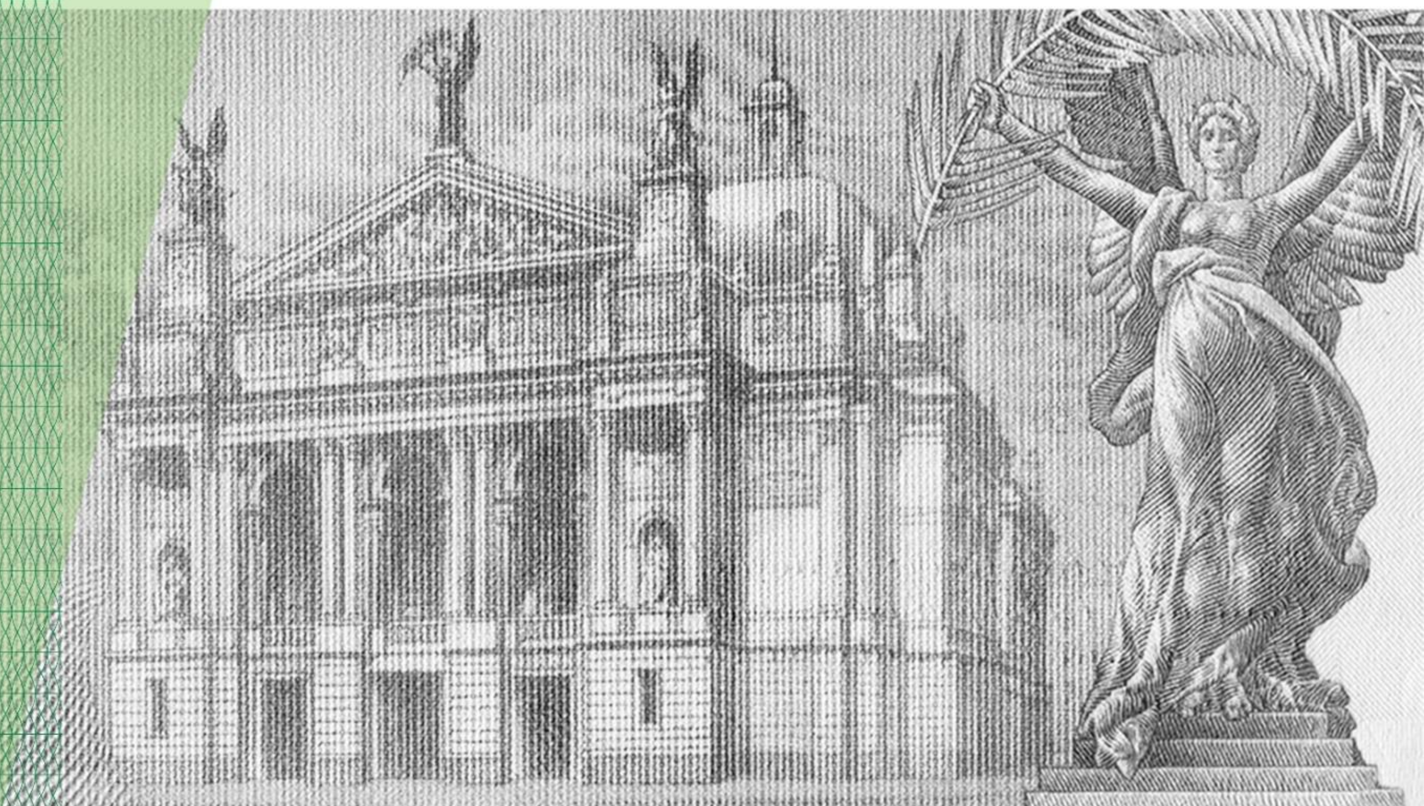
National Bank
of Ukraine

Inflation Report

January 2023



Lower effectiveness of market instruments and high uncertainty caused by full-scale hostilities made the usual inflation targeting framework of monetary policy impossible. To maintain macroeconomic stability in Ukraine, ease the panic, and prevent the inflationary spiral, the NBU was forced to fix the UAH/USD exchange rate at the start of the full-scale war and impose a number of administrative restrictions, including those on FX transactions and capital movements.

The said changes to the monetary policy principles were approved by the Monetary Policy Guidelines for the Duration of Martial Law. At the same time, this document formalized the NBU's commitment to the traditional inflation targeting format and its obligation to gradually return to principles and tools of this monetary regime as the economy gets back to normal.

The NBU has already taken the first steps to return to market-driven management of the financial system. In June 2022, the central bank has resumed conducting an active interest rate policy by hiking its key policy rate. The NBU had also been gradually winding down monetary financing of the budget to cease it from the start of 2023. In the meantime, the fixed UAH/USD exchange rate remains the key stabilization instrument of the monetary policy under current conditions. The NBU is taking measures to balance the FX market and make the transmission mechanism of the key policy rate more effective, which are the preconditions for the NBU's return to the traditional inflation targeting regime.

The analysis in the current Inflation Report (January 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 25 January 2023 for the majority of indicators. The Inflation Report contains a forecast of 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 26 January 2023.[1]

The NBU Board will continue to decide on the level of the key policy rate and the application of other monetary instruments in line with the schedule 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 makes its interest rate decisions based on results of the assessment of risks and uncertainly taking into account new economic developments in Ukraine and beyond that have emerged since the latest forecast.

The NBU Board announces its decisions on the level of the key policy rate and the application of other monetary instruments at a press briefing held on the same day at 2 p.m., after the NBU Board's monetary policy meeting. 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 depersonalized opinions of all MPC members on the optimal monetary policy decisions to be made. That 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 time series and data for tables and figures are available here.

[1]NBU Board decision No. 35 *On Approval of the Inflation Report* dated 26 January 2023.

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Summary

The baseline scenario of the macroeconomic forecast is a program forecast, as it takes account of effects from taking a number of necessary measures in the area of the state economic policy implementation. In particular, it is based on assumptions of entering a new IMF program, conducting coordinated monetary and fiscal policies, and gradually neutralizing quasi-fiscal imbalances, in particular in the energy sector. In addition, the baseline scenario assumes a significant decline in security risks from the start of 2024, which would contribute to complete unblocking of seaports, a decrease in sovereign risk premiums, and return of displaced persons to Ukraine.

Inflation has stabilized in the past months but is still high

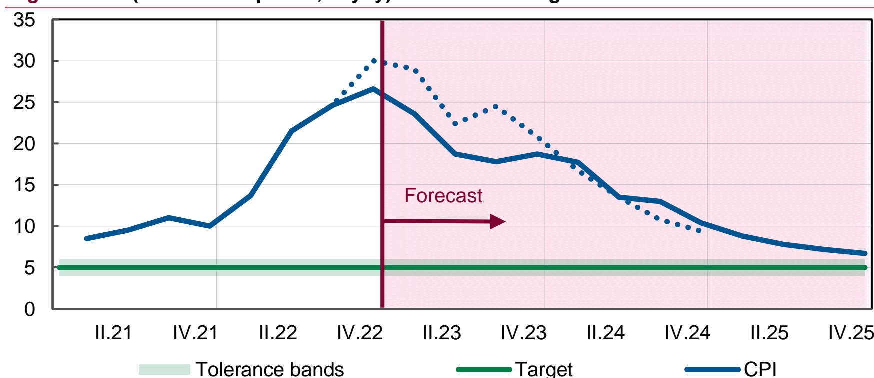
As of the end of 2022, consumer prices grew by 26.6%. At the same time, in the past three months, inflation remained almost unchanged in annual terms. The de-occupation of territories, an increase in supply of food products, and consumer demand being dampened by russia's energy terror helped stabilize the inflationary pressure. Inflation was also restrained by unchanged utility tariffs, the fixed exchange rate of the hryvnia, and improved logistics. The NBU's measures, in particular to introduce deposit instruments to hedge the FX risk, as well as limited volumes of monetary financing of the budget, contributed to a more stable FX market at the end of 2022.

At the same time, the price pressure remained strong due to consequences of the war, such as the destruction of enterprises and infrastructure and disruption of production and supply chains. Moreover, business costs continued to grow on the back of russia's energy terror. Despite a stabilization, inflation expectations remained high.

Inflation will decline gradually and will remain under control thanks to measures taken by the NBU and the government and the support provided by international partners

The NBU forecasts inflation will slow to 18.7% in 2023, supported by monetary conditions remaining tight, global inflation declining, and consumer demand being dampened by power shortages. Inflows of announced international assistance and joint efforts of the NBU and the government to revive the domestic debt market will help avoid monetary financing of the budget deficit and balance the FX market.

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



Source: SSSU, NBU staff estimates.

In the next years, inflation will decelerate more rapidly thanks to subsiding security risks, proper recovery of logistics, and larger harvests. The NBU expects inflation to decline to 10.4% in 2024 and 6.7% in 2025. The administered prices will make a major contribution to inflation during these years due to the need to bring utility tariffs to cost-covering levels.

The economic recovery ceased due to russia's terror attacks against energy infrastructure. As security risks subside, Ukraine will return to steady economic growth in 2024–2025

Russia's energy terror deepened the decline in Ukraine's GDP in Q4 2022 (to 35% yoy). Trade businesses and the services sector adapted to power outages rather quickly. The impact on agriculture was also limited. On the other hand, industrial production was affected heavily, especially the metallurgy. At the same time, thanks to improved results of Q3 and the rapid adaptation of a part of businesses and households to the new conditions, estimates of the decline in real GDP for the whole 2022 were improved to 30.3%.

The NBU expects growth in real GDP to be weak in 2023, at 0.3%. The downward revision of the forecast compared to the October estimates was primarily caused by consequences of energy terror and the modification of the main assumption of the duration of security risks. The latter will delay the full unblocking of ports, which will limit the potential of recovery in exports. Moreover, the NBU expects harvests will also be weaker this year as a result of accumulated problems with sowing and harvesting amid the war. At the same time, the forecast assumes Ukraine will manage to avoid further significant destruction of its energy infrastructure while businesses and authorities will take effective measures to neutralize the consequences of the damage inflicted earlier.

The economy will grow in 2024–2025, driven by a decline in security risks, along with a resumption of proper operation of ports, an increase in harvests, a gradual recovery in production, an improvement in logistics, and a pick up in domestic demand, including thanks to the return of displaced persons. The loose fiscal policy will also to play an important role. All of the above will push up Ukraine’s real GDP by 4.1% in 2024, and in 2025 economic growth will accelerate to 6.4%.

Limited exports, a large number of migrants abroad, and the economy’s large needs for imports to carry out the reconstruction will cause the current account deficit to be high in the coming years

In the past months, exports of Ukrainian goods remained stable despite massive missile attacks and russia’s efforts to disrupt the operation of the grain corridor. On the other hand, imports rose significantly compared to previous periods due to the need to purchase backup power devices and fuel as a result of the energy terror. This led to an increase in the deficit of the trade balance. The trade deficit was offset by inflows of official financing, including grants, and steady remittances from migrants. As a result, the current account recorded a surplus as of the end of 2022.

