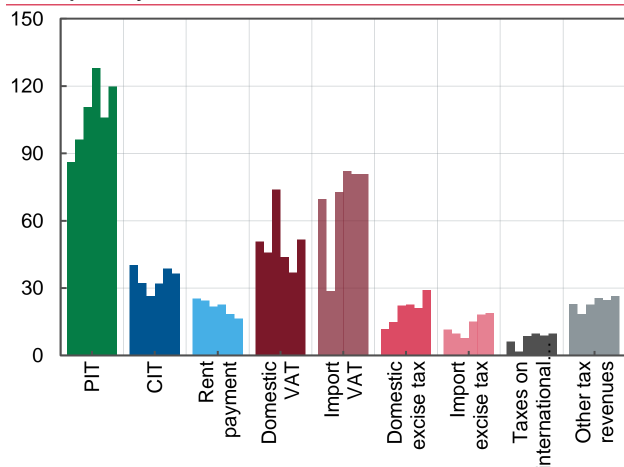
[22] In January–June 2023, the consolidated budget deficit surpassed UAH 681 billion, or 24.5% of GDP, by NBU estimates.
[23] The deferment of customs duties has been canceled (CMU Resolution No. 166 dated 24 February 2023), the duty waiver for imports of goods to repair energy infrastructure expired on 1 May 2023, etc.

Figure 2.4.3. Contributions to annual changes in revenues of the consolidated budget, pp



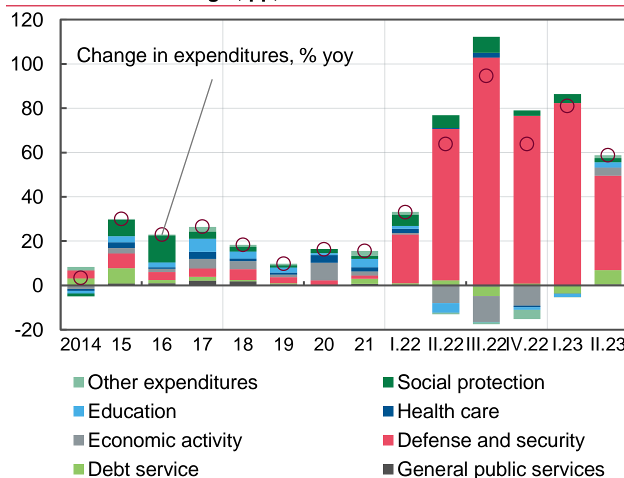
Source: STSU, NBU staff estimates.

Figure 2.4.4. Tax revenues of the consolidated budget in 2022 - 2023, quarterly, UAH bn



Source: STSU, NBU staff calculations.

Figure 2.4.5. Contributions to annual changes in expenditures of the consolidated budget, pp, functional classification



Source: STSU, NBU staff calculations.

sturdy tax base, underpinning high revenues from personal income tax (almost 30% of all PIT revenue in H1 2023 came from the military) and fueling the growth in revenue from consumption taxes. Sustained and substantial VAT refunds this year have restrained the increase in tax proceeds, but at the same time helped improve the financial standing of businesses.

In Q2, nontax proceeds predictably remained a significant source of revenue, in particular due to transfers of part of the NBU's profit and state-owned companies' dividends, primarily PrivatBank's (these funds accounted for almost 11% of consolidated budget revenues in Q2). Although domestic revenues keep growing, they cannot meet budgetary needs in these exceptional circumstances. At this time, domestic revenues are sufficient to meet only 65% of consolidated budget expenditures. Grant funds therefore continue to be a major source of revenue. They are arriving on a regular basis and in the expected volumes. Overall in January–June 2023, grants represented almost 18% of consolidated budget revenues. As a result, revenues increased by almost 88% yoy (or by more than 71% yoy excluding grants).

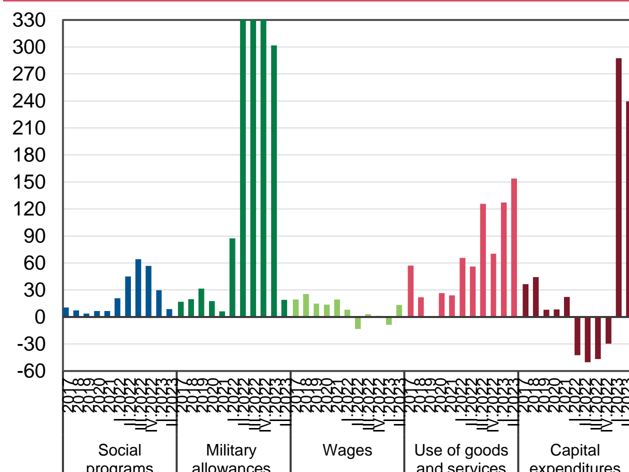
Revenues will grow moderately over the forecast horizon. The growth in revenues will be driven by tax proceeds as the economy continues to revive, the government reinstates the taxation approaches it used until February 2022, tax administration improves further, and the fiscal system undergoes more reforms. Grant support will remain an important source of budget revenues for some time, but this aid will gradually decline in volume.

With security risks running high, expenditures remain significant. Going forward, this growth will slow, but defense, social protection, and reconstruction will be top priorities

In Q2 2023, consolidated budget expenditures reached their highest level since the war broke out. Because of the base effect, however, this increase decelerated slightly (to almost 59% yoy). In January–June 2023, consolidated budget expenditures were up more than 67% on last year. This was primarily due to the need to cover defense and security expenses (defense alone made up nearly 50% of all consolidated budget expenditure). In addition, the need to support households led to significant spending on social protection. Together with slightly higher expenses on the compensation of employees and substantial military allowances, social protection payments bolstered households' finances and boosted consumer demand. At the same time, social and humanitarian expenditures (education, healthcare, environmental protection) grew somewhat, although they remained restrained in view of the deficit of budgetary resources and the decrease in the number of consumers of public services.

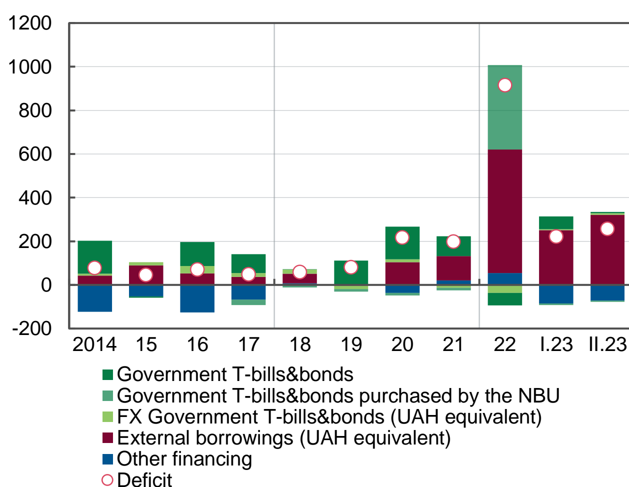
In contrast to the previous year, capital expenditures have risen significantly this year. This is mainly related to the active repair, restoration, and construction of infrastructure facilities. As the war grinds on, the state is playing an increasingly important role as an investor and consumer of goods. The

Figure 2.4.6. Growth in consolidated budget expenditures by selected areas, % yoy



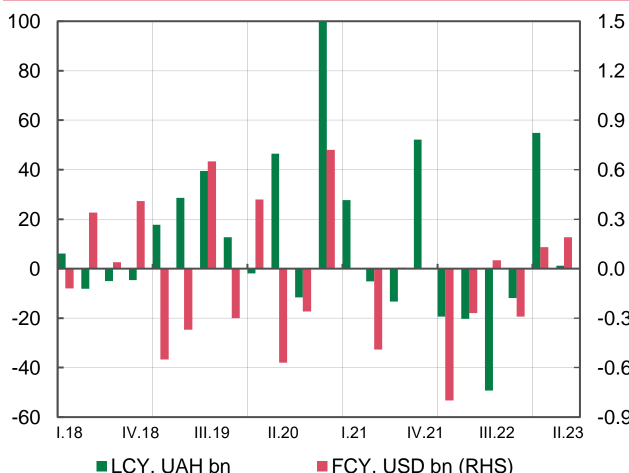
Source: STSU, NBU staff calculations.

Figure 2.4.7. State budget deficit financing*, UAH bn



* Borrowings in UAH include government bonds issued to increase the authorized capital of banks, Deposit guarantee fund (DGF), and other state-owned enterprises.

Figure 2.4.8. Net borrowings* on hryvnia (LCY) and foreign currency (FCY) T-bills & bonds (by placement date)



* Market placement.
Source: MFU, NBU, NBU staff estimates.

increase in the funding of infrastructure projects is spilling over into construction and other related sectors.

In the forecast period, expenditure growth will slow significantly. Even after security risks abate, the need to maintain defense capabilities will continue to be substantial, putting pressure on spending. As security risks subside, however, the structure of expenditures will change, gradually freeing up the resources necessary to rebuild the country. Capital expenditures will therefore grow at a high pace. Social security expenditures to support the financial standing of households will remain substantial. Meanwhile, the focus will slowly shift towards housing and utility subsidies and targeted support for vulnerable groups.

International aid will remain significant, but the role of the domestic debt market will intensify

Significant budgetary needs in H1 2023 (almost 37% of the state budget) were financed with international aid. It amounted to USD 23.6 billion, including almost USD 12.7 billion in Q2 2023 alone (USD 3.6 billion of it in tranches under the IMF program). In 2023 as a whole, international support is expected to top the USD 42 billion mark. Although aid will decline in the following years, it will remain significant.

In the meantime, there was an uptick in the demand for government securities. As with Q1, part of this upturn was driven by the possibility of using benchmark domestic government debt securities to meet reserve requirements, but in Q2, the role of other factors increased considerably. As a result, purchases of both FX and hryvnia domestic government debt securities during Q1 and Q2 2023 exceeded the repayments made on them. The volume of market-based borrowing is expected to increase as government securities retain their investment appeal against the backdrop of declining inflation. Accordingly, domestic debt funding will continue to become increasingly important for covering budget needs.

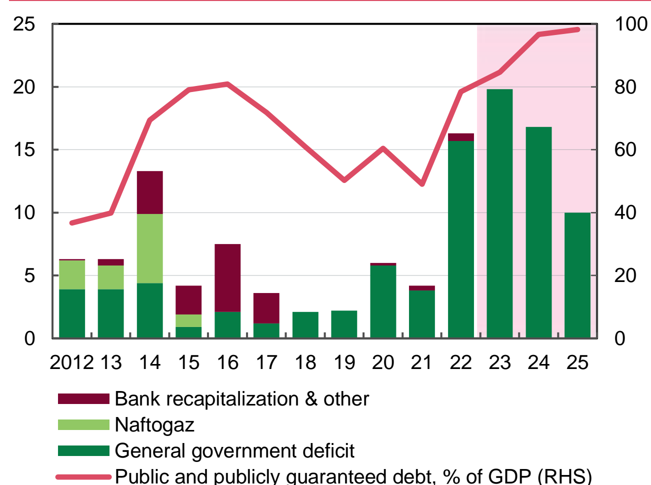
Predictable and regular international support for the state budget, along with substantial domestic borrowing, will make it possible to avoid monetary financing in the future. This will help improve both exchange-rate and inflation expectations.

The high level of debt will persist over the forecast horizon

Public and publicly guaranteed debt continued to rise and, according to the NBU, surpassed 80% of GDP as of late June 2023. This uptrend was primarily due to the predominance of loans in the total amount of international aid (more than two-thirds came in the form of credit financing in H1 2023) and the revival of domestic borrowing.