The current account deficit is expected to be large in 2023. First, the deficit in the trade in goods will widen rapidly. Exports will decrease due to weaker harvests and electricity shortages, whereas imports will grow fueled by higher demand for energy and goods needed to ensure the autonomous power supply. Second, spending by migrants abroad will be larger than expected as security risks are persisting for a longer time. Exports will start to grow from 2024, and Ukrainians will return home more actively. However, large needs for imports to conduct the reconstruction of the country will keep the current account in the deficit.

International aid, coupled with cooperation with the IMF, will help finance Ukraine’s substantial budget deficit, and maintain international reserves at a sufficient level

In 2022, Ukraine received over USD 32 billion in international assistance, of which over USD 14 billion was in the form of grants. This enabled the country to finance a larger portion of the consolidated budget deficit (over 27% of GDP, excluding grants), and to increase international reserves, to USD 28.5 billion by the end of the year. Currently, reserves are sufficient to safeguard the stability of the FX market.

In view of the already announced international aid and progress made in negotiations with the IMF, overall official financing in 2023 could exceed USD 38 billion. This will enable Ukraine to refrain from the monetary financing of the budget deficit in 2023, and to maintain international reserves at a sufficient level even in the face of longer-lasting high security risks. International reserves are expected to hit about USD 27 billion by the end of 2023, and will continue to rise.

In order to bring inflation back to the steady decline trajectory and to maintain exchange rate and macrofinancial stability amid high uncertainty, the NBU is keeping the key policy rate at 25%, while also taking additional measures to strengthen monetary transmission

The NBU has kept the key policy rate unchanged, at 25%, since June 2022. At the same time, the NBU has raised reserve requirements for banks, as it said it would do in December. More specifically, from 11 February the banks’ required reserve requirements will be raised by 5 pp for demand deposits from, and current accounts of, businesses and households; for deposits from, and current accounts of, nonresident banks; and for loans from international (other than financial) and other organizations. In particular, from 5% to 10% for hryvnia funds and from 15% to 20% for FX funds.

What is more, from 11 March the banks’ required reserve requirements will be raised by another 10 pp for household hryvnia and FX demand deposits and current accounts. The banks will not be allowed to use benchmark domestic government debt securities to meet these reserve requirements.

The NBU expects that these measures will help decrease the liquidity surplus in the banking system. This, in turn, will encourage the banks to compete more actively for term deposits, which will push up interest rates on hryvnia assets and increase the share of term deposits. This will make the FX market more resilient to situational factors, while also enabling the NBU to ease administrative restrictions for businesses and households in future.

The revised forecast envisages keeping the key policy rate at 25% at least until the end of Q1 2024. If required, the NBU stands ready to deploy other tools to avoid the monetary financing of the budget deficit, make hryvnia assets more attractive, increase the resilience of the FX market, and lay the proper foundations for easing administrative restrictions.

An extended full-scale war by russia and further destruction of critical infrastructure remain the key risks

The NBU has revised its key assumption of the forecast about the security situation due to fiercer fighting and escalating terrorist attacks on the country's critical infrastructure. The baseline scenario of the new macro forecast envisages a noticeable reduction in security risks only from start of 2024. Therefore, the full unblocking of sea ports and reductions in Ukraine's risk premiums have been delayed in the NBU's forecast. More intense and longer hostilities and greater power shortages than expected due to russia's terrorist attacks could dampen economic activity more significantly, while also increasing inflationary pressures.

Other risks also have a bearing on the forecast. If materialized, they could also require revisions in key macroeconomic indicators. These risks include:

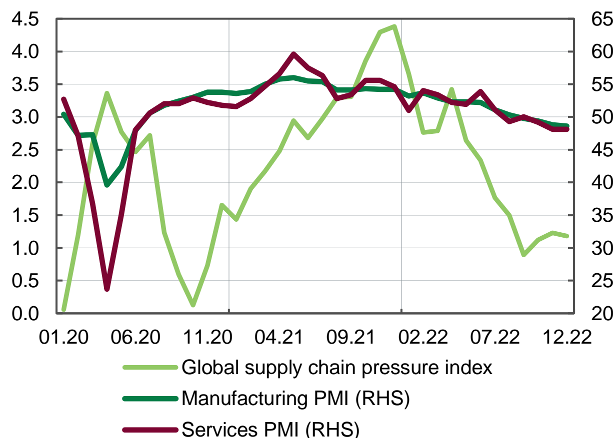
- the emergence of additional budgetary needs and substantial quasi-fiscal deficits in the energy sector on the back of the unpredictable nature of the war;
- russia's terrorist attacks on Ukrainian energy infrastructure facilities are increasing the risk a large number of Ukrainians will delay their returns and more people will migrate abroad. This will depress consumer demand, while in the longer term, this threatens to aggravate structural problems on the labor market and decrease the country's economic potential;
- the irregular arrival of external financing;
- complications in the operation of the grain corridor.

Instead, the rapid implementation of the recovery plan for Ukraine, supported by the arrival of official and private financing, could markedly speed up economic growth.

Part 1. External Environment

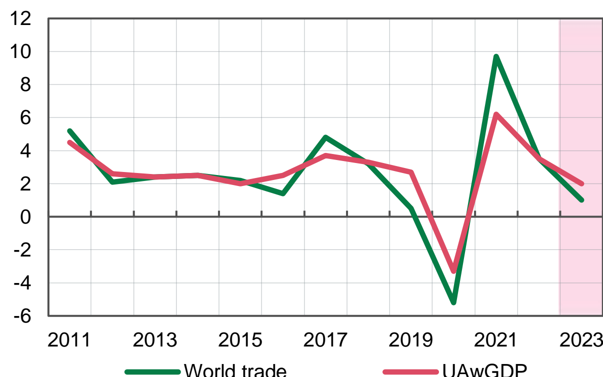
- After a moderate recession in H1 2023, the global economic recovery will be rather weak, taking into account the generally high level of interest rates and persistently low business confidence.
- Global inflation will gradually decline on the back of tightening global financial conditions and decreasing demand. The decline in inflation will also be driven by a drop in global commodity prices following a short-term upward correction in H1 2023. This will be supported by an increase in the supply of commodities, primarily due to the gradual adaptation of logistics.

Figure 1.1. **Global PMI and Global supply chain pressure index**



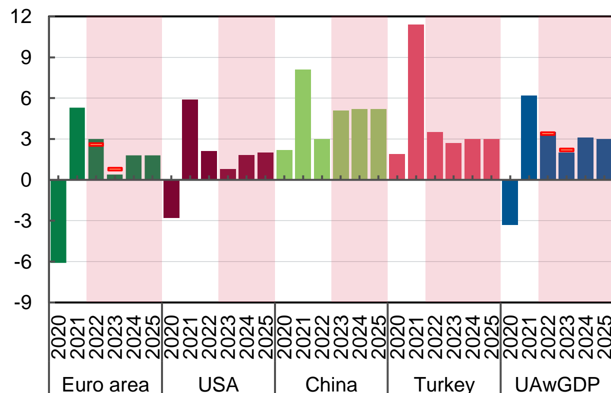
Source: J.P.Morgan, S&P Global, FRB of New York.

Figure 1.2. **Volume of world merchandise trade and UAwGDP, % yoy**



Source: WTO, national statistical agencies, NBU staff estimates.

Figure 1.3. **Real GDP of selected countries and weighted average of annual GDP growth of Ukraine's MTP countries (UAwGDP), % yoy**



▬ previous forecast of NBU

Source: National statistical offices, NBU staff estimates.

Economic recovery will be weak due to high interest rates and low business confidence

The fall in global economic activity deepened in Q4 due to a decrease in output in both the industrial sectors and the services sector. That said, activity slowed in almost all sectors, which marked the worst quarter since the global financial crisis – except for at the start of the pandemic. Key reasons for this were geopolitical uncertainty, especially the uncertainty caused by russia invading Ukraine, and the tightening of global financial conditions. The level of business confidence remains low and new orders continue to decline, which further slows global trade. Cooling business sentiment and decreasing global demand in Q4 2022 and at the start of 2023 were reflected in the below-trend reading of the Goods Trade Barometer calculated by the World Trade Organization. Similar dynamics were seen in the Services Trade Barometer.

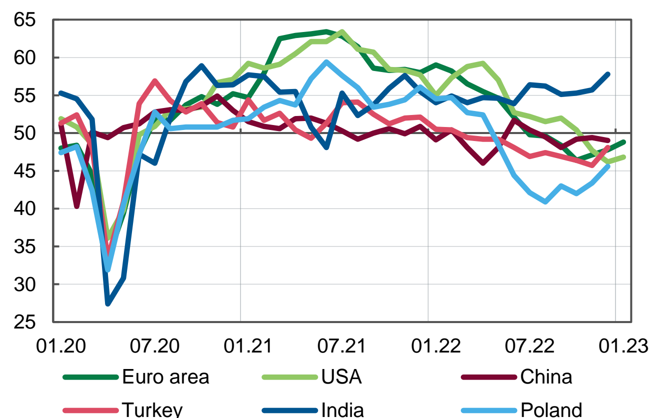
Export restrictions, especially on exports of food products, animal feed, and fertilizers, are also affecting global trade. The number of such restrictions has grown compared to mid-October. Volumes of global merchandise trade are expected to grow by only 1% in 2023, after they rose by 3.5% in 2022 on the back of high activity at the start of the year and a pickup in trading – thanks to the launch of the grain corridor and China shifting away from its COVID-19 zero-tolerance policy. Growth will be restrained by the global recession in H1, effects from the war in Ukraine, still-high energy prices and consumer inflation, and monetary policy tightening by leading central banks.

Lower demand helped improve supply chains despite a slight deterioration in China's logistics caused by an increase in COVID-19 infections at the end of the year. Delivery times shortened accordingly. However, this significantly slowed growth in the number of working places due to easing of the need to deal with the unprecedented buildup of unfinished work after the pandemic.

Due to the simultaneous effect of all of the above negative factors, the global economy is expected to be in recession in H1 2023. Growth will later resume, but will remain sluggish as a result of weak global trade and relatively tight financial conditions.