Given the significant budget deficits for several years in a row, their coverage mainly with debt funds, and the rollback of grant support in the medium term, the debt will approach 100% of GDP. The debt-to-GDP ratio in this forecast is higher than in the previous one due to an upward revision of expected deficits and a downward revision of projected grants in 2024–2025. However, such a high level of debt will

Figure 2.4.9. Broad general government deficit, public and publicly guaranteed debt, % of GDP



Source: STSU, IMF, MFU, SSSU, NBU staff estimates.

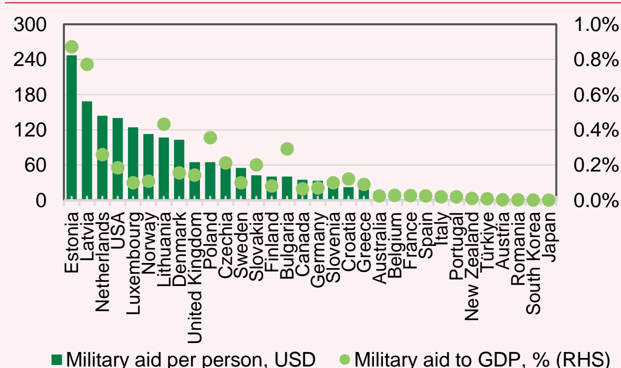
put relatively moderate pressure on the budget in the years that follow, primarily because these funds have come, and will continue to come on preferential terms – with low interest rates and deferred principal repayment schedules.

Box 3. Effects from military aid to Ukraine on the partners' economies

Russia has been fighting information wars against Ukraine for decades. Following its full-scale invasion of Ukraine, russia stepped up its propaganda campaigns, aiming, among other things, to discredit Ukraine abroad. The ultimate goal of these information attacks is to deprive Ukraine of political and financial support from its international partners. In particular, as part of its information war, the enemy is spreading the narrative that Ukraine's partners are spending too much money on supporting the country's military, while their economies are suffering from accelerating inflation and slowing economic growth. However, the preliminary results of a study conducted by Chebanova, Faryna, Sheremirov (2023) show that ramping up military spending due to the war in Ukraine in the short-term has had a stimulating effect on the GDP of partner countries. More specifically, every USD 1 spent by the governments of donor countries on military needs, over the course of one to two years adds USD 0.79 to 0.87 to the GDP of these countries[24]. Overall, the positive effect will not disappear even after five years. Moreover, there are a number of additional benefits for donor countries, such as the possibility of sharing military experience, a more efficient allocation of defense industry resources, impetus for arms exporters, and increased productivity through additional investment in research and development. Therefore, the economic cost of military aid to Ukraine for the country's partners is significantly lower than the nominal sums that have been declared.

Unprecedented support by partners since the start of the full-scale war. The Kiel Institute for the World Economy (the Kiel Institute) estimates that in 2022 alone overall military aid commitments to Ukraine exceeded USD 66 billion.[25] Last year, Ukraine received military support from 32 countries, but its amount, both in absolute terms and as a percentage of GDP and the partners' defense budgets, varied. The Unites States took the lead in terms of the nominal volumes of military aid – over USD 40 billion. Meanwhile, in relative terms, the largest donors were Estonia and Latvia (0.75%–0.90% of GDP or 35%–40% of their military spending) and Lithuania and Poland (0.35%–0.45% of GDP or 15%–20% of their military spending). At the same time, according to data provided by the Stockholm International Peace Research Institute, in 2022, the total amount of military aid to Ukraine constituted only about 5% of the combined defense spending by partner countries. None of Ukraine's allies spent more than 1% of their GDP on military support to Ukraine (Figure 1).

Figure 1. Military aid to Ukraine by country, 2022



Source: "Ukraine Support Tracker" by Kiel Institute, World Bank, authors' calculations.

Estimating the fiscal stimulus from defense spending. When governments spend money, most of that money is expected to settle within the country, producing a fiscal multiplier effect. The idea behind a fiscal multiplier is that every monetary unit spent not only makes a direct contribution to value creation, but also triggers a chain reaction of further processes through impacting consumption, investment and other economic activity, and through generating additional growth. Existing studies provide compelling evidence that the multiplication effect from military spending is positive and long-lasting (for instance Sheremirov and Spirovska, 2022; Auerbach and Gorodnichenko, 2012; or Gechet and Will, 2012).

The impact of the fiscal shock produced by a rise in military spending, including that caused by russia's invasion of Ukraine, on countries' economies was estimated following the framework developed by Sheremirov and Spirovska (2022) and the local projection model introduced by Jordà, 2005[26]. Among other things, the authors calculated the cumulative multipliers of military spending for a panel of 101 countries in 2006−2022. In order to measure the multipliers for the countries that provide military aid to Ukraine, regression coefficients were estimated for subsamples, using dummy variables.

The fiscal multiplier associated with military spending is generating additional GDP and offsetting expenditures on aid. The preliminary results of the study show that the fiscal multipliers for the countries that provided military assistance to Ukraine in 2022 are statistically and economically significant (Table 1). A USD 1 rise in defense spending by donor countries is associated with an increase of the real GDP of these countries by USD 0.65 in the year that spending occurred, by USD 0.87 after a year, and by

[24] Here and below, the study concerns the impact of a shock to government spending, i.e. one new monetary unit of taxes or debt, on economic growth. In this way, the authors study the hypothesis whether or not this new spending will have a lasting effect on the economy. It should be noted that theory stipulates that a positive effect might be achieved only in the short-term.

[25] The study relies on Kiel Institute data as of May 2023.

[26] The study employs the method of instrumental variables, whereby defense spending is used as an instrument for government spending. This makes it possible to identify the shock to government spending. To that end, the study used normalized data for GDP and the countries' total and military spending at constant prices, while also employing the method of country and time fixed effects. In its reduced form, the model is as follows: $\sum_{j=0}^{h-1} y_{i,t+j} = a_{i,h} + \Psi_h(L)x_{i,t-1} + \mu_h \sum_{j=0}^{h-1} g_{i,t+j} + \delta_{t,h} + \epsilon_{i,t+h-1},$, where $y_{i,t}$, $g_{i,t}$, and $g_{i,t}^m$ are normalized real GDP and total government and military spending in country i and year t, $x_{i,t-1} \equiv (y_{i,t-1}, g_{i,t-1}, g_{i,t-1}^m)$ is the control variable vector for period t, $g_{i,t}^m$ is the instrument for $\sum_{j=0}^{h-1} g_{i,t+j}$, $a_{i,h}$ and $\delta_{t,h}$ are country and time fixed effects respectively, $\Psi_h(L)$ is the polynomial vector of lags, and $\epsilon_{i,t+h-1}$ is the second-stage regression error over the horizon h. The coefficient μ_h measures the cumulative multiplier of government spending over a one-year horizon h.

USD 0.79 after two years. Cumulative multipliers decrease over longer horizons, but remain positive and significant.[27]

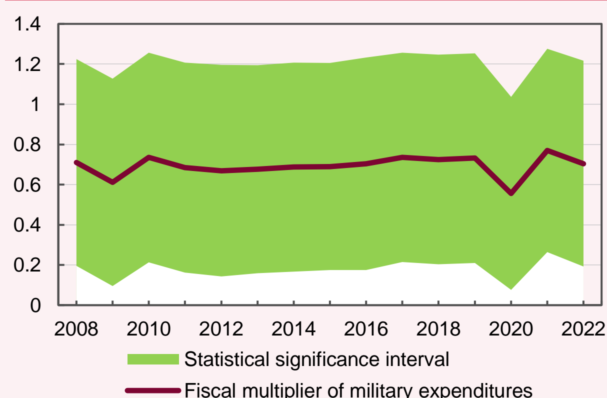
Table 1. Cumulative multiplier: countries that provided military aid in 2022 versus those that did not

	Y: Support Ukraine	N: Other	H0: Y=N
On impact	**0.65*** (0.26)	**0.49*** (0.22)	*F: 0.22* *p: 0.64*
One year ahead	**0.87**** (0.26)	0.83 (0.71)	*F: 0.00* *p: 0.96*
Two years ahead	**0.79**** (0.25)	0.63 (0.45)	*F: 0.11* *p: 0.74*
Three years ahead	**0.60***** (0.15)	**0.48*** (0.22)	*F: 0.22* *p: 0.64*
Four years ahead	**0.60**** (0.23)	**0.32**** (0.11)	*F: 1.28* *p: 0.26*
Five years ahead	**0.44*** (0.19)	**0.24*** (0.12)	*F: 0.77* *p: 0.38*

Standard errors robust to heteroscedasticity and autocorrelation are given in parentheses.
***, **, * – statistical significance at 1%, 5%, and 10% probabilities, respectively.
Source: authors' estimates.

To analyze the stability of the fiscal multipliers over time and to study the specific features of 2022, the authors estimated the regression of the subsamples for each year. The fiscal multiplier in the year that military spending occurs remains persistently high and statistically significant over 2008–2022. This shows that there was no substantial change in the multiplier either in 2014, when russia invaded Ukraine for the first time, or in 2022 when global geopolitical tensions rose not only because of the war in Ukraine, but also due to worsening relations between Western countries and China. The effect reduced markedly only in 2020 during the deepest crisis of the Covid-19 pandemic, when fiscal stimuli had a weaker effect owing to the quarantine restrictions imposed on households and businesses, including on companies of the military-industrial complex.

Figure 2. Primary impact of military spending on GDP growth over time, USD



Source: NBU staff estimates.

The conservative estimates of multipliers. An analysis of the literature gives reason to believe that the effects for partners from the fiscal stimuli arising from military aid to Ukraine could be even stronger. More specifically, while replacing the military equipment they have given to Ukraine, the country's partners will use a substantial share of military spending to make durable goods. The multipliers associated with such spending could be greater than those for non-durable goods or services.

What is more, the above estimates do not factor in the structure of government spending, i.e. how it is broken down into consumption and investment. However, if a larger portion of additional military expenditure is used for investment, it will have a stronger and longer-lasting effect on the economy (Aschauer, 1989).

The findings of multiple studies show that fiscal multipliers are usually higher in economic downturns than during economic booms. The reason for this is that in a recession labor and capital are underutilized, and stimulating aggregate demand might give the economy the boost it needs. Although forecasts predict that advanced economies will avoid a recession, growth in these countries will remain weak, as a result of which military spending could have a more pronounced economic effect that estimated by the authors.

Other economic stimuli from shoring up Ukraine's defense capabilities. The following could also boost the positive effect from providing military aid to Ukraine and reduce the absolute cost of this assistance for partners:

- *exchanging practical military experience through the constant training of Ukrainian Armed Forces and joint strategic planning.* This enables Ukraine's partners to improve their own security systems, and in the future to decrease the risk of being involved in military conflicts.
- *optimizing the allocation of resources in the defense sector.* An assessment of the advantages and disadvantages of the weapons provided to Ukraine in real combat conditions allows the partners to direct funds towards the production of truly effective weapons that have the greatest efficiency gains.
- *instances of the successful use of weapons provide an impetus for exporters of military goods, which has already been reflected in an increase in the share prices of allies' large arms manufacturers.* More specifically, since the start of the full-scale invasion, the share prices of some arms manufacturers in partner countries have risen from 18% (Lockheed Martin Corp., United States) to 62% (Leonardo S.p.a., Italy). Over that period, the S&P 500 stock index has only risen by 3%[28].
- *additional investment in research and development in the defense sector*, involving many countries and sectors of the economy set the stage for technology spillovers and a rise in long-term productivity.

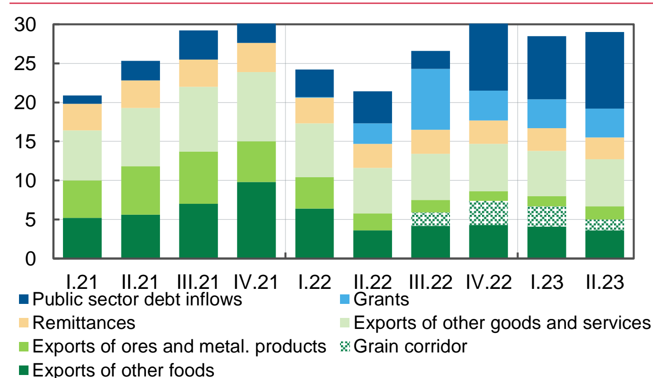
[27] Overall, the estimated government spending multipliers for a complete sample are in line with the results obtained by Sheremirov and Spirovska (2022).

[28] Yahoo Finance data, closing prices from 23 February 2022 through 12 June 2023.

2.5. Balance of Payments

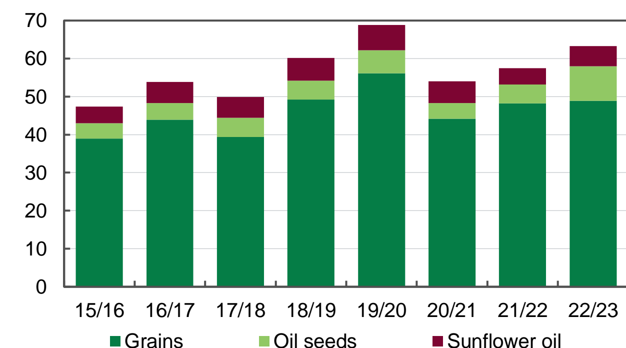
- Q2 saw a significant decline in the FX deficit on the market. The reasons for this included lower energy imports and decreased cash withdrawals abroad. These factors offset the drop in exports resulting from russia's obstruction of the operation of the "grain corridor," and the trade restrictions imposed by some EU countries. At the same time, reserves hit a record high of USD 39 billion, thanks to substantial international aid.
- In the coming years, a significant FX deficit will persist in the private sector, propelled largely by the limited potential to revive exports, and the high need for imports to rebuild the country after the war.
- International financial aid will remain the main source of sustainable reserve growth over the forecast horizon. By late 2025, reserves will rise to USD 44.1 billion.

Figure 2.5.1. Key components of FX inflows, USD bn



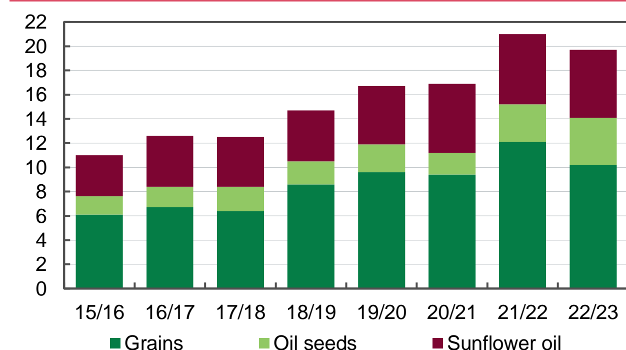
Source: NBU.

Figure B.2.5.1. Exports of agricultural commodities during the respective marketing year*, m t



* For analytical purposes, the marketing year for all commodities was defined as the same time span - July to June of the next year.
Source: SCSU, NBU staff calculations.

Figure B.2.5.2. Exports of agricultural commodities during the respective marketing year*, USD bn



* For analytical purposes, the marketing year for all commodities was defined as the same time span - July to June of the next year.
Source: SCSU, NBU staff calculations.

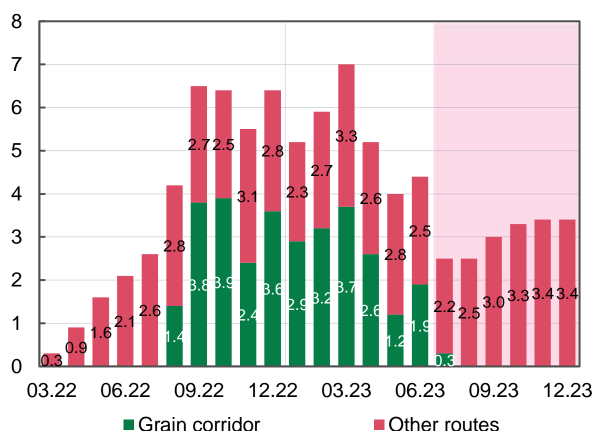
Despite obstacles to exports, the FX inflows to the private sector were higher in Q2 than expected. However, the potential for a recovery in exports will remain limited in 2023–2025

Q2 2023 saw a drop in the FX inflows to the private sector compared to Q1, which mainly resulted from obstacles to food exports. The blockade of the Pivdennyi Port and more frequent acts of russian sabotage of the ship inspection regime significantly reduced shipments through the "grain corridor." Exports via alternative routes decreased on the previous quarter due to trade restrictions imposed by some EU countries and depleted stocks. At the same time, the prompt settlement of issues with the transit of food to other EU countries, coupled with the narrowing of the list of goods prohibited for imports, somewhat softened the fall in food

Despite all of the challenges (russia's blocking and obstructing the operation of maritime transport and the destruction of transportation infrastructure and production facilities), agricultural exports in the 2022/2023 marketing year exceeded the expectations of most experts, while export volumes were higher than those in the previous marketing year. More specifically, exports of grain grew by 1.4%, driven by corn, while exports of sunflower oil were up by 23%, and those of oil seeds by 80%. One of the reasons behind this growth was the shifting of exports of the 2021 record-high harvest to the 2022/2023 marketing year because of the extremely low shipment opportunities at the start of the full-scale invasion. The launch of the "grain corridor" in August 2022 revived grain exports. In addition, a reduction in the domestic production of sunflower oil and the EU's interest in buying raw materials to produce it pushed up exports of sunflower seeds. However, in view of the limited transport capacity, which persisted despite the launch of the "grain corridor" and the establishment of alternative routes, this achievement resulted from the dedicated efforts of agricultural, transportation and logistical workers, and from substantial support from Ukraine's international partners. The existing routes, which might be expanded in future, will continue to play an important role.

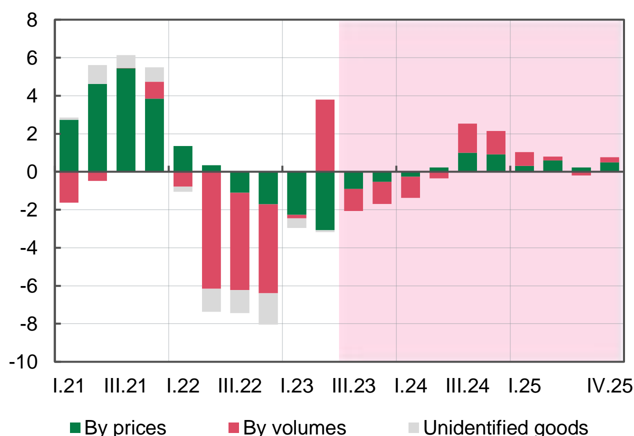
The value of agricultural exports was also high – the second best result after the 2021/2022 marketing year. More specifically, proceeds from the trade in sunflower oil were little changed on the previous marketing year, while earnings from oil seeds exports grew by USD 0.8 billion. At the same time, export proceeds from the trade in grain declined by almost USD 2 billion, dragged down by falling global prices and discounts for Ukrainian food. The favorable results achieved during the first marketing year after the full-scale war noticeably supported the sowing and harvesting campaigns in the current marketing year.

Figure 2.5.2. Exports of agro-industrial products*, m t



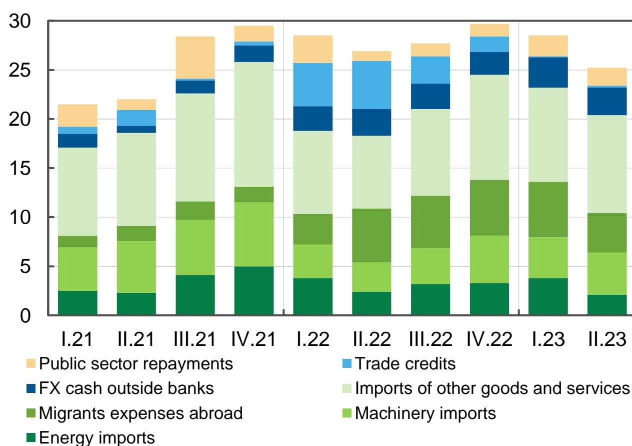
* Grains and oil seeds, sunflower oil.
Source: Ministry of Agrarian Policy and Food of Ukraine, Black Sea Grain Initiative JCC, NBU staff estimates.

Figure 2.5.3. Absolute annual change in merchandise exports by prices and volumes, USD bn



Source: SCSU, NBU staff estimates.

Figure 2.5.4. Key components of FX outflows, USD bn



Source: NBU.

exports. Shipments via alternative routes were larger than expected, offsetting losses from the restrictions imposed by EU countries.

The drop in food exports was only partly offset by a rise in exports of other goods. More specifically, exports of iron ore and metallurgical products rose, fueled by the ongoing recovery in the production of these commodities, a certain freeing-up of logistical capabilities, and an increase in exports of more expensive rolled steel and semi-finished products. Exports of coking coal also grew. However, water shortages experienced by some companies in the wake of the destruction of the Kakhovka HPP by the invaders restrained growth in metallurgical exports in June, and will likely continue to limit these exports throughout H2.

FX remittances from Ukrainian migrants abroad also declined, mainly due to the migrants' continued integration into the labor markets of their host countries.

Exports of services remained practically unchanged quarter-on-quarter: the post-Covid-19 narrowing of global demand and still high security risks impeded the recovery of exports of IT services.

FX proceeds from exports of goods will remain restrained until the middle of 2024. Among other things, difficulties with exporting food will persist. The losses resulting from the extension of restrictions on imports of some Ukrainian foods by neighboring countries of the EU until the middle of September 2023 are assessed as insignificant, thanks to the establishment of transit routes and the increased throughput of existing shipment routes. Exports will be much more affected by the halt in the operation of the "grain corridor." Due to the insufficient throughput capacity of alternative routes for shipping the new harvest of agricultural crops and competition for logistics from European agricultural producers, the total export losses in H2 2023 were assessed at about USD 2 billion. However, these losses could be fully offset in 2024. These assessments are based on the further expansion of the logistical capabilities of existing alternative routes.

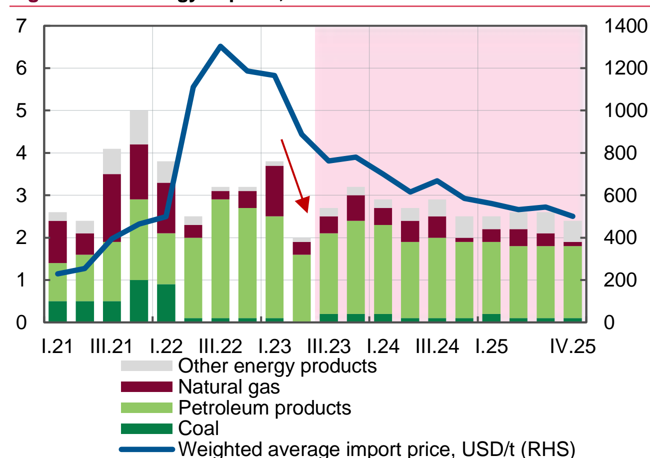
What is more, over the entire forecast horizon, export growth will be curbed by destroyed production facilities and relatively low harvests. A fall in global commodity prices will be an additional factor.

At the same time, other sources of the private sector's FX inflows will rise at a steady pace. Thus, a rebounding in the global economy and a decline in security risks will help exports of IT services return to growth in 2024–2025, following a drop in 2023. Meanwhile, more robust economic growth in host countries, coupled with an increase in seasonal labor migration, will put remittances back on the track for growth starting in 2024. Furthermore, it is expected that the private sector will start borrowing again and that FDI inflows will resume from 2025.