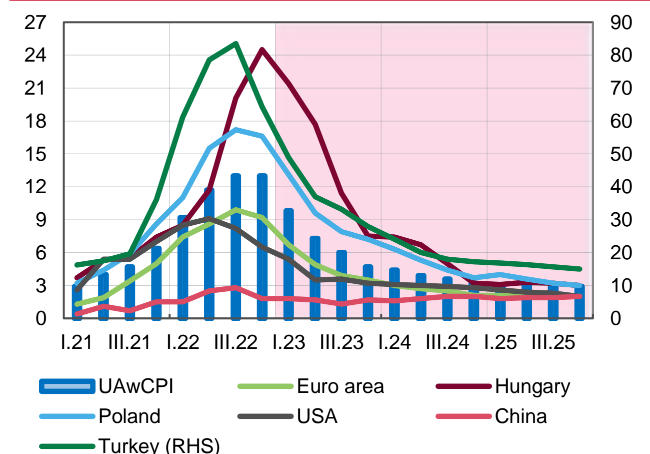
A sizeable decrease in demand was an important factor behind the rapid decline in economic activity in both the advanced economies and the majority of emerging markets (EMs) in Q4. The economy slowed in the United States – its growth rates were greatly below the long-term trend. This was driven by the phasing out of pandemic relief programs, the

Figure 1.4. Manufacturing PMI of selected countries



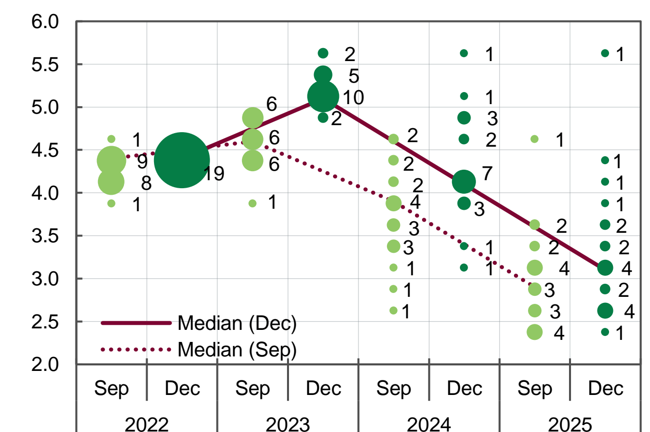
Source: S&P Global.

Figure 1.5. UAwCPI and consumer inflation of selected countries (eop), % yoy



Source: National statistical agencies, NBU staff estimates.

Figure 1.6. The number of FOMC members that expect the respective policy rate



Source: Fed.

global impact of russia's war against Ukraine, and the tightening of financial conditions, which affected the housing market the most. Forward-looking indicators pointed to a decrease in output and new orders at the end of 2022, which resulted in slower jobs growth. Demand for goods and services fell the most rapidly since the global financial crisis, which balanced the economy amid rising aggregate supply. This also put the brakes on growth in input costs. Growth in demand is expected to remain weak for an extended period. Against the backdrop of tight financial conditions, this will restrain economic growth in the United States going forward.

According to leading indicators, economic activity in the euro area continued to decline at the end of 2022 in spite of an improvement in logistics and weaker price pressures. The overall level of business sentiment remained low. Demand decreased further on the back of a decline in real income and a rise in interest rates. Weak demand and energy risks remain important factors behind the slowdown in the euro area economy. Economic activity will gradually recover as negative factors fade out and investment programs and structural changes are implemented under the new EU reform package, especially in the energy sector.

A decrease in external demand from the United States and the euro area affected economic growth in the EMs that are Ukraine's main trading partners, primarily most of Central and Eastern Europe and China. Additional restraining factors were a decrease in investment driven by larger inventories, and consumption dampened by a drop in real household income. Investment is expected to gradually resume growing, partially thanks to the development of alternative energy sources. Consumption by households will also rise thanks to the expected recovery in real income growth amid lower inflation. In China, the dropping of the zero-COVID policy will be an additional factor.

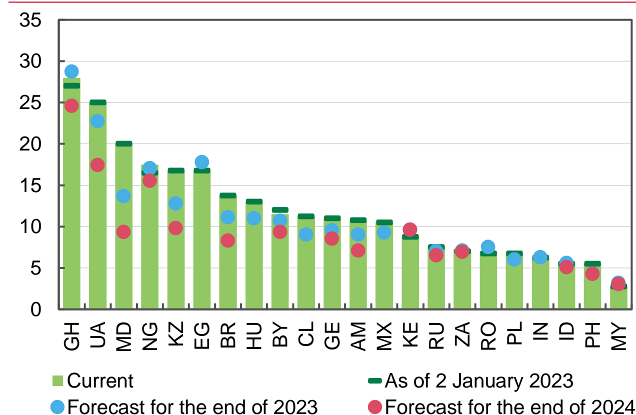
Global inflation will gradually decline thanks to the tightening of global financial conditions and lower demand

Global inflationary pressures eased, as shown by the Global Price Pressures Index, which was at its lowest in two-and-a-half years. This was driven by both weaker demand and lower supply pressures thanks to improved logistics and reduced supply shortages, evidenced by a decrease in the Global Supply Shortages Index. Additional factors behind slower growth in input costs were lower fuel prices (although they were still high) and some cooling of the labor market. The latter reflected companies' weaker interest in new hires as a result of a decrease in unfinished work, an increase in inventories, and production cuts.

Inflationary pressures are expected to continue easing. However, due to second-round effects from the increase in energy prices and the expected steady growth in wages meant to compensate for high inflation, target price indicators will be reached only in 2024 in the majority of Ukraine's main trading partners.

Therefore, the leading central banks are continuing to tighten their monetary policies. However, thanks to the signs of slowing inflation, the rise in interest rates decelerated at the

Figure 1.7. Key policy rates in selected EM countries, %

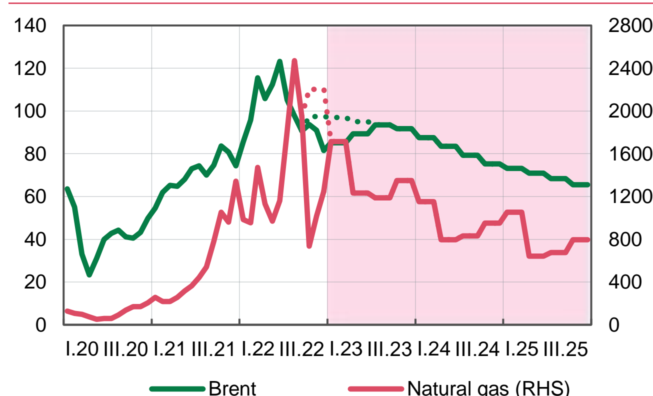


Source: official web pages of central banks, Focus Economics, Trading Economics, as of 31.01.23.

Figure 1.8. Net non-resident portfolio flows, USD bn

Source: IIF.

Figure 1.9. World crude oil prices (USD/bbl) and Netherlands TTF natural gas prices (USD/kcm)



Source: Refinitiv, NBU staff estimates.

end of the year. The leading central banks are expected to continue raising their key rates to levels sufficient to bring inflation back to 2%, and to reduce assets on their balance sheets. That said, despite the comments and remarks by representatives of the leading central banks, the markets expect the tightening cycle to end faster, and even expect the Fed to already have switched to policy easing by the end of 2023.

Inflation in EMs stopped growing further and started to slow in some of them. At the end of 2022, more EM central banks took a wait-and-see position in order to analyze the impact of policy tightening on the macroeconomic situation. At the same time, central banks implemented additional and sometimes unconventional measures to enhance monetary transmission (read more in the box *Monetary Policy amid a Significant Structural Surplus of Liquidity: Searching for an Effective Recipe* on page 39). EM central banks are expected to start gradually easing their policies from H2 2023.

Overall, global financial conditions deteriorated for EMs due to slower economic growth, high inflation, and rapid growth in major central banks' interest rates. As a result, interest in risky assets declined. In contrast, the currencies of the EMs were more resilient compared to those of advanced economies due to higher export-orientedness: growth in global commodity prices, including as a result of russia's invasion of Ukraine, provided additional support.

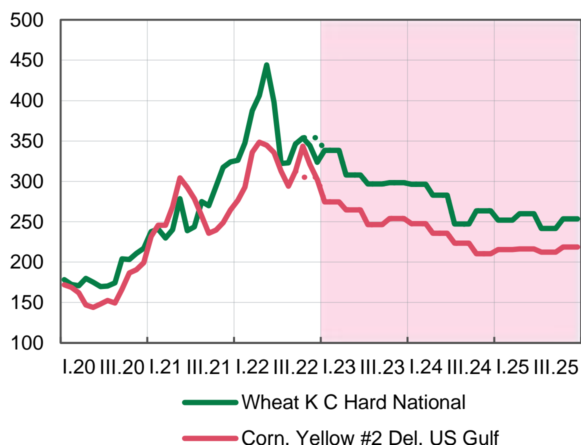
The gradual slowing of the pace of rate hikes, especially by the Fed, is creating the grounds for an increase in capital inflows to EMs. Net inflows of capital to EMs resumed in Q4 2022 – primarily in the form of shareholders' equity. On the other hand, capital inflows to China, which were the most steady among the EMs, practically ceased from February 2022, taking into account the rise in geopolitical risks. Recovery of demand for EM shares points to an improvement in market expectations of economic growth in EMs after the Fed finishes its monetary policy tightening cycle at the end of 2023. At the same time, the attractiveness of EM bonds will improve as well, considering the decline in the yields on government debt securities of the advanced economies, and against the backdrop of a stabilization in inflation expectations and the depreciation of the U.S. dollar exchange rate.

Prices on the global commodity markets will decrease, influenced by a gradual increase in supply and improvements in logistics

In Europe, the dynamics of global prices for crude oil and natural gas were mixed in Q4 2022. Due to the slowdown of the global economy, demand for oil decreased further, which put downward pressure on its price. Only production cuts by the OPEC+ countries kept prices from falling even deeper. These factors will continue to have an effect on the crude oil market. The embargo introduced by the EU on the purchase of russian oil and oil products by sea and the cap on the price of russian oil will have an additional impact. As a result, sales of russian oil will reorient more toward the Asian market.

Natural gas prices were quite volatile. On the one hand, russia's energy blackmail pushed up gas prices, on the other,

Figure 1.10. World grain prices, USD/MT, quarterly average



Source: Refinitiv, NBU staff estimates.

active LNG imports and almost full gas storages coupled with relatively warm weather led to their decline. It is expected that the gradual reduction of European countries' dependence on russian gas, significant consumption cuts, and the introduction of a maximum price level will contribute to a decrease in gas prices.

Global steel and iron ore prices have been declining due to weak demand in most regions of the world and large inventories. The dropping of China's zero-COVID policy and a pickup in demand, driven, among other things, by measures to support the real estate market, will lead to a short-term upward price correction. Going forward, the downward trend in steel and iron ore prices will resume due to the accelerated increase in supply compared to the recovery in demand.

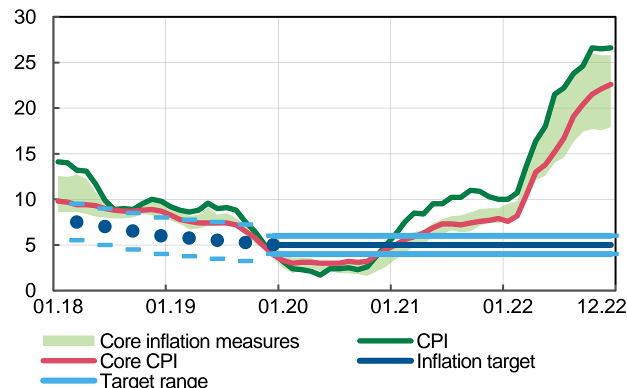
Downward price pressures prevailed on the wheat and corn markets, in particular due to the functioning of the grain corridor. Weather conditions impacted harvests in various countries, with a weak corn crop in the United States offset by record-high results in Brazil, and a strong wheat harvest in Australia making up for a poor harvest in Argentina. Sown areas are expected to increase in Latin America, India, and Australia as weather conditions improve, which will support growth in harvests. Together with the continued operation of the grain corridor, this will create excess supply over the growth in demand, leading to a decline in prices over the forecast horizon.