Reviving consumer and investment demand will increase FX outflows in H2 2023 and maintain them at a high level in future

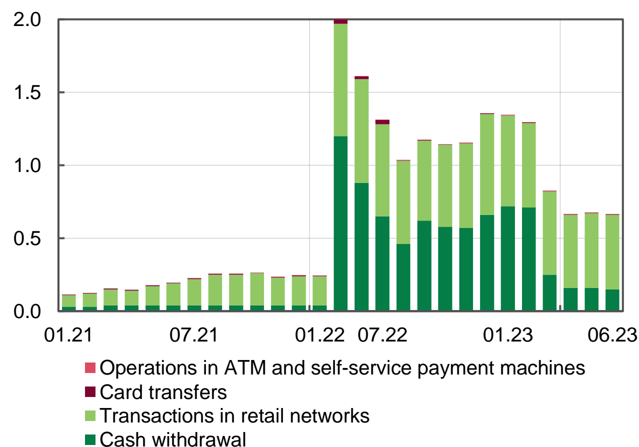
FX outflows declined in Q2 mainly due to lower energy imports. Import volumes of oil products dropped because of

Figure 2.5.5. Energy imports, USD bn



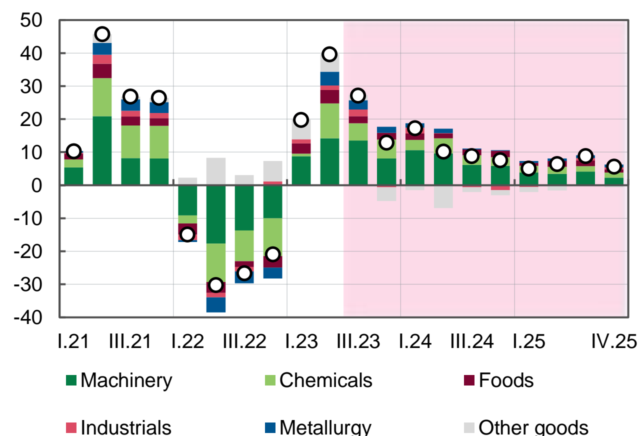
Source: NBU staff estimates.

Figure 2.5.6. Transactions (hryvnia and foreign currencies) with cards of Ukrainian banks abroad*, USD bn



* Data for February – April 2022 are not available.
Source: NBU.

Figure 2.5.7. Contributions to annual change in non-energy imports, pp



Source: NBU staff estimates.

the substantial stocks of these products and the stable operation of the energy sector, while a rise in domestic production decreased gas and coal import volumes. Coupled with a further fall in global prices, this resulted in a significant reduction in energy imports. Imports of emergency power supply goods also shrank thanks to there being no systematic power shortages. What is more, there was a decrease in imports of fertilizers, plant protection products and seeds. Conversely, imports of defense products rose. Metallurgical imports grew, driven by the recovery of infrastructure. Meanwhile, the scheduled repairs of energy facilities pushed up imports of some industrial equipment. Larger investment in logistical capabilities and improved exchange rate expectations thanks to the strengthening of the cash hryvnia exchange rate stimulated imports of vehicles.

Imports of travel services also dropped due to a decrease in cash withdrawals from cards abroad, which could be the result of a narrower spread between the official and cash hryvnia exchange rates and more effective financial monitoring and currency supervision measures.

At the same time, an increase in FX cash outside the banking system remained an important reason for FX outflows. More specifically, cash withdrawals via cash desks have risen since the beginning of 2023, which may be attributed to declining interest in FX deposits due to the narrower spread between the exchange rates. Improved exchange rate expectations will slow the growth in FX cash in the coming periods.

Imports of travel services are expected to decline gradually, as Ukrainian migrants return home.

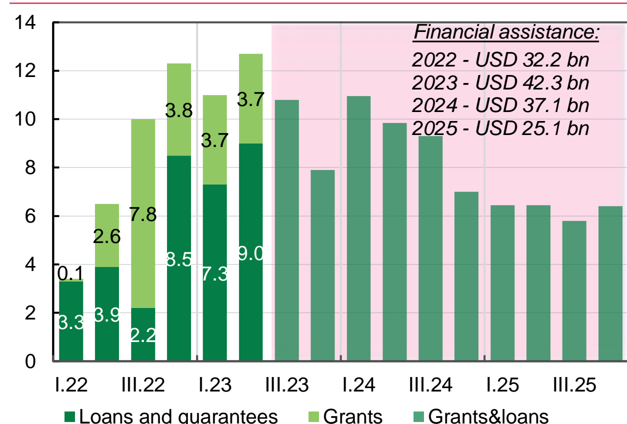
That said, FX outflows will remain substantial, despite a drop in energy imports resulting from a fall in global energy prices. Elevated domestic demand, together with significant budgetary expenditures, will push up non-energy imports in 2023–2025. In particular, the need for imported goods will be high, driven by the continued rebuilding of infrastructure, repairs and reconstruction. Improved consumer sentiment and the return of migrants will push up imports of food and industrial goods. An increase in sown areas will drive up imports of fertilizers.

International financial assistance will ensure a net FX surplus and a rise in gross reserves over the forecast horizon

In Q2 2023, international aid was one of the major contributors to an increase in net FX inflows. More specifically, official financing in Q2 rose to USD 12.7 billion. The bulk of this financing was provided by the EU, the United States, and the IMF. In H1 2023, USD 23.6 billion arrived from Ukraine's international partners, while since the start of the full-scale invasion the country has received USD 55.9 billion.[29] As a result, Ukraine's international reserves had reached an all-time high of USD 39 billion by the end of June, standing at almost 100% of the required minimum according to the IMF ARA metric.[30]

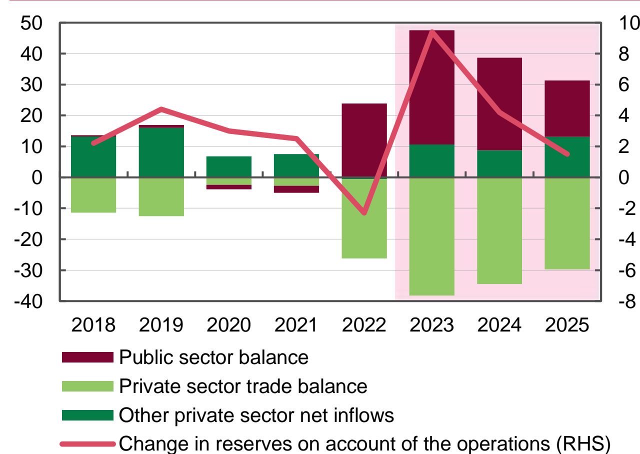
[29] As of 30 June 2023.
[30] Since 24 February 2022, with a view to calculating the IMF minimum required composite measure, Ukraine has been using the formula for a fixed exchange rate and capital control measures.

Figure 2.5.8. International financial assistance, USD bn



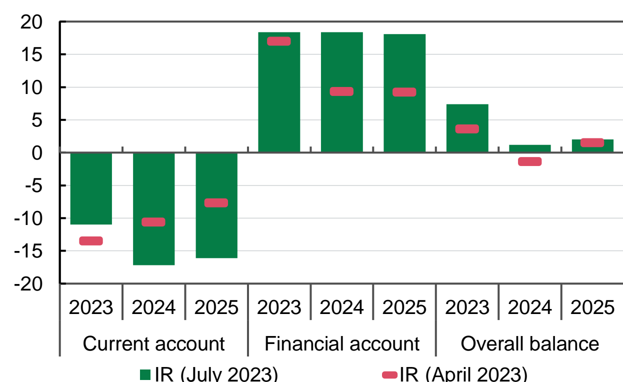
Source: NBU, MoF, data from the open sources, NBU assumptions.

Figure 2.5.9. Gross international reserves, changes on account of selected operations, USD bn



Source: NBU staff estimates.

Figure 2.5.10. Balance of payments forecast comparison, USD bn



Source: NBU staff estimates.

International aid will remain the main source of FX inflows over the forecast horizon. This will offset significant net FX outflows from the private sector, and increase international reserves to USD 44.1 billion in late 2025.

Increased official financing is mainly responsible for the improved balance of payments and reserves forecast

The longer-lasting blockade of sea ports and the consequences of the blowing-up of the Kakhovka HPP (read more in the Box *The Repercussions of the Destruction of the Kakhovka Hydro-Power Plant* on page 21) worsened the forecast for the exports of goods. Meanwhile, the forecast of imports of goods for 2024–2025 has been revised upwards due to expectations of increased budgetary expenditures, the higher need for imported goods to revive the economy, and a stronger REER of the hryvnia. The increase in the deficit in the trade in goods is only partly offset by the decline in imports of services. Thus, the forecast for imports of travel services has been revised downward due to decreased cash withdrawals and the faster adaptation of Ukrainians to living abroad.

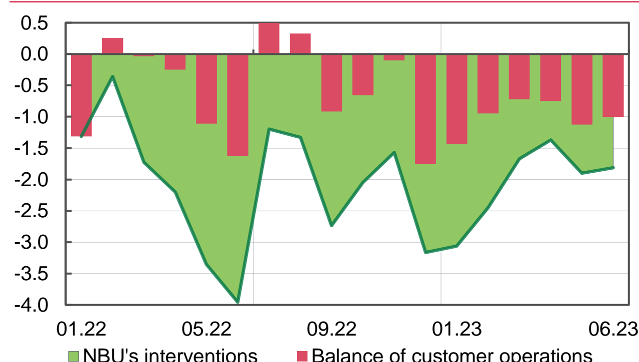
Apart from that, the distribution between grants and loans has been revised, with the share of loans being increased. This also pushed up the current account deficit. The deficit forecast for 2024 has been revised upward, to USD 17.2 billion (up from USD 10.6 billion in the previous forecast), while that for 2025 has been increased, to USD 16.1 billion (up from USD 7.7 billion).

At the same time, financial account inflows have been revised upward, to USD 18.4 billion in 2024 (up from USD 9.3 billion in the previous forecast), and to USD 18.1 billion in 2025 (up from USD 9.2 billion). These changes to the forecast were mainly caused by the upward revision of assumptions about international financial assistance, which will cover higher budget needs in the coming years. This will fully offset the increase in FX cash outflows outside the banks resulting from longer-lasting high security risks. Thus, the balance of payments and international reserves forecast has been improved over the entire forecast horizon.

2.6. Monetary Conditions and Financial Markets

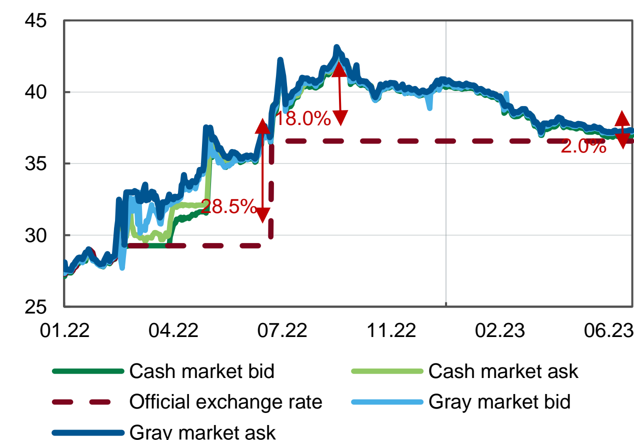
- Measures taken by the NBU helped improve the FX market situation and exchange-rate and inflation expectations, and facilitated a sharp decline in inflation and the recovery of the growth in hryvnia term deposits. This enabled the NBU to launch the cycle of key policy rate cuts earlier than predicted in the previous forecast.
- Going forward, the NBU will cut the rate gradually in order to maintain the attractiveness of hryvnia assets. This will reduce risks to the FX market and inflation developments, and will help implement the Strategy for Easing FX Restrictions, Transitioning to Greater Exchange Rate Flexibility, and Return to Inflation Targeting.
- The NBU's interventions will remain the primary long-term tool for balancing the FX market. At the same time, if the relevant macroeconomic preconditions are met, the NBU will further ease its FX restrictions and subsequently move to greater exchange-rate flexibility.