Part 2. Economy of Ukraine

2.1. Inflation Developments

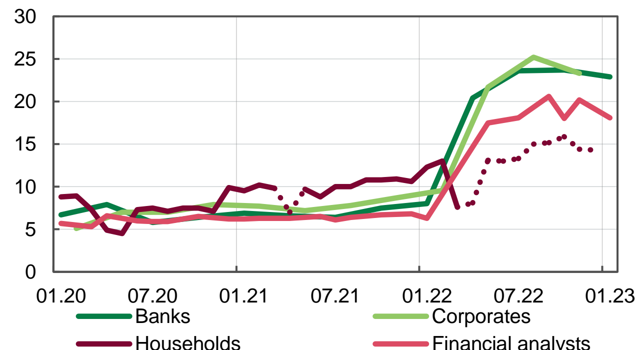
- As expected, inflation accelerated from the start of the full-scale war (to 26.6% yoy in December 2022), influenced primarily by supply factors. However, despite the challenges of the war and high global inflation, in Ukraine inflation remained under control and had stabilized by the end of the year.
- Consumer price growth is expected to moderate in 2023 due to tight monetary conditions, lower global inflation, and weaker demand. Further on, the effect of disinflation factors will grow stronger, supported by the expected decline in security risks, the restoration of logistics, and a rise in harvests. However, inflation will remain above the target range over the entire forecast horizon due to rapid growth in administered prices and tariffs.

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



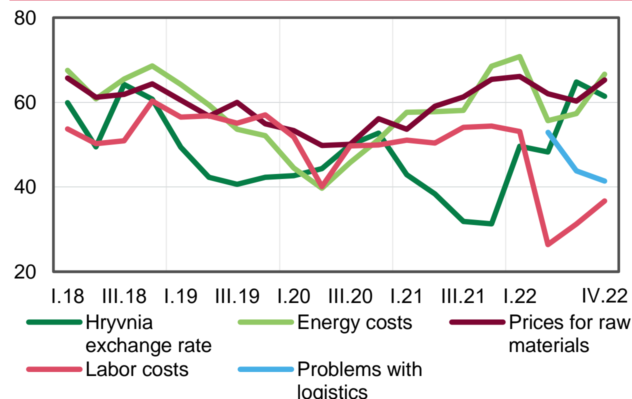
* Read more in the January 2017 Inflation Report (pages 20–21).
Source: NBU staff estimates.

Figure 2.1.2. **12-month-ahead inflation expectations*, %**



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

Figure 2.1.3. **Major factors affecting businesses' expectations of price changes for their goods and services, % of respondents**



Source: NBU.

Consumer inflation stabilized at the end of 2022 but remained high

Consumer prices in Ukraine were under strong upward pressure throughout 2022. This was primarily driven by the effects of russian aggression (read more in the box *Factors That Cause Inflation to Deviate from Its Target* on page 15), which resulted in a sharp rise in business costs and a decline in supply. Pressures from global processes were also strong: many countries saw inflation hit the highest levels for many years, and some advanced economies faced a two-digit pace of growth in prices. Yet even under such difficult conditions, inflation processes remained under control in Ukraine.

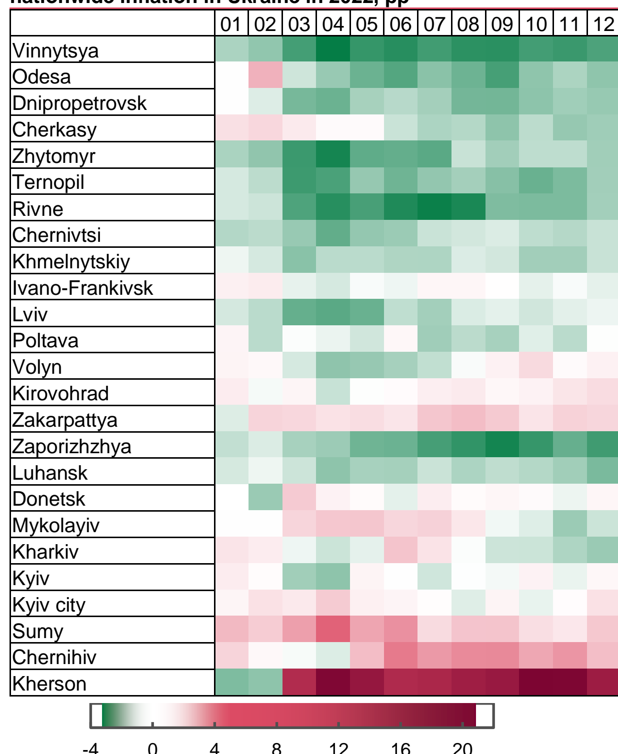
Annual growth in the CPI in Q4 2022 remained almost unchanged (26.6% in December) and was lower compared to the NBU's October forecast. Despite high current inflation, the inflation expectations of households[2] and businesses (which are largely adaptive in Ukraine) stabilized in H2 and started to improve at the end of the year. This was probably driven by the fixing of the hryvnia exchange rate for foreign trade transactions, the strengthening of the exchange rate on the cash market, utility tariffs remaining unchanged, and monetary financing of the budget decreasing.

Although the adjustment of the official exchange rate in July continued to reflect in nonfood prices, the fixed exchange rate regime was generally favorable for the stabilization of expectations and keeping inflation processes under control. In particular, the perceived impact of the exchange rate on producer prices continued to weaken in Q4 2022 (as seen from the results of the business outlook survey).

The rise in inflationary pressure was also restrained by the high adaptability of Ukrainian businesses to difficult conditions, and by the further liberation of the country's territory. In particular, in H2 logistical problems became less important as a factor in businesses' price expectations. The liberation of part of Kherson oblast in Q4 unblocked the region and allowed supplies of higher-quality and cheaper goods to be sent there from other regions of Ukraine. Therefore, in monthly terms, deflation was recorded in Kherson region in December, which contributed to a decrease in the discrepancy between annual inflation in this oblast and the average readings across Ukraine. However, this process is rather slow due to the proximity of the frontline in this oblast.

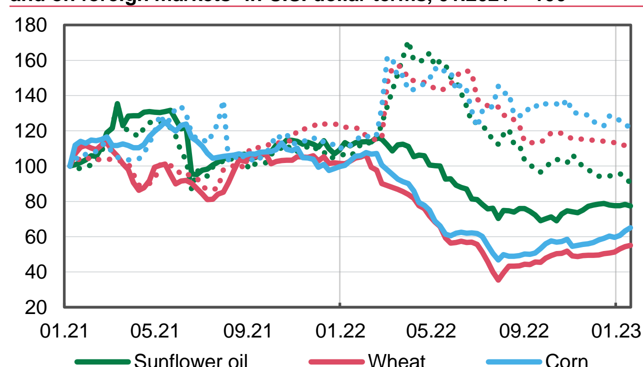
[2] Households' inflation expectations may have been affected by the change in the survey interview method from face-to-face to telephone.

Figure 2.1.4. Deviation of regional annual CPI growth rates from nationwide inflation in Ukraine in 2022, pp



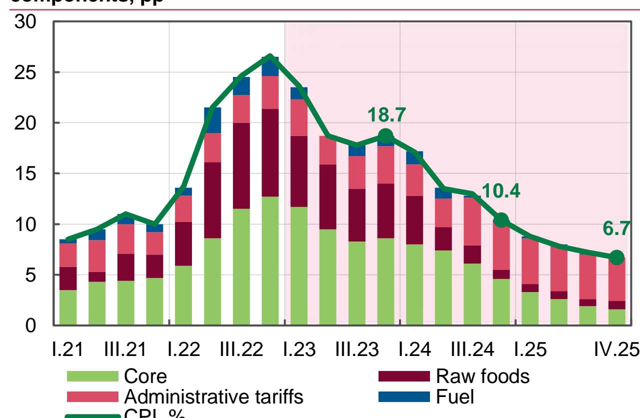
Source: SSSU, NBU staff estimates.

Figure 2.1.5. Prices for major agricultural commodities in Ukraine and on foreign markets* in U.S. dollar terms, 01.2021 = 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.

Figure 2.1.6. Contributions to annual CPI growth by main components, pp



Source: SSSU, NBU staff estimates.

The liberation of part of Kherson oblast was also accompanied by lower intensity of shelling in Mykolaiv oblast, which also had a disinflationary effect.

Inflation was also restrained by weak consumer demand, as well as changes in its structure, driven by spending prioritization. Prices for nonstaple goods, particularly household appliances and home textiles, rose more slowly. The growth rates of service prices were moderate during the year and even declined at the end of the year. In particular, weak demand dampened growth in nonstaple services, such as the services of sport clubs, cable TV providers, insurers, car parking sites, and travel agencies. This outweighed the faster growth in the prices of medical, telecommunication, and restaurant services fueled by higher costs – in particular as a result of the energy crisis.

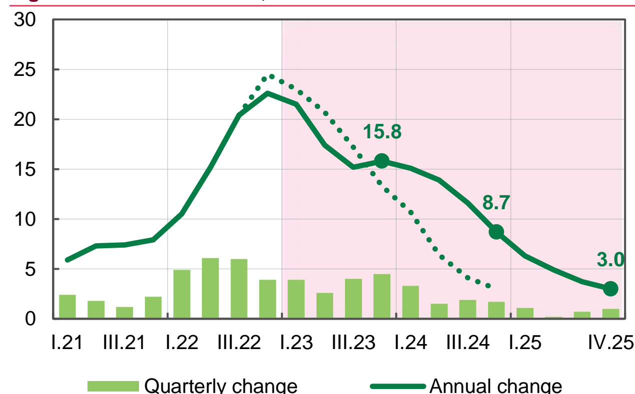
Despite the weaker harvests gathered this year, the supply of agricultural products was sufficient to cover Ukraine's domestic needs. Moreover, although the grain corridor was operating, export prices for Ukrainian crops and other agricultural products remained low due to logistical difficulties and high risks. This, in turn, restrained price growth on the domestic market. In particular, prices for buckwheat, other cereals, and flour rose more slowly. Cheaper feed partially offset the impact of a decrease in livestock numbers and the effects of electricity shortages on prices of animal farming products. The growth in prices for vegetables, primarily those used in the cooking of borshch, also slowed as supply from the central and northern regions increased. The supply of apples was also excessive as a result of limited exports, which kept their prices lower than last year.

However, despite the stabilization seen at the end of the year, inflationary pressures remained high and uneven. Higher costs, driven, among other things, by disruptions in electricity supplies (read more in the box *Impact of Electricity Shortages on the Economy of Ukraine* on page 20), were among the major factors influencing businesses' expectations of changes in prices of their goods and services. Large price growth discrepancies persisted across regions. Prices in oblasts close to the frontline grew at a relatively higher rate due to security risks and difficult logistics, while in safer western regions they were driven by relatively stronger demand. An increase in assessments of the main inflation trend (see Figure 2.1.1) also points to inflationary pressures being to a large extent uneven. On the one hand, this might reflect structural changes in the economy of Ukraine related to the war and the economic crisis. On the other hand, it might be a product of accumulated imbalances, particularly in the energy sector as a result of administrative decisions, which will restrain disinflation in future periods.