Figure 2.6.1. Bank clients' FX transactions and NBU interventions*, USD bn



* Net sale and purchase of noncash and cash foreign currency by bank clients (Tod, Tom, Spot).
Source: NBU.

Figure 2.6.2. Hryvnia exchange rates, UAH per USD



Source: NBU, open data sources.

Figure 2.6.3. REER and NEER indices, 06.2015 = 1

Source: IFS, NBU staff estimates.

The NBU's measures amid unwavering international support helped shore up the sustainability of the FX market.

The NBU's consistent policy of making hryvnia assets attractive bolstered the sustainability of the FX market in Q2. FX demand fell, the hryvnia appreciated in the cash market, and the NBU significantly curtailed its interventions (to USD 5.1 billion from USD 7.2 billion in Q1). Exchange rate expectations also improved materially. This was facilitated, among other things, by further growth in international reserves thanks to regular international aid inflows.

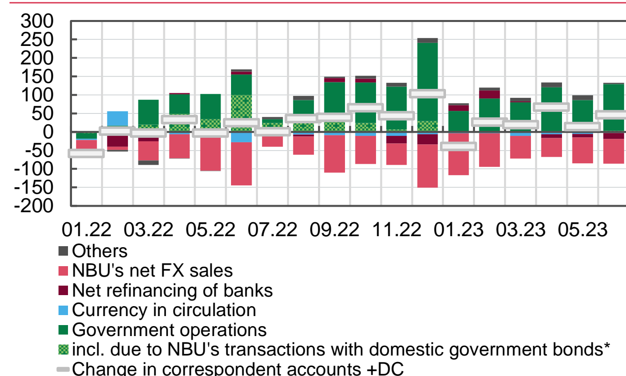
In the cashless market, FX supply shrank, but demand fell even more steeply. As before, FX supply was primarily generated by agribusiness companies. Its reduction in Q2 is related to the drawdown of reserves, the presence of obstacles to exports (for more, see the section Balance of Payments on page 32), and agribusinesses' decreased demand for the hryvnia. At the same time, the share of FX sales by metals-and-mining companies increased. FX demand fell primarily due to the decline in the volume of net FX purchases by the banks for their own positions. As in previous periods, settlements with international payment systems and bank transactions in the cash market had a major impact on said purchases. An important role in this was played by the NBU's financial monitoring and currency supervision measures.

On the other hand, demand from fuel-and-energy companies increased somewhat. This is in part due to planned repairs at these enterprises in May and a temporary increase in purchases of petroleum products in June (ahead of the return of pre-war taxes on these goods). Demand for FX from car importers also increased. In terms of volume, it almost matched the pre-war level, which is more evidence of the revival of economic activity.

The FX cash market also remained stable. The spread between the cash and cashless exchange rates narrowed to 2% at the end of June, down from more than 25% in mid-2022.

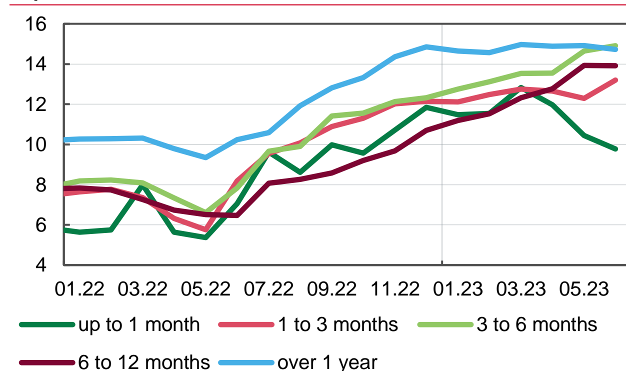
Although the nominal hryvnia-to-dollar exchange rate is fixed and inflation is higher than in Ukraine's MTPs, the hryvnia's REER weakened slightly in Q2 2023. This was a result of the U.S. dollar's depreciation against the currencies of many other countries, both developed and emerging. Although a transition to greater flexibility is expected in the future, the hryvnia's fluctuations against the U.S. dollar will still be

Figure 2.6.4. Factors affecting the banking system liquidity (correspondent accounts + CDs), UAH bn



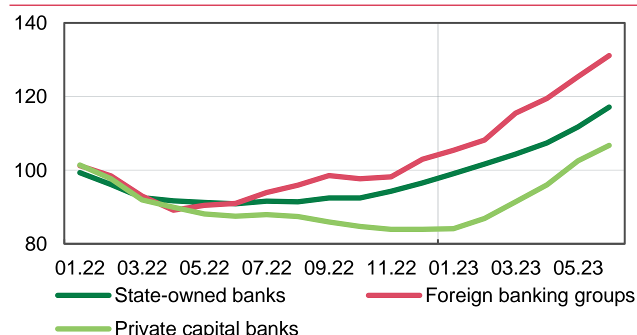
* The NBU's purchase of the war bonds (+) / principal and interest payments on government bonds (-) in the NBU's portfolio. Source: NBU.

Figure 2.6.5. Weighted average interest rates on hryvnia term deposits of individuals, %



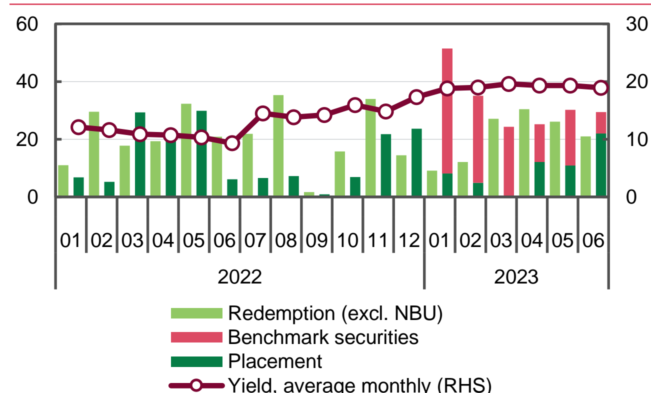
Source: NBU.

Figure 2.6.6. Hryvnia term deposits of individuals by bank group, 12.2021 = 100%



Source: NBU.

Figure 2.6.7. Placement* and redemption of domestic government T-bills & bonds, UAH bn and YTM



* Excluding hryvnia domestic government T-bills & bonds issued in December for recapitalization of Ukrfinzhytlo.
Source: NBU.

restrained by NBU interventions to maintain macrofinancial stability. This will make it possible to keep the hryvnia's NEER relatively stable over the forecast horizon, contributing to disinflation.

Despite a significant liquidity surplus, hryvnia assets grew more attractive due to the NBU's measures.

The banking system's liquidity surplus continued to grow in Q2: average daily balances of correspondent accounts and certificates of deposit rose to UAH 612 billion, up from UAH 520 billion. As before, significant government spending was the main source of this growth. As a result of the stabilization of the FX market and the improvement of exchange rate expectations, the impact of the NBU's FX interventions on liquidity declined. In Q2 2023, the ratio of government expenditures to FX sales by the NBU shrank to 57%, down from almost 80% in Q2 2022. Going forward, the banking system's liquidity may expand in view of significant STA balances and expected disbursements of international aid.

Despite the significant liquidity surplus, the real yield on hryvnia instruments increased, both due to the further growth in the banks' interest rates, and because of the steady decline in inflation and the improvement in expectations. In Q2, the weighted average interest rate on hryvnia term deposits of individuals increased by 1.2 pp, to 14.2%, while that on NFC funds rose by 0.8 pp, to 14.5%. The banks stepped up competition for retail term deposits, primarily those with maturities of three to six months. At many banks, rates on these deposits already cover expected inflation[31].

As a result, an uptrend in the volume and share of retail term deposits has taken shape. During the quarter, the volume of hryvnia retail term deposits grew to 13.5%. Their share of the total portfolio expanded by 1.9 pp, to 35.4% (90% of them having maturities of more than three months). The share of hryvnia NFC fixed-term deposits also increased, to 37.5%. However, unlike individuals' deposits, NFC deposits are mostly ultra-short-term (up to a month).

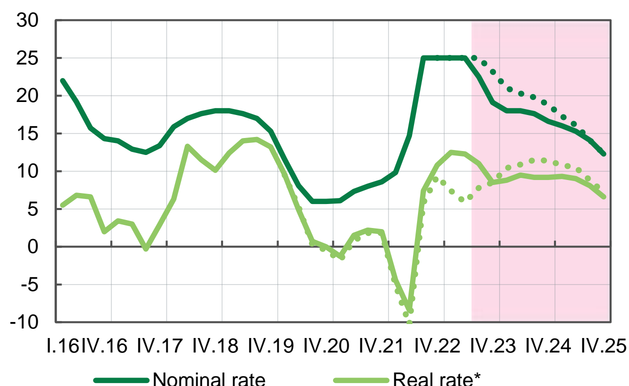
The yield on hryvnia domestic government debt securities also became increasingly attractive amid a lower inflation rate, upbeat macroeconomic prospects, and improved exchange-rate expectations. The yield curve in the primary market became practically level with that of the secondary market. Combined with expectations of an earlier launch of the cycle of key policy rate cuts than predicted by the NBU's April forecast, this incentivized market participants to take greater interest in government securities. The uptick in FOBs' participation helped increase the volume of placements of hryvnia domestic government debt securities in the primary market. Nonresidents' interest in hryvnia securities also recovered slowly.

A sharper decline in inflation and the stable situation in the FX market enabled the NBU to switch to a cycle of key policy rate cuts earlier than expected.

In July, the NBU lowered the key policy rate to 22% from 25%. The rate on overnight certificates of deposit was also reduced, by 2 pp, to 18%, as was the rate on refinancing

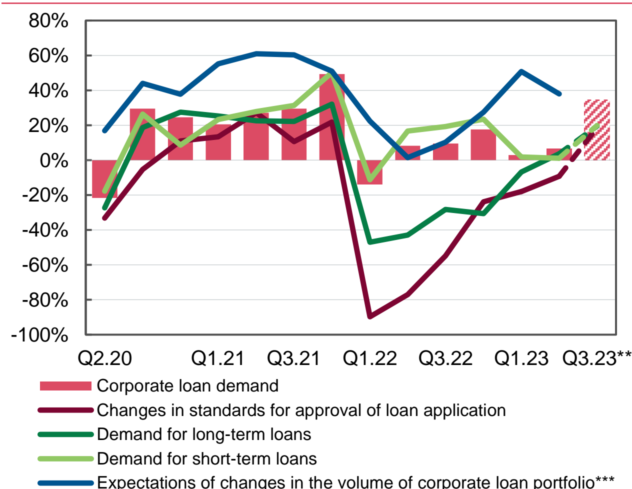
[31] Based on an Info Sapiens survey of households in June, respondents anticipated an inflation rate of 14% in the next 12 months.

Figure 2.6.8. Key policy rate, period average, %



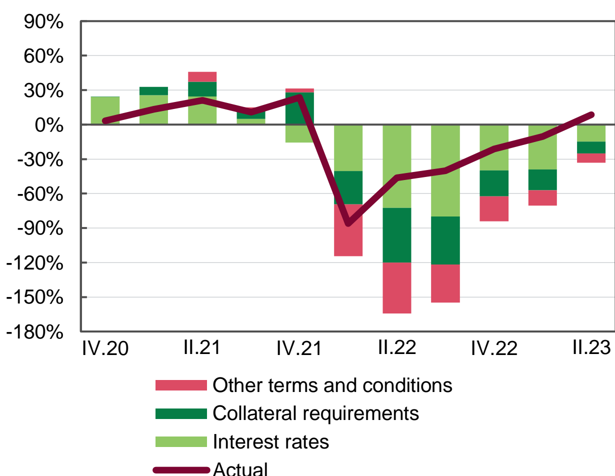
* Deflated by model expectations (QPM).
Source: NBU.

Figure 2.6.9. Corporate lending indicators (balance of responses*)



* Based on the results of the survey of bank lending conditions. The respondents are 26 banks, which jointly account for 96% of banking system assets.
** Values for Q2 2023 are projections.
*** Expectations for the next 12 months.
Source: Bank Lending Survey.

Figure 2.6.10. Changes in approval rates for corporate loan applications (balance of responses)



Source: Bank Lending Survey.

loans – by 3 pp to 24%. The interest rate on three-month certificates of deposit will continue to equal the key policy rate.

The sustained improvement in the macrofinancial situation enabled a transition to a cycle of key policy rate reductions ahead of the anticipated timeframe. Specifically, inflation fell sharply, FX market conditions had long been stable, international reserves were sustainably high, and previous measures to raise the investment appeal of hryvnia assets had proved effective. Should inflation will continue to slow, cuts to the key policy rate will not pose a threat to the attractiveness of hryvnia savings and the sustainability of the exchange rate. At the same time, the easing of the interest rate policy will support the recovery of the economy.

The NBU's revised macroeconomic forecast envisages further key policy rate cuts. The key policy rate will be cut gradually so as not to undermine either the trend towards a steady decline in inflation or FX market stability. The main prerequisite for this is maintaining the attractiveness of hryvnia assets at a sufficiently high level, which would protect hryvnia savings from being eroded away by inflation. In late June, the NBU approved the Strategy for Easing FX Restrictions, Transition to Greater Exchange Rate Flexibility, and Return to Inflation Targeting, which was one of the structural benchmarks under the IMF's Extended Fund Facility. Some FX restrictions have already been eased.

Despite the faster transition to lowering the key policy rate, monetary conditions will remain rather tight. The banks' interest rates on deposits will decrease gradually due to the lagged impact of the NBU's previous measures (the increase in the reserve requirement ratios and the change in operational design). At the same time, high security risks will remain the main obstacle to reducing loan rates. According to surveys, however, the banks are becoming optimistic again: they are already incorporating a lending recovery in their business plans and stand ready to expand their portfolio. For the first time since the full-scale invasion started, respondents in the Q2 Bank Lending Survey noted growth in the demand for loans and the number of corporate loan application approvals. As security risks subside and the macroeconomic environment improves, market-driven bank lending will recover. State support programs will have a significant impact on the development of lending in the future. The revival of lending will give an additional impetus to the return of sustainable economic growth.

Box 4. Transmission of NBU Key Policy Rate to Rates on Households' Hryvnia Term Deposits

Influencing banks' deposit[32] rates so as to create incentives for households to increase their savings is an important transmission channel of monetary policy. This is especially true in the current environment, when other channels are rather weak due to the fixed exchange rate regime, high risk premiums, and when lending is suppressed by supply and demand factors. The impact of the NBU's monetary policy on deposit rates is primarily realized through changing the key policy rate, and through the operational design of monetary policy. At the same time, deposit rates respond to impulses from the key policy rate gradually, asymmetrically, and to a varying degree – which may change over time. Additional measures taken by the central bank can strengthen monetary transmission.

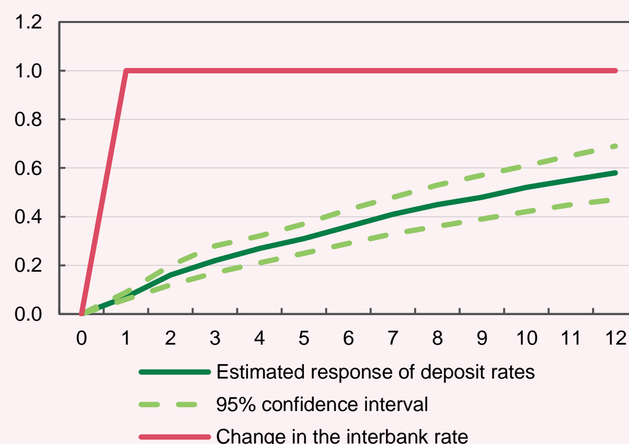
The impact on deposit rates is an important transmission channel for monetary policy. The attractiveness of hryvnia assets is taken into account by households when choosing between consumption and saving, as well as when deciding in which currency to hold their savings: national or foreign currency. As such decisions have a significant impact on exchange rate and inflation dynamics, they also influence how effectively the central bank achieves its goals. This is especially true when other monetary transmission channels are considerably weakened by the fixed exchange rate regime, administrative restrictions on FX transactions and international capital flows, and rising credit risks and uncertainty. Therefore, it is natural that the NBU's monetary policy at the stage of curbing inflation and depreciation processes was focused, in particular, on creating incentives for the banks to raise deposit rates, which should further prompt households to behave in a certain way. To achieve these goals, the NBU primarily used the key policy rate and other rates on its own operations with the banks. The NBU also made extensive use of other instruments.

The transmission of the key policy rate to deposit rates is for the most part gradual and incomplete. The NBU's key policy rate has a direct impact on the interbank overnight rate. The latter can fluctuate within the range of interest rates on standing facilities, and therefore reflects the state of monetary conditions more accurately than the key policy rate, as it partially takes into account the operational design of monetary policy.

The subsequent transmission of the interbank overnight rate to banks' deposit rates is generally slower, and incomplete. The maximum impact is achieved over a horizon of 8–18 months. The NBU's estimates[33] of the response of the weighted average rate on households' hryvnia term deposits to changes in the interbank overnight rate (UONIA since mid-2020) show that the strength of the long-term transmission in Ukraine is around 0.6. In other words, if the interbank rate changes by 10 pp, deposit rates should be expected to change by 6 pp over a 12-month horizon.

The response of deposit rates to changes in the interbank rate is asymmetric. The banks are usually more willing to cut deposit rates than to raise them (in part due to their wish to reduce interest costs). Therefore, the transmission strength of an increase in the key policy rate and the UONIA is smaller than that of a decrease.

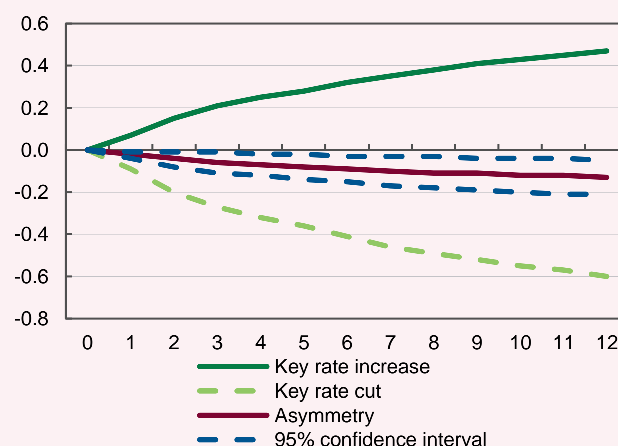
Figure 1. The response of the deposit rate to changes in the interbank overnight rate, %



Source: NBU staff estimates.

If the interbank rate increases by 10 pp, deposit rates in Ukraine will rise by 4.7 pp on average, while a 10 pp cut in the rate will drive deposit rates down by 6.3 pp.

Figure 2. Transmission from the overnight interbank rate increase/decrease to deposit interest rates, %



Source: NBU staff estimates.

The strength of transmission depends on a number of factors that determine the behavior of banks and their customers. The NBU's estimates demonstrate that in Ukraine, the strength of monetary transmission through the deposit channel is greatly influenced by economic uncertainty, the level of liquidity and competition in the banking system, inflation, and monetary policy measures.

[32] This box examines households' hryvnia term deposits and their weighted average interest rates. Households include individuals and sole proprietors.

[33] The estimates were calculated on the basis of monthly data from January 2015 to May 2023 using ARDL (Autoregressive Distributed Lag) models.

Table 1. Factors affecting the strength of transmission from interbank rate to deposit rates

Factor	Variable	Coefficient
	Constant	1.49***
Uncertainty	The ratio of M0 to M3, %	-0.024***
	Annual exchange rate expectations of households, UAH/USD	-0.003*
Liquidity	The ratio of average daily stock of deposit certificates (CDs) to liabilities of banks, %	-0.013**
Level of competition	Herfindahl-Hirschman index for the households' term deposits market, %	-0.005*
Inflation	Consumer price index, yoy, %	0.002***
Monetary policy measures	Required reserves ratios, %	0.007***
	The share of CDs with a maturity of more than one day in the total amount of CDs, %	0.0004*
R^2	0.84	

***, **, * – statistical significance at the 1%, 5%, and 10% levels, respectively.

Economic uncertainty negatively affects the strength of transmission. In turbulent conditions, the banks are less likely to change deposit rates sharply: the risk of deposit outflows prevents them from cutting rates, while there is a risk of a loss of profits from a significant increase in interest costs. Under such conditions, depositors also become more cautious, less sensitive to minor changes in deposit rates, and seek to keep most of their funds in the most liquid form. Signs of increased uncertainty may include a rise in the share of cash in the money supply and worsening devaluation expectations among households.

High levels of liquidity reduce incentives to compete for depositors by raising deposit rates. Significant market monopolization, as measured by the Herfindahl-Hirschman index, also hinders transmission. Influential market makers determine the dynamics of deposit rates that are favorable to them, and they care little about the reaction of competitors and the possible loss of customers.

The impact of inflation on the strength of transmission is explained, in part, by the need to index deposit rates. Higher inflation usually requires a more significant increase in interest rates to keep them attractive in real terms, while lower inflation allows for lower rates without the threat of deposit outflows.

If necessary, additional measures and monetary instruments are used to strengthen transmission and create appropriate monetary conditions. In practice, the tightness of monetary conditions is dependent not only on the key policy rate, the UONIA, or even the weighted average of rates on NBU certificates of deposit (CDs). It is possible to offset or enhance the impact of the above factors and shape the appropriate behavior of banks, including their deposit pricing policy, not only through changing the level of interbank rates. Also important are the operational design of monetary policy, the level and mechanism for calculating required reserves, various administrative restrictions, and so on.

For example, raising the required reserve ratio for retail demand deposits and current accounts increases the attractiveness of term funding for banks by reducing its opportunity cost, as well as reducing the amount of spare liquidity. This encourages banks to attract term deposits, including by raising interest rates. The option of investing spare liquidity in longer-term CDs with higher yields also creates room for banks to raise deposit rates.

Under the influence of the above factors and the NBU's monetary measures, the transmission strength changes over time. According to the NBU, the transmission strength in 2015–2019 fluctuated mainly between 0.6 and 0.8. However, it has been weakening since H2 2019. The reasons for this include an increase in the structural liquidity surplus in the banking system and higher uncertainty – first during the coronavirus crisis, and then as a result of russia's full-scale invasion.

Figure 3. The dynamics of long-run transmission from interbank rate to deposit rates[34]

Source: NBU staff estimates.