Inflation will decline on the back of tight monetary conditions, slower global inflation, improved logistics, and the adaptation of business to war

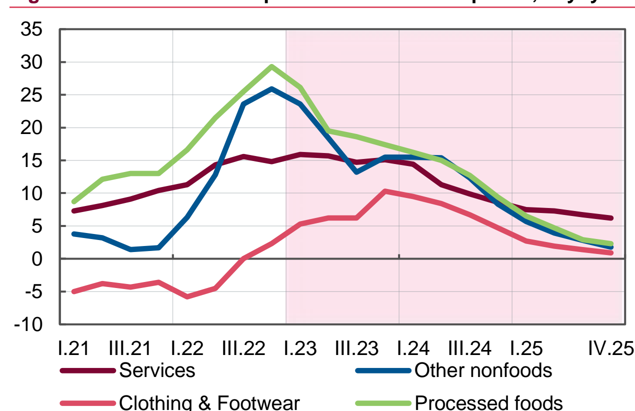
Security risks will remain an important pro-inflationary factor for a long time. However, inflation will start to decline this spring, influenced by tight monetary conditions, lower global inflation, and still-weak demand. Further on, as risks subside,

Figure 2.1.7. Core inflation, %



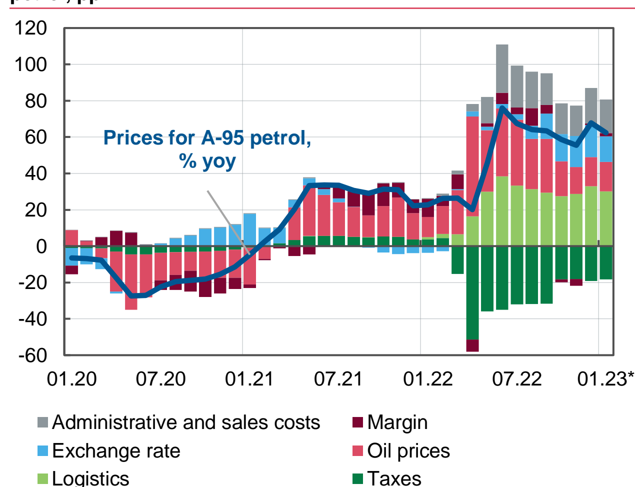
Source: SSSU, NBU staff estimates.

Figure 2.1.8. Core CPI components at the end of period, % yoy



Source: SSSU, NBU staff estimates.

Figure 2.1.9. Contributions of factors to the change in price of A-95 petrol, pp



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

inflation expectations of economic agents will improve and pro-inflationary effects of supply shocks will decrease, thanks to the recovery in production capacity and optimal logistical links as well as an expected increase in harvests.

Aggregate demand will remain below its equilibrium level for a long time (read more in the section *Demand and Output* on page 16). Therefore, the inflationary pressure from demand will be low, which, amid tight monetary conditions, will restrain the pro-inflationary pressures of supply shocks, in particular shocks related to effects of electricity shortages. As a result, core inflation will decline to around 15% at the end of 2023. The gradual disappearance of supply shocks from the next year will drive a further decline in core inflation to single-digit values at the end of 2024, and to 3% at the end of the forecast period. Almost all of the main components of core inflation will decline. In the post-war period, core inflation will be mostly driven by the recovery in demand and salaries, which will have the greatest impact on services prices. Moreover, high demand for housing reconstruction will create strong demand pressure on the prices of the respective goods and services.

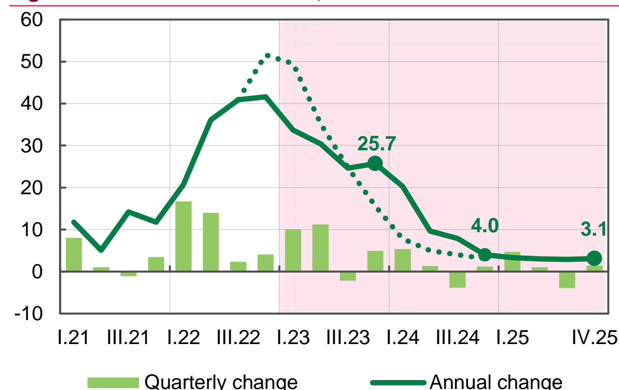
However, inflation will remain high due to pass through effects from high war-related costs incurred by businesses, including due to electricity shortages

In addition to the persisting effects of the damage to production facilities and difficult logistics, the energy crisis became an important pro-inflationary factor from the end of 2022 (read more in the box *Impact of Electricity Shortages on the Economy of Ukraine* on page 20). In the short run, this even had a disinflationary effect, and businesses adapted to the new conditions rather quickly. However, the need to maintain an autonomous power supply and/or to make changes to working schedules have still led to further growth in costs, which will put an upward pressure on prices.

In particular, an increase in demand for fuel, including fuel for power generators, sped up growth in fuel prices at the end of the year (to 69.4% yoy in December). The expected return of fuel taxes to their pre-war level will be one of the main factors behind the rise in fuel prices in 2023. This will feed into headline inflation due to the pass-through from fuel prices to the prices of other goods and services, in particular transportation services. Further on, fuel prices will stabilize thanks to the gradual decrease in global crude oil prices. In 2024, the fuel component will start to slow down headline inflation, both directly and through second-round effects.

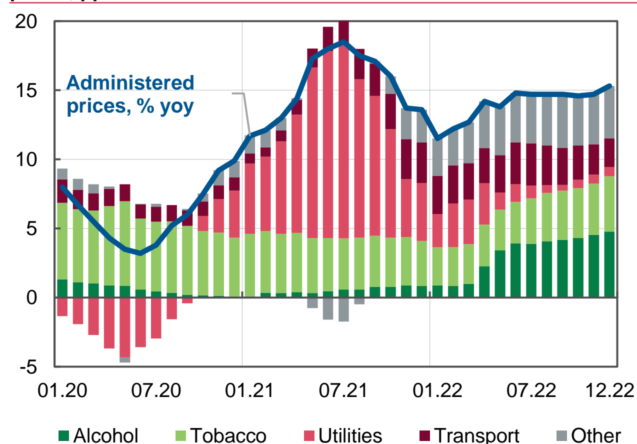
From spring 2023, food inflation will start to decelerate gradually, yet remain relatively high during the year because of lower harvests, persistently high security risks, and the consequences of power supply disruptions. As security risks subside, raw food inflation will decline rapidly thanks to the restoration of technological and supply chains, larger harvests, and an expected decrease in global prices for food and energy. Provided there are no new significant shocks, raw food inflation will stabilize at 3%–4% from the end of 2024 thanks to the saturation of the food market by both domestic and imported products.

Figure 2.1.10. Raw food inflation, %



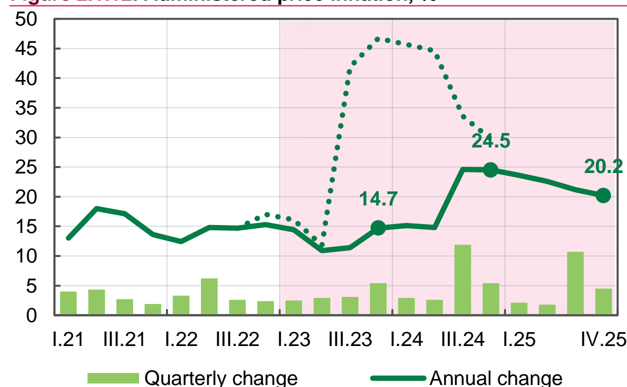
Source: SSSU, NBU staff estimates.

Figure 2.1.11. Contributions to the annual change in administered prices, pp



Source: SSSU, NBU staff estimates.

Figure 2.1.12. Administered price inflation, %



Source: SSSU, NBU staff estimates.

Headline inflation will be greatly influenced by administrative prices and tariffs being brought to economically justified levels

Growth rates of administered prices stabilized at around 15% yoy in H2. The main contribution to the growth in administered price inflation came from an accelerated rise in prices for alcoholic beverages, primarily due to the increase in production expenses on energy, raw materials, and packaging. Growth in prices of tobacco products accelerated, influenced by costs and pass-through effects from the exchange rate adjustment. On the other hand, transportation services rose in price at a slower pace as fuel prices grew more slowly in previous months. The moratorium on raising utility prices for households remained the main factor restraining the increase in administered prices.

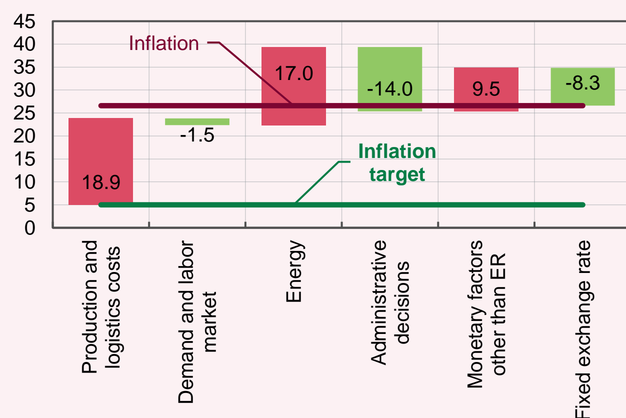
Going forward, imbalances that built up in the energy sector will require utility tariffs to be brought to market levels. Considering the great social significance of utility prices, their increase is likely to be phased, spread over several years, and entail an expansion in social support. High administrative inflation will be determined by further rises in prices of excise tax goods (especially tobacco products) due to higher excise taxes. Therefore, increases in administered prices and tariffs will make the main contribution to inflation in 2024–2025. As a result, headline inflation will decline moderately over the forecast horizon – to 18.7% as of the end of 2023, 10.4% in 2024, and 6.7% in 2025.

Box 1. Factors That Cause Inflation to Deviate from Its Target

Price stability remains the NBU's priority, despite the central bank's temporary departure from using the conventional inflation targeting regime after martial law was declared. That is why it is important that factors that increased and/or curbed inflationary pressures be analyzed and accounted for when taking monetary policy decisions. Inflationary pressures in Ukraine intensified noticeably in 2022. Consumer price inflation overshot its 5% target by 21.6 ppin December 2022. To a large extent, deviations from the target were caused by large-scale supply-side shocks, which were only slightly offset by a decline in consumer demand. Conversely, the impact of high global energy prices was largely restrained by the moratorium on raising utility prices for households. The fixed exchange rate, despite its correction in mid-2022, was an important factor that reined in inflationary pressures.

Most factors that caused a surge in inflation in H1 (read more in Box *Factors that Cause Inflation to Deviate from Its Target in Wartime* in July 2022 Inflation Report on pages 18–19) had a bearing throughout the year. The biggest contribution to the increase in inflationary pressures in 2022 was made by supply-side shocks, primarily those related to the russian invasion. However, there were also factors that curbed inflationary pressures.