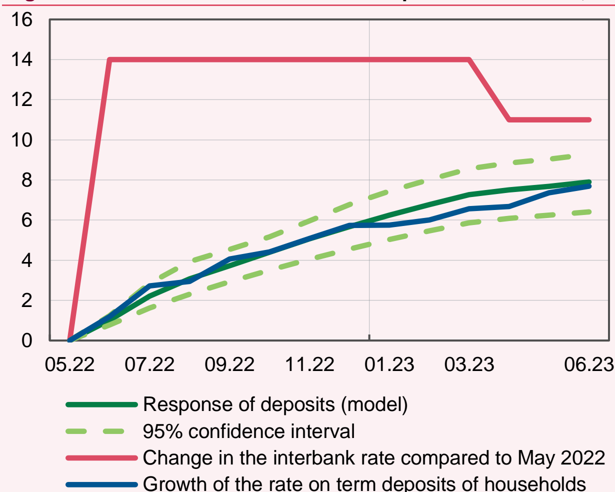
A substantial monetary impulse in June 2022 turned the trend toward a strengthening in transmission. In June 2022, the NBU raised its key policy rate from 10% to 25%. This also caused a significant increase in the UONIA. The unusually strong rate hike was needed to compensate for the cumulative negative impact of a wide range of factors that limited transmission and thus the NBU's ability to ensure exchange rate and price stability during the war. The key factors included a large liquidity surplus in the banking system, a highly concentrated deposit market (the five largest banks accounted for more than ¾ of all households'hryvnia deposits as of June 2022), and a significant increase in liquidity preferences and precautionary motives during the period of high uncertainty.

The NBU's additional measures helped ensure that transmission strength was close to the expected level. The growth in deposit rates after the NBU's key policy rate hike was close to the estimated trajectory.

However, in late 2022, the monetary impulse began to weaken prematurely. This was caused by the liquidity surplus widening further and becoming concentrated in a few market-making banks due to the uneven redistribution of large social payments and military pay.

[34] The results of Bayesian estimation of TVP (Time-Varying Parameters) ARDL, where each coefficient is time-varying. The evolution of the coefficients allows to calc

Figure 4. Modeled and actual values of deposit interest rates, %[35]



Source: NBU staff estimates.

To strengthen monetary transmission and avoid a further expansion of the liquidity surplus, the NBU developed and implemented a set of measures. In January-March 2023, the central bank significantly increased the required reserve ratios for demand deposits and the current accounts of individuals. Later, the NBU introduced changes to the mechanism for calculating required reserves and to the operational design of monetary policy. The latter included a number of incentives to increase competition among banks for hryvnia term deposits:

1) introducing three-month CDs with a yield of 25%, while before the changes in the operational design, the rate on overnight CDs was 23% (additional room for raising deposit rates)

2) reducing the rate on overnight CDs to 20% (increased differentiation of rates on CDs of different maturities)

3) linking the option for the banks to invest in three-month CDs to the volume of hryvnia deposits attracted from households with an initial maturity of three months or more

4) applying a multiplier to compensate the banks for the difference in the cost of funding from term deposits and from funds on current accounts

5) providing a possibility to compensate part of the banks' interest expenses from the rollover of term deposit balances at the new increased rates by placing a part of the existing term deposit portfolio in three-month CDs.

Due to these measures, as well as due to verbal interventions by the NBU, the growth in interest rates on households' hryvnia term deposits has intensified and continues (despite the decline in the UONIA in April 2023). In the first six months of 2023, the volume of households' hryvnia term deposits grew by 23.3%, and their share in the total portfolio increased by 4.3 pp. Demand for foreign currency declined, which was also reflected in the significant strengthening of the hryvnia cash exchange rate since the start of 2023.

Thus, the NBU's measures had a positive impact on expectations, supported the disinflation trend, and helped further reduce risks to the FX market. All of this is an important element for ensuring exchange rate stability, while gradually easing the most burdensome FX restrictions and moving to a more flexible exchange rate in line with the approved Strategy.

Despite the key policy rate cut, the potential for growth in the maturities of households' term deposits has not yet been exhausted. In the three years prior to the full-scale invasion, the share of term deposits in total hryvnia retail deposits averaged around 50%. Therefore, there is still considerable room for growth in this indicator, provided that hryvnia savings remain sufficiently attractive.

According to NBU study given the continued high liquidity surplus, high concentration of the deposit market, steady disinflation, and a gradual decrease in uncertainty, nominal deposit rates are expected to decline more rapidly in response to the key policy rate cut.

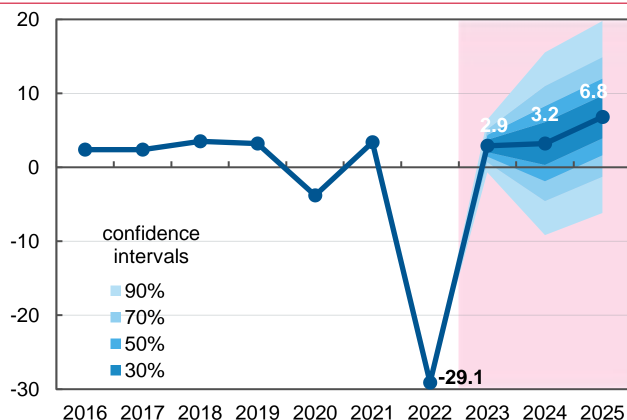
At the same time, due to the faster pace of decline in inflation and an improvement of expectations, real yields on hryvnia term deposits will remain high enough to maintain the attractiveness of hryvnia savings. The NBU will continue to take into account the need to maintain incentives to fuel competition among banks for retail term deposits when adjusting the parameters of operational design and required reserves.

[35] For modeling the deposit rates and confidence intervals were used estimates based on data from January 2015 to May 2023.

Part 3. Risks to the Forecast

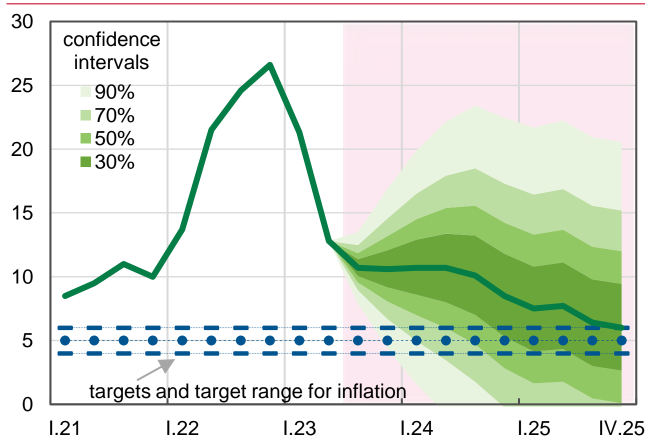
- The key assumption of this macroeconomic forecast is that security risks will subside significantly from H2 2024 forward, thanks to the successes of Ukraine's defense forces. Accordingly, the main risks to inflation dynamics and economic recovery are the longer duration and the unpredictable nature and intensity of the full-scale war.

Figure 3.1. Real GDP forecast, % yoy



Source: NBU staff estimates.

Figure 3.2. CPI forecast and inflation targets, % yoy



Source: NBU staff estimates.

The fan charts illustrate the projections for the key macroeconomic indicators. The confidence intervals which are symmetric represent the historical accuracy of the past forecasts dating back to 2016. They incorporate expert assessments of the recent economic conditions for the GDP projections. The confidence intervals widen over a two-year period and remain constant forward.

Ukraine's economy has been operating amid full-blown war for almost a year-and-a-half. The baseline scenario of the macroeconomic forecast is based on a conservative assumption that security risks will last longer than assumed by the previous forecast: they are expected to decline significantly only in the middle of next year. If the full-scale war lasts longer than expected, it could result in additional losses of economic growth, in particular through greater destruction and increased migration. This could also adversely affect price movements, mainly due to higher pressures on exchange rate and inflation expectations. Each month of hostilities leads to substantial losses of people and capital, and its continuation would considerably worsen the prospects for Ukraine's economy and further damage its development potential. In this scenario, the expected economic recovery would slow down, despite businesses' adaptation to the war. Accordingly, the labor market's recovery would be slower, both in terms of reducing unemployment and in the rise in wages. Inflation would be partially restrained by depressed demand and a possible further extension of the moratorium on raising tariffs for certain utility services. However, additional destruction of infrastructure and export logistics could threaten the stability of the FX market and lead to a deterioration in exchange rate and inflation expectations. This would subsequently be reflected in price dynamics. If such a scenario materializes, the NBU will maintain tighter monetary conditions.

A protracted war poses significant risks to public finances. A downturn in economic activity could lead to a decline in tax revenues, especially in the face of limited potential for expenditure optimization. Therefore, a prudent fiscal policy with the optimal use of available resources for the most important areas, including the defense sector and social programs, is extremely important. Given the unpredictable nature of the war, defense spending may increase. As a result, the budget deficit would widen, requiring additional sources of financing. Thus, there is a risk that the NBU would have to resume monetary financing if the government had no access to other sources of financing for critical expenditures. This risk might increase if international assistance decreases or becomes irregular. Under this scenario, depreciation and inflation expectations would rise, forcing the NBU to pursue a tighter monetary policy than envisaged in the baseline scenario. So a successful continuation of the IMF program is crucial for the sustainability of public finances.

A significant risk to the inflation forecast lies in the timing and parameters of a prospective correction to energy tariffs in the utilities sector. A rapid increase in the cost of energy for households could eliminate mismatches in the energy sector and improve the financial standing of state-owned energy companies. However, this would create significant

inflationary pressure, elevate social tensions, and notably increase the burden on the budget, through an increase in subsidies to households. On the other hand, postponing these decisions for a long time would lead to the accumulation of quasi-fiscal deficits and a deterioration in the financial standing of state-owned energy companies, creating the risk of an inflation surge in the future.

The risks that the aggressor will continue to attack energy and port infrastructure remain high. In the event of significant damage to the energy system, electricity shortages could increase, leading to more household and industrial consumers being cut off. This would have a negative impact on the pace of economic recovery, and GDP would grow more slowly than under the baseline scenario. Growing demand for imported energy and equipment would also worsen the balance of payments. In addition, further shelling of port infrastructure could negatively affect river and sea shipping. This would hamper logistics and complicate the exports of food products, as well as worsen the prospects for a post-war export recovery.

The risk remains of continued restrictions by neighboring European countries on imports of certain food products from Ukraine. Given the blockade of maritime transportation and the high load on river and land transport, this worsens the prospects for agricultural exports this year. The NBU estimates that additional losses will amount to approximately USD 500 million if such restrictions are extended until the end of 2023. It may also force some farmers to reduce their crops, which would affect next year's harvest. Such developments would depress economic activity and increase pressure on the exchange rate. However, in the short term, such restrictions will push down food inflation in Ukraine by increasing supply on the domestic market.

The new macroeconomic forecast is based on the conservative assumption that the grain corridor will remain blocked. The resumption of its operation or the development of alternative routes would help expand export opportunities, facilitating more robust economic recovery.

The risk that some of the people who left Ukraine will remain abroad may rise if hostilities increase significantly in duration and intensity, and critical infrastructure comes under further attack. In addition, in the post-war period, after men are allowed to cross the border, emigration may increase as families reunite abroad. Such an exodus would cause labor shortages and widen mismatches in the labor market, worsening the prospects for economic recovery. Rising labor costs for businesses would increase inflationary pressures, which would be partially offset by lower consumer demand. In the longer term, there is a risk that the demographic crisis will deepen as the younger generation does not return, due to adapting to living abroad.