Figure 1. Decomposition of inflation's deviation from its target in December 2022, pp



Source: SSSU, NBU staff estimates.

Factors driving up inflationary pressures:

- **higher production and logistics costs and falling supply in goods and services** in the wake of large-scale destruction of company assets, ruined infrastructure, and disrupted production and supply chains. These processes were intensified by the depletion of commodity, material and equipment stocks, and by the limited opportunities to replenish them. In addition, in late 2022, the cost of most goods and services was affected by the crisis in the energy sector (read more in Box *The Impact of Power Shortages on the Ukrainian Economy* on page 20).
- **high prices for energy**, mainly for natural gas and petroleum products. Despite having a limited direct effect due to the moratorium on raising utility prices for households, high energy prices affected Ukrainian consumer prices through fuel prices and through second-round effects. With supply difficulties and elevated domestic demand, especially in late 2022, high oil prices led to a significant increase in fuel prices and in the cost of transportation services.
- **monetary factors, apart from the exchange rate.** The NBU raised its key policy rate substantially in June 2022. However, its transmission to inflation remained weak due to the restrictions on capital movement imposed at the start of the full-scale invasion and because of the liquidity surplus in the banking system. This surplus resulted mainly from large budgetary spending, which was financed by international financial aid and the NBU's monetary financing effort. However, if the key policy rate had been left unchanged, at 10%, the impact of these monetary factors would have been much stronger.

At the same time, inflation was curbed by:

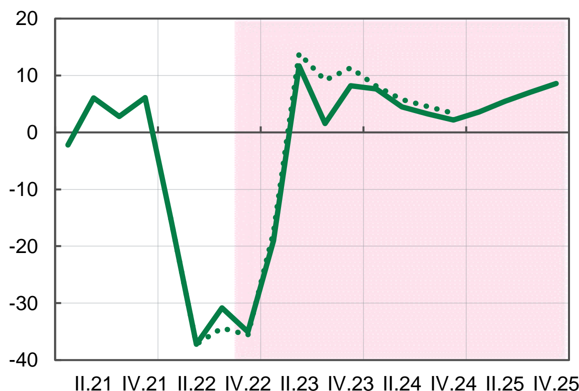
- **a fixed exchange rate**, which played the key role in keeping inflation under control. Despite the correction in the hryvnia's official exchange rate in July 2022, its fixed exchange rate, thanks to FX interventions and measures to control capital movements and FX transactions, still restrained growth in the cost of goods and services, among other things, through the cost of imported components. This factor had a significant impact through curbing the inflationary and exchange rate expectations of households and businesses, and through reducing the risk of financial instability.
- **administrative decisions.** The moratorium on raising utility prices for households kept these prices well below their proper market levels, making a considerable negative contribution to CPI growth. What is more, despite the partial reimposition of excise taxes from Q4 2022, the negative contribution from the relaxed tax burden on fuel persisted.
- **weak demand and demographic changes.** A fall in real household income, the migration of a substantial portion of the population abroad, unfavorable labor market conditions, together with power shortages, curtailed private consumption while also changing the structure of demand, with people consuming fewer nonessential goods and services.

An analysis of inflation developments shows that in 2022 the NBU's exchange rate policy and the key policy rate hike in mid-2022 practically offset the impact of other monetary factors. Looking ahead, in order to counter pressure on the exchange rate, safeguard macro-financial stability and to decelerate inflation over the forecast horizon, the NBU will maintain tight monetary conditions, while also taking steps to speed up and bolster monetary transmission. These steps will offset second-round effects arising from supply-side factors, and help decrease inflation expectations.

2.2. Demand and Output

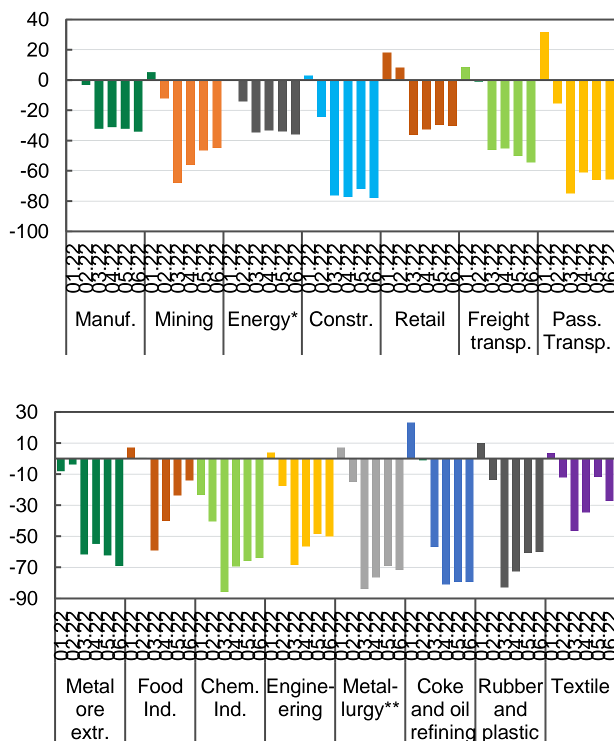
- Ukraine's economic recovery at the end of 2022 was disrupted by power outages caused by russian attacks on energy infrastructure. Coupled with high security risks and lower harvests, this will dampen economic activity in 2023, as a result of which real GDP will grow marginally (only by 0.3%). That said, an important prerequisite for this even marginal growth is that the government keeps the energy system stable and that businesses adapt effectively to the new operating conditions.
- In 2024–2025, decreased security risks, the full resumption of Black Sea port operations, a loose fiscal policy, and rebounding domestic demand will support the recovery of the economy. Real GDP will return to growth, but will remain below its potential level.

Figure 2.2.1. Real GDP, yoy change, %



Source: SSSU, NBU staff estimates.

Figure 2.2.2. Performance indicators in individual sectors and industries in H1 2022, % yoy



*Energy includes electricity, gas, steam and conditioned air

Source: SSSU.

The resilience and adaptability of the Ukrainian economy to new challenges turned out to be higher than expected. In spite of that, the economic recovery was halted at the end of the year by russia's terrorist attacks on Ukraine's energy infrastructure

The NBU estimates that in 2022 the Ukrainian economy shrank by 30.3% yoy. The main reasons for the deepest fall in the country's history were the repercussions of full-scale war: destroyed infrastructure and production facilities, disrupted supply chains, a drop in exports, falling investment and weak consumer demand, including due to active migration[3], as well as a significantly lower harvest compared to last year.

Investment slumped, especially in the private sector. The main reasons for this include uncertainty, high security risks, falling effective demand, and companies' weaker financial performance. Among other things, this was evidenced by the severe downturn experienced by construction. Investment was somewhat shored up by the purchases and supply of weapons and equipment for Ukraine's Armed Forces.

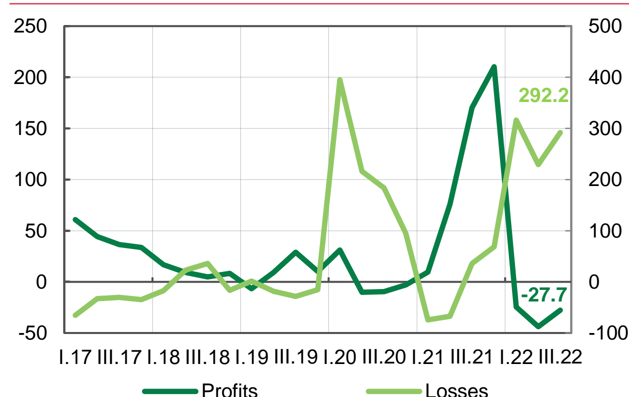
The 2022 grain harvest shrank by 40%. This was mainly the result of a noticeable reduction in harvested areas due to the occupation of, and the placing of landmines in, certain territories, and also compared to the previous year's record harvest. At the same time, thanks to farmers' partial refocusing from spring crops to rapeseed and soybeans (which replaced some corn crops), the rapeseed and soybean harvest was even higher than last year. The oilseed harvest was slightly better than expected.

Overall, despite the difficult and unstable conditions, businesses and households were able to adapt to the new challenges reasonably quickly.

The dynamics of indicators for some sectors of the economy in January – June 2022, which the SSSU started publishing again at the end of 2022, shows that there was already some recovery in some sectors in Q2. In particular, refocusing to meet military needs supported the recovery in the food, pharmaceutical and light industries, and in machine building, while the shift away from importing fertilizers from russia and belarus propped up the domestic chemical industry.

[3] The expenses of Ukrainian migrants abroad are included in the final consumption expenditures of households, which, however, are offset by imports of services. Despite that, active migration had a negative impact on GDP, due to such consumers shifting to foreign-produced goods and services.

Figure 2.2.4. Profits and losses of big and medium enterprises, over the period, % yoy



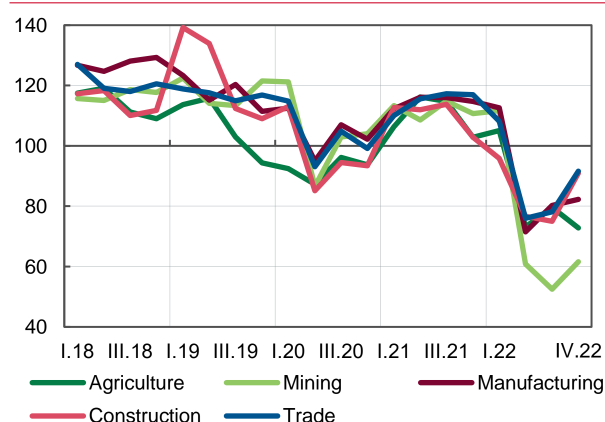
Source: SSSU, NBU staff estimates.

Figure 2.2.5. Harvest volumes of selected crops, million tons

	Average 2016-2020	2021	2022	2022, % yoy
Wheat	26.0	32.2	20.2	-37
Barley	8.3	9.4	5.8	-39
Corn*	30.9	42.1	24.4	-42
Sunflower	13.7	16.4	10.5	-36
Rapeseed	2.4	2.9	3.2	+9
Soy	3.8	3.5	3.7	+6
Sugar beet	12.4	10.9	9.0	-17

*As of 20 January 2023.
Source: SSSU, Ministry of agriculture of Ukraine.

Figure 2.2.6. BEI for base sectors, %



Source: NBU.

The Q3 2022 decline in GDP (by 30.8% yoy according to the SSSU's flash estimates) was smaller than the NBU predicted in October. Businesses were reestablishing supply chains, relocating their production facilities, while also expanding their online services. The liberation of occupied territories, the return of some of the displaced people to their places of permanent residence, coupled with the launch of the "grain corridor" also shored up the economy. Among other things, the operation of the "green corridor" supported agriculture, transportation and the food industry.

The economic recovery would have very likely continued into Q4 2022. However, the recovery was halted by russian attacks on Ukraine's energy infrastructure, which also worsened business expectations. Although most businesses are adapting to power outages[4], not all companies can do this because of the specific nature of their production processes and limited financial resources. As a result, at the end of the year, the performance of metallurgy, which was already experiencing difficulties due to considerable destruction and limited export opportunities, worsened even more. This, in turn, led to a slump in the production of metal ores. Power outages also affected transportation and other services sectors, however, these sectors adapted more quickly to power cuts by buying generators (read more in the Box *"The Impact of Power Shortages on the Ukrainian Economy"* on page 20). More specifically, rising demand for durable goods and autonomous power supply goods, coupled with holiday sales, supported retail trade, in particular through online orders.

Overall, the NBU estimates that the negative contribution of power deficit to real GDP was 4 pp in Q4, deepening the GDP fall to 35% yoy.

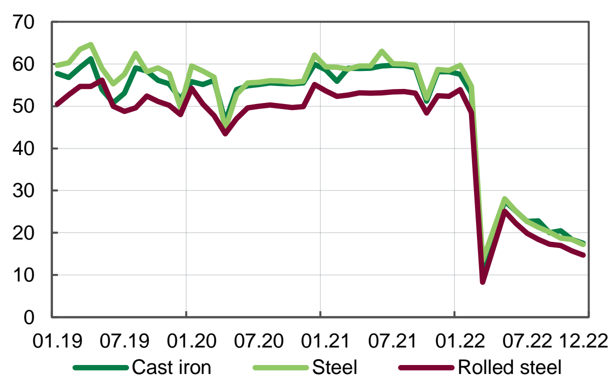
High security risks and power deficit will dampen economic activity in 2023

Economic activity will remain sluggish in 2023, with real GDP growing only marginally (by 0.3%). Despite the partial adaptation of both businesses and consumers to the conditions of war and power outages, a longer period of high security risks will depress consumer and investment sentiment, holding back economic recovery. High unemployment and the slow rate at which migrants are returning from abroad will restrain private consumption and recovery in the services industry. Over the year, private consumption will only grow due to substantial international aid flowing into the economy and being distributed via the budget.

The wet weather and shortages of power (which is needed to dry grain) seen in late 2022 delayed the harvesting of corn, of which nearly 20% was still unharvested in early 2023.[5] This could delay land preparation and reduce the areas sown to 2023 spring crops. Together with persistently high security risks, this will decrease cultivated areas and, consequently,

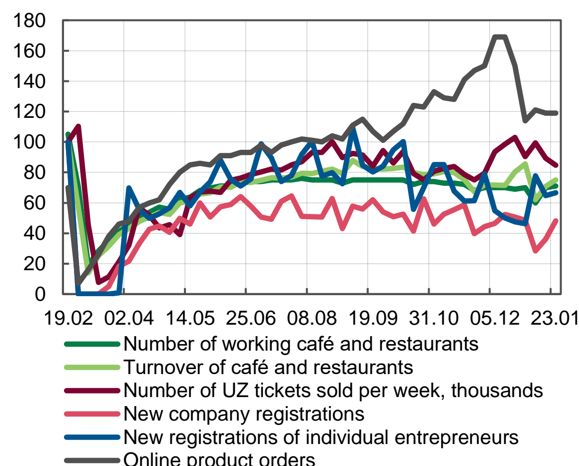
[4] According to an EBA survey, 86% of respondents have installed generators or other UPSs, 66% have changed their working schedule, while 40% of respondents cut back on their output.
[5] According to the SSSU's methodology, the remainder of the 2022 harvest, although harvested in early 2023, will still be included in the 2022 agricultural output based on agricultural companies' revised reports.

Figure 2.2.7. Average daily production of steel, cast iron and rolled steel, thousand tons



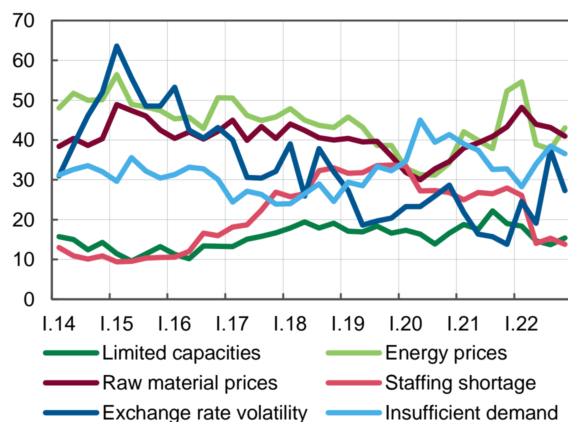
Source: Ukrmetalurgprom.

Figure 2.2.8. High-frequency indicators of economic activities in the service sector, % to the pre-war level



Source: Opendatabot, Poster, NBU staff estimates.

Figure 2.2.9. Assessment of the factors that will restrain production growth over the next 12 months, % of answers



Source: NBU.

the 2023 harvest[6], which will make an about 0.6 pp negative contribution to real GDP. A drop in agricultural companies' export earnings and the resulting poorer financial performance of these companies will continue to dampen agricultural output increases in the coming years because of the likely underinvestment in equipment, herbicides and fertilizers.

Because of missile attacks on energy infrastructure, the large scale of destruction and a lack of equipment required for repairs, the impact of power deficit on economic activity will persist not only in the current, but also in the following year. That said, the baseline scenario of the forecast assumes that missile attacks do no further critical damage, the government succeeds in raising international assistance for the energy sector, and that damaged infrastructure is actively repaired or replaced.

Economic activity in 2023 will also be held back by the country's limited access to Black Sea ports. The competitive ability of export-oriented sectors will weaken due to persisting logistical hurdles. This will further depress exports and exacerbate the financial difficulties of businesses. Conversely, imports will rise, driven by the country's need to further support its defense capability, and by the gradual revival of consumer demand and replacement of energy stocks. As a result, the negative contribution of net exports will have a decisive effect on GDP dynamics in the current year.

A decrease in security risks starting in 2024 and a loose fiscal policy will facilitate economic recovery

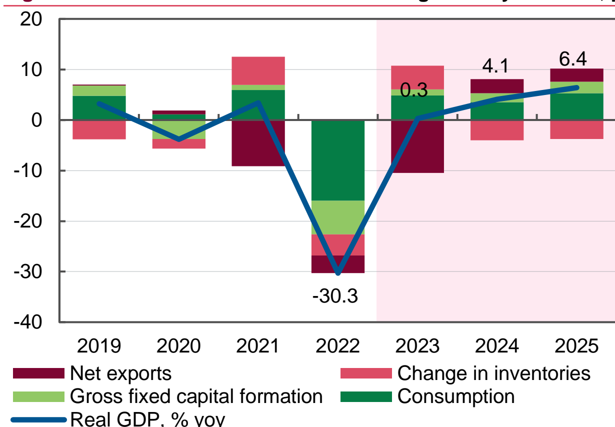
Lower security risks will be key to the future economic recovery. This will improve consumer and business sentiment and push up consumption and investment on the back of reestablished production and supply chains and persistently large fiscal stimulus. However, the large losses of production and human potential will continue to be a drag on economic recovery[7].

The post-war reconstruction of ruined infrastructure and production facilities will require a great deal of investment from both private companies and the government sector. Government investment to further strengthen and develop the country's defense capability will also play an important role. European integration reforms will make the country more attractive to investors, encouraging inflows of foreign investment. Therefore, in 2024–2025, investment will rise at the fastest pace (over 20% annually) out of all GDP components, laying the foundation for rapid growth in the future.

These processes will help improve labor market conditions, while also encouraging Ukrainians to return from abroad. Private consumption will speed up, propelled by the rising number of consumers and the realization of pent-up demand.

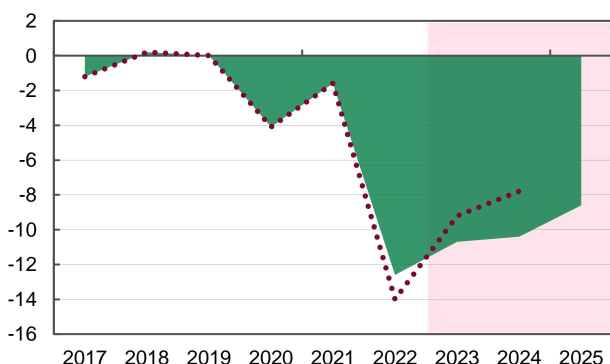
[6] According to the data provided by the Ukraine's Ministry of Agrarian Policy and Food, about 4.9 million hectares have been sown with crops for the 2023 harvest, which is 40% less than for the 2022 harvest, and 25% less than the area on which grain was harvested in 2022.
[7] Studies of post-war economies show that, although post-war growth rates exceed pre-war averages, it takes an average of more than 20 years for GDP to return to its pre-war levels. That said, Ukraine stands a good chance of a faster recovery through deeper cooperation with the EU as part of the country's membership program.

Figure 2.2.10. Contributions to annual GDP growth by final use, pp



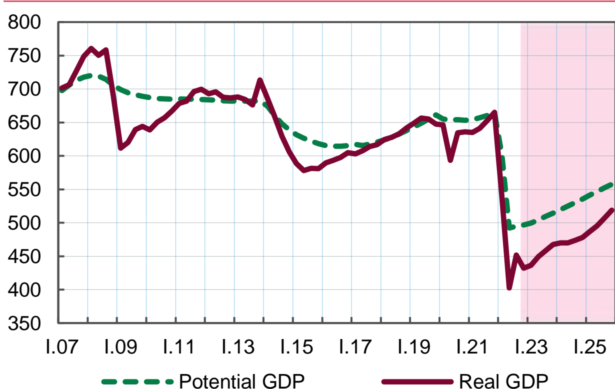
Source: SSSU, NBU staff estimates.

Figure 2.2.11. Output gap, % of potential GDP



Source: NBU staff estimates, SSSU

Figure 2.2.12. Real and potential GDP, sa, at 2016 constant prices



Source: SSSU, NBU staff estimates.

Nevertheless, it will remain below its potential level due to the still high unemployment rate and the moderate revival of real household income.

Ukrainian exports are expected to return to growth in 2024 thanks to the full resumption of Black Sea port operations and other logistical chains. Export growth will also be fueled by the country's rising output resulting from the gradual reconstruction of export-oriented companies' production facilities. In contrast, real imports will remain practically unchanged (read more in the *Balance of Payments* Section on page 32), which will result in a positive contribution of net exports to GDP growth in 2024–2025.

The output gap will remain negative over the forecast horizon. A faster recovery will require larger investment

Potential GDP will grow gradually over the forecast horizon. At first, the growth will be driven by the economy's adaptation to new realities, while at a later stage the speeding up of European integration processes will become the engine of growth. That said, in 2023–2025, potential GDP will not compensate for the large-scale losses from ruined and damaged production facilities, disrupted technological chains, and the migration of the labor force abroad. Potential GDP growth will be restrained by insufficient investment and the slow rate of return of Ukrainian migrants, some of which will remain abroad.

Real GDP will be below its potential level because of the sluggish recovery of domestic demand, a weak labor market, and temporary logistical hurdles. After the war, Ukrainian producers will only gradually regain the markets they lost during the war, as a result of which their available production capacity will be underutilized for a long time. Risks will remain high for a long time, adversely impacting the country's investment attractiveness.