Currently, the plans for Ukraine's post-war reconstruction involve close cooperation with international lenders and donors, as the investment required to repair damaged infrastructure and production facilities is already estimated to be in the hundreds of billions of U.S. dollars, and is growing every day. The expected inflows of funds for reconstruction

Degree of impact on the baseline scenario	Probability that a risk will materialize: Low (<15%)	Medium (15%–25%)	High (25%–50%)
Weak		Prolonged ban on Ukrainian food imports by some European countries Renewal of the grain corridor	
Moderate	Damage to energy and port infrastructure	Intensified emigration	
Strong		Imprudent public finance framework (budget monetization, decrease in international assistance, frozen utility tariffs) Rapid implementation of the large-scale reconstruction plan for Ukraine (the "Marshall Plan")	Prolonged war, escalation, eco-terrorism of the occupiers

are not included in the assumption of the baseline scenario of the macroeconomic forecast. However, amplified by European integration reforms, the implementation of such a program would help significantly accelerate economic growth in the short run. As a result, household income would grow much more quickly than the baseline scenario anticipates, which will somewhat raise underlying inflationary pressures. However, it would be offset by exchange rate effects as the country receives FX inflows and the risk premium declines. In such a way, the NBU would be able to ease its monetary policy at a faster pace.

Macroeconomic forecast (July 2023)

Indicators	2019	2020	2021	2022	2023						2024						2025					
				actual/ estimate	I	II	III	IV	current forecast	forecast 04.2023	I	II	III	IV	current forecast	forecast 04.2023	I	II	III	IV	current forecast	forecast 04.2023
REAL ECONOMY, % yoy, unless otherwise stated																						
Nominal GDP, UAH bn	3977	4222	5451	5191	1269	1514	1801	1941	6525	6510	1510	1756	2087	2267	7620	7700	1759	2052	2416	2603	8830	8910
Real GDP	3.2	-3.8	3.4	-29.1	-10.5	18.1	4.6	1.8	2.9	2.0	2.6	2.2	3.6	5.1	3.5	4.3	6.2	6.7	7.0	7.1	6.8	6.4
GDP Deflator	8.2	10.3	25.1	34.3	30.0	24.8	19.8	17.3	22.2	22.9	16.0	13.4	12.0	11.1	12.8	13.4	9.7	9.5	8.2	7.2	8.5	8.7
Consumer prices (period average)	7.9	2.7	9.4	20.2	-	-	-	-	14.7	17.1	-	-	-	-	10.4	12.8	-	-	-	-	7.1	7.6
Consumer prices (end of period)	4.1	5.0	10.0	26.6	21.3	12.8	10.5	10.6	10.6	14.8	10.7	10.6	10.3	8.5	8.5	9.6	7.5	7.7	6.4	6.0	6.0	6.0
Core inflation (end of period)	3.9	4.5	7.9	22.6	19.8	13.7	9.5	8.7	8.7	12.5	8.1	8.5	8.1	7.0	7.0	7.2	6.1	5.2	4.1	3.1	3.1	2.8
Non-core inflation (end of period)	4.8	5.9	13.5	30.6	22.8	11.7	11.6	13.2	13.2	17.7	13.9	13.1	12.8	10.3	10.3	12.2	9.0	10.5	9.0	9.3	9.3	9.6
raw foods (end of period)	3.9	4.1	11.8	41.6	31.6	18.2	11.5	13.3	13.3	18.7	11.4	10.5	10.5	7.7	7.7	5.0	6.1	4.4	3.5	2.8	2.8	3.1
administrative prices (end of period)	8.6	9.9	13.6	15.3	13.5	12.5	13.3	14.4	14.4	15.1	15.7	13.0	16.6	15.5	15.5	23.6	14.5	20.4	16.9	18.8	18.8	18.8
Nominal wages* (period average)	18.4	10.4	20.9	6.0	12.3	30.2	23.7	13.7	19.6	21.9	15.4	15.8	15.8	17.4	16.1	19.2	14.8	14.5	12.3	10.0	12.8	12.7
Real wages (period average)	9.8	7.4	10.5	-11.4	-9.5	12.9	11.3	3.3	3.9	3.7	4.0	4.3	4.5	7.7	5.2	5.7	6.5	6.4	5.2	3.4	5.4	4.9
Unemployment (ILO, period average)	8.2	9.5	9.8	21.1	-	-	-	-	19.0	18.3	-	-	-	-	16.9	16.5	-	-	-	-	14.4	14.7
FISCAL SECTOR																						
Consolidated budget balance, UAH bn	-87.3	-224	-187	-845	-	-	-	-	-1291	-1271	-	-	-	-	-1281	-811	-	-	-	-	-883	-577
% of GDP	-2.2	-5.3	-3.4	-16.3	-	-	-	-	-19.8	-19.5	-	-	-	-	-16.8	-10.5	-	-	-	-	-10.0	-6.5
Public sector fiscal balance (IMF methodology), UAH I	-89.2	-243	-206	-816	-	-	-	-	-1290	-1270	-	-	-	-	-1282	-810	-	-	-	-	-883	-578
% of GDP	-2.2	-5.8	-3.8	-15.7	-	-	-	-	-19.8	-19.5	-	-	-	-	-16.8	-10.5	-	-	-	-	-11.5	-7.5
BALANCE OF PAYMENTS (NBU methodology)																						
Current account balance, USD bn	-4.1	5.3	-3.9	7.9	-1.8	0.5	-3.1	-6.7	-11.0	-13.5	-4.6	-3.6	-3.5	-5.5	-17.2	-10.6	-4.2	-3.4	-3.9	-4.6	-16.1	-7.7
Exports of goods and services, USD bn	63.6	60.7	81.5	57.0	13.9	12.7	11.8	13.1	51.5	51.4	12.4	12.5	14.7	15.5	55.2	56.3	14.0	14.0	15.5	16.8	60.4	61.3
Imports of goods and services, USD bn	76.1	63.1	84.2	82.7	23.2	20.4	22.4	23.7	89.7	93.2	22.0	21.6	22.6	23.4	89.6	88.0	21.6	21.6	22.9	24.0	90.1	85.7
Remittances in Ukraine, USD bn	11.9	12.0	14.0	12.5	2.9	2.8	3.2	3.3	12.2	12.9	3.1	3.3	3.4	3.6	13.5	13.9	3.3	3.5	3.7	4.1	14.6	14.7
Financial account, USD bn	-10.1	3.3	-4.4	10.9	-5.6	-3.3	-5.4	-4.0	-18.4	-17.0	-5.8	-3.5	-5.0	-4.1	-18.4	-9.3	-3.8	-3.7	-5.1	-5.5	-18.1	-9.2
BOP overall balance, USD bn	6.0	2.0	0.5	-2.9	3.9	3.9	2.3	-2.6	7.4	3.6	1.2	-0.1	1.4	-1.3	1.2	-1.4	-0.4	0.4	1.2	0.9	2.0	1.5
Gross reserves, USD bn	25.3	29.1	30.9	28.5	31.9	39.0	40.6	38.3	38.3	34.5	39.6	40.9	42.9	42.6	42.6	36.1	41.8	42.2	42.9	44.1	44.1	37.1
Months of future imports	4.8	4.2	4.5	3.8	4.3	5.2	5.4	5.1	5.1	4.7	5.3	5.5	5.7	5.7	5.7	5.1	5.5	5.5	5.5	5.6	5.6	4.9
MONETARY ACCOUNTS (Cumulative since the beginning of the year)																						
Monetary base, %	9.6	24.8	11.2	19.6	9.0	14.5	16.7	24.1	24.1	24.9	0.7	4.9	8.0	15.5	15.5	17.1	-0.2	3.8	5.7	12.0	12.0	11.2
Broad money, %	12.6	28.6	12.0	20.8	2.3	9.1	13.2	19.2	19.2	19.2	0.0	3.9	7.6	12.6	12.6	16.3	1.9	6.3	8.8	13.0	13.0	11.7
Velocity of broad money (end of year)	2.8	2.3	2.6	2.1	-	-	-	-	2.2	2.2	-	-	-	-	2.3	2.2	-	-	-	-	2.3	2.3

* - Until 2022 - the average nominal wages of full-time employees, since 2023 - nominal wages in the compensation of employees according to the system of national accounts

Forecast assumptions

Indicators		2020*	2021*	2022*	2023	2024	2025
Full access to Black Sea ports				-	-	since H2	+
Official financing	USD bln			32.2	42.3	37.1	25.1
Migration (net, excluding russia and belarus)	mln people				0.1	0.5	0.8
Real GDP of Ukraine's MTP (UAwGDP)	% yoy	-3.4	6.5	3.5	1.7	2.9	2.9
Consumer inflation in Ukraine's MTP (UAwCPI)	% yoy	2.1	6.4	14.0	5.7	3.8	3.3
World prices:**							
Steel price, Steel Billet Exp FOB Ukraine	USD/t	389.4	615.0	618.1	579.6	549.3	497.2
	% yoy	-5.2	57.9	0.5	-6.2	-5.2	-9.5
Iron ore price, China import Iron Ore Fines 62% FE	USD/t	108.9	161.7	121.4	113.3	82.8	74.7
	% yoy	16.1	48.5	-24.9	-6.7	-26.9	-9.8
Steel price, No.1 Hard Red Winter, ordinary protein, Kansas City	USD/t	185.5	263.5	360.2	307.9	272.6	251.8
	% yoy	12.6	42.0	36.7	-14.5	-11.5	-7.6
Corn price, Yellow #2 Delivery USA Gulf	USD/t	165.5	259.4	318.4	267.5	229.2	215.8
	% yoy	-2.7	56.7	22.7	-16.0	-14.3	-5.8
Oil price, Brent	USD/bbl	42.3	70.4	99.8	82.0	80.7	69.5
	% yoy	-33.9	66.4	41.8	-17.8	-1.6	-13.9
Natural gas price, Netherlands TTF	USD/kcm	114.9	574.8	1355.9	584.4	532.3	431.8
	% yoy	-28.7	400.3	135.9	-56.9	-8.9	-18.9
Volumes of gas transit	bcm	55.8	41.6	20.6	15.0	15.0	15.0
Harvest of grain and leguminous crops	m t	64.9	86.0	53.9	46.8	48.9	51.8
Minimum wage**	uah	4815	6042	6550	6700	7665	8200

** Actual data.*

*** Annual average.*

Terms and Abbreviations

GDP	Gross domestic product
IDP	Internally displaced person
STSU	State Treasury Service of Ukraine
SCSU	State Customs Service of Ukraine
CD	Certificates of deposit
SSSU	State Statistics Service of Ukraine
SES	State Employment Service
EBA	European Business Association
STA	Single Treasury Account
EU	European Union
ECB	European Central Bank
IER	Institute for Economic Research
CPI	Consumer Price Index
MPC	Monetary Policy Committee
KIIS	Kyiv International Institute of Sociology
QPM	Quarterly Projections Model
IMF	International Monetary Fund
IOM	International Organization for Migration
ILO	International Labour Organization
SMEs	Small and medium enterprises
IFI	International financial institution
MFU	Ministry of Finance of Ukraine
NBU	National Bank of Ukraine
NEER	Nominal effective exchange rate
T-bills&bonds	Domestic government debt securities
UN	United Nations Organization
OPEC	Organization of the Petroleum Exporting Countries
MTP	Main trading partner
VAT	Value-added tax
PFU	Pension Fund of Ukraine
REER	Real effective exchange rate
russia	russian federation
U.S.	United States of America
UEEX	Ukrainian Energy Exchange
Fed	U.S. Federal Reserve System
CB	Central bank
CES	Centre for Economic Strategy
CEE	Central and Eastern Europe
EM	Emerging market
IIF	Institute of International Finance
PMI	Purchasing Managers' Index
UAwCPI	Weighted average of the CPI in Ukraine's MTP countries
UAwGDP	Weighted average of economic growth in Ukraine's MTP countries
UIIR	Ukrainian Index of Interbank Rates

m	million
bn	billion
UAH	Ukrainian hryvnia
USD	U.S. dollar
p	point
bp	basis point
pp	percentage point
bbl	barrel
yoy	in annual terms; year-on-year change
qoq	in quarterly terms; quarter-on-quarter change
sa	seasonally adjusted
mom	in monthly terms; month-on-month change month-on-month
RHS	Right-hand scale