Box 2. Impact of Electricity Shortages on the Economy of Ukraine

The macroeconomic forecast the NBU made in October assumed the effect of the bombing of energy infrastructure would be the temporary unavailability of power generation and distribution. That said, it also assumed a rather fast recovery. However, the consequences of targeted attacks turned out to be more serious and the recovery took longer than expected. As a result, the energy system faced a large-scale shortage of electricity, accompanied by emergency and stabilization power outages. At the same time, taking into account the scale of damage, Ukraine's energy system proved to be very flexible and adaptive. Ukrainian power engineers gained valuable experience in maneuvering small-capacity electricity grids, and the physical protection of energy facilities was reinforced. Businesses also adapted to these conditions: many of them equipped themselves with autonomous power generation. The economy thus continued to operate partially even amid electricity supply disruptions. However, the probability of further air attacks remains high, while stocks of backup equipment are limited, and receiving and installing necessary imported equipment takes time and requires additional resources.
Taking into account the high uncertainty, the forecast includes two scenarios that mainly differ in terms of their assumptions of the scale of damage, the pace of reconstruction, and the supplies of necessary equipment, which thus imply differing severities of electricity shortages. They foresee GDP losses due to decreases in production and consumer demand, an increase in inflationary pressures on the back of higher business costs, and foreign trade losses driven by larger imports of petroleum products and energy equipment. The baseline scenario envisages a relatively fast recovery of the system thanks to repairs and prompt supplies of energy equipment, which will even allow for a slight increase in power generation compared to November–December 2022. GDP losses are estimated at 1.9 pp in 2023 and 0.6 pp in 2024, the contribution to consumer inflation at around 2 pp in 2023, and the foreign trade deficit is expected to widen to around USD 2 billion in 2023 and USD 0.5 billion in 2024. The pessimistic scenario envisages greater damage to the energy system and slower repairs, which would cause larger GDP losses and a wider foreign trade deficit. That said, assessments of the impact on inflation remained unchanged: stronger production cost pressures will be offset by weaker aggregate demand.

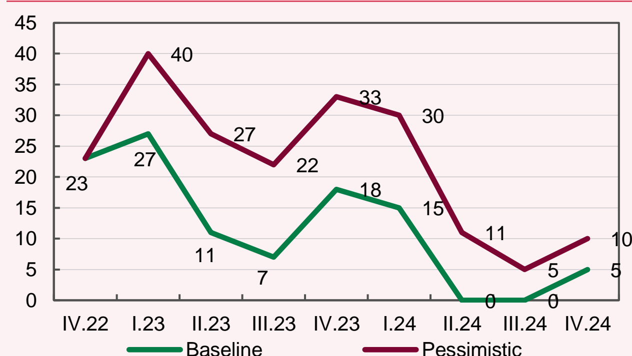
Assumptions

Both scenarios take into account the risks of new damage to both electricity generation facilities and the grid – especially in Q1 2023, when electricity needs are the largest. The scenarios envisage a seasonal increase in the need for energy resources in winter due to cold weather and the shorter period of daylight, and a respective decrease in power shortages in spring and summer. They also take into consideration the need for the maintenance repairs at blocks of nuclear power stations that are required to ensure the system's stability, which in turn imply that electricity generation will be temporarily limited – especially in Q2 and Q3 2023. In addition, the scenarios envisage a redistribution of electricity consumption in winter in favor of supporting social and critical infrastructure and households. Although control over Zaporizhzhia Nuclear Power Plant is expected to be regained as security risks subside, it is assumed the plant will be re-integrated into the energy system only in H2 2024 due to the likelihood of the territory being mined and equipment being damaged. The estimated shortfall of electricity supply at the end of 2022 was the same for all scenarios, at up to 23%.

The baseline scenario envisages a relatively fast recovery of the system thanks to repairs and prompt supplies of energy equipment, which will even allow a slight increase in power generation compared to November–December 2022.

The pessimistic scenario foresees greater damage to energy generating companies or main transmission grids, temporary shutdowns of some reactors at nuclear power plants due to decreased maneuverability of the system, large losses of heat and gas supplies, and temporary but long-lasting power outages in Ukrainian regions with largest electricity deficits. Additional medium- and high-voltage energy equipment is expected to start arriving in Q2 2023, but it will take time to set up the equipment and adapt it to the Ukrainian grid. As a result, repairs will last longer and the system will recover more slowly.

Figure 1. Assumptions about electricity shortages, %



Source: NBU staff estimates.

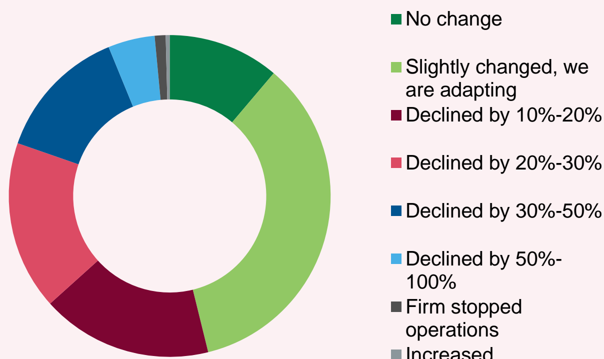
Economic Activity

Responses to an additional question in the NBU's quarterly Business Outlook Survey were used to assess the impact of electricity shortages on economic activity[8]. The survey showed that output at some businesses remained unchanged or changed only slightly thanks to the adaptation, which included switching to power generators, and introducing a flexible work schedule, night work, and so on. However, the majority of companies reduced production – by 18.6% on average for all respondents. By type of activity,

[8] The survey was conducted from 31 October to 30 November 2022, and covered 637 enterprises in 21 oblasts of Ukraine (except Donetsk, Luhansk, and Kherson oblasts and Crimea). The businesses were asked how output volumes of their products and services changed compared to the previous month as a result of rolling blackouts.

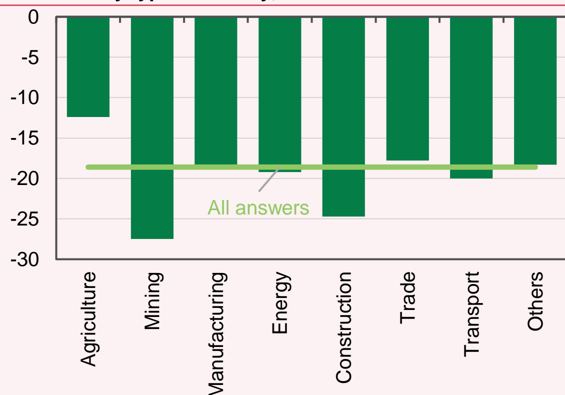
manufacturing, construction, and transportation were the most affected. On the other hand, as expected, agricultural producers and the services sector were impacted less by power supply disruptions.

Figure 2. Change in the volume of production/service due to blackouts, % of answers



Source: NBU survey.

Figure 3. Average change* in the volume of production/service due to blackouts by type of activity, %



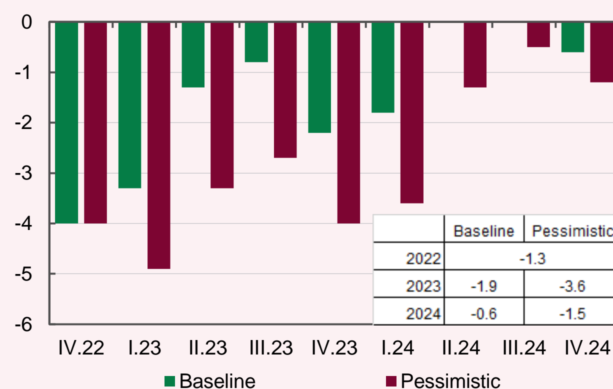
* Calculated as a weighted average of all respondents' answers.

Source: NBU survey.

Based on these findings, the change in output volumes due to electricity shortages was estimated for each sector. Taking into account the weight structure of sectors in GDP according to the tables *Input – Output in Consumer Prices* for 2020, the loss of growth in real GDP in Q4 2022 was estimated at 4 pp, and 1.3 pp in 2022 overall.

Considering the rapid rise in supplies of backup power equipment, particularly power generators, at the end of 2022, the coefficients of the impact of electricity shortages in subsequent periods were reduced on the basis of expert judgments about the feasibility of using power generators – taking into account the specifics of the production processes in some sectors.

Figure 4. Contributions of the electricity shortages under different scenarios to the change in real GDP, pp



	Baseline	Pessimistic
2022	-1.3	
2023	-1.9	-3.6
2024	-0.6	-1.5

Source: NBU staff estimates.

Under the baseline scenario, the loss of growth in annual GDP in 2023 will be 1.9 pp, including a positive effect of 0.5 pp coming from the use by businesses of power generators. Thanks to the gradual recovery of the system in 2024, the loss will decrease to 0.6 pp. Under the pessimistic scenario, the GDP loss will reach 3.6 pp this year, and 1.5 pp in 2024.

Inflation

Electricity shortages caused by air attacks will have a pro-inflationary effect as a result of an increase in production costs and a decrease in supply. The largest direct contribution to the cost of products will be determined by businesses being forced to use power generators, as electricity produced in this way is much more expensive than the regular electricity price for nonhousehold consumers[9]. High demand for fuel, especially for power generators, enhances the adverse effect that power outages have on inflation.

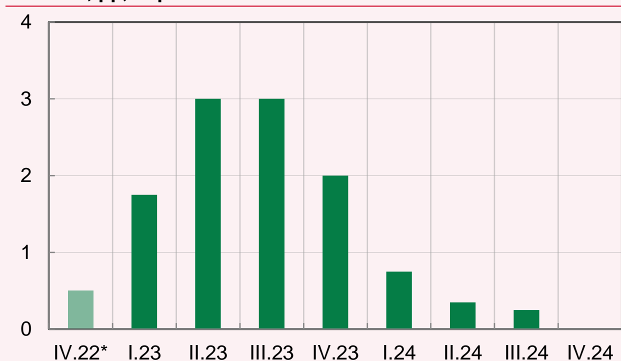
Another channel through which power outages increase inflationary pressures is the disruption to technological processes (heat processing, cooling, heating, and launching equipment). This factor causes production to decline and costs to rise, which especially affects the prices of services and energy-intensive products. The latter primarily include goods that require heat processing (meat and dairy products, bread, confectioneries, and beverages), heating and light (greenhouse vegetables and eggs), complex technological processes (vegetable oil, household chemicals, medicines, and construction materials).

On the other hand, power outages restrain inflation due to lower consumption as a result of the physical inaccessibility of points of sale of goods and services, added to the overall decrease in domestic demand. Demand structure is also likely to change in favor of durable goods and ensuring

[9]The estimated cost of electricity from power generators starts at UAH 10 per kW (excluding equipment depreciation) for industrial-type generators and at UAH 18–25 per kW for smaller-capacity devices. Meanwhile, the final price of electricity for nonhousehold consumers is UAH 4–6 per kW. The amount of amortization of equipment per 1 kW of generated electricity varies depending on the type and price of the equipment and the actual time in operation. Assuming that a 300 kW industrial power generator is on 24/7 for a year, amortization would add another UAH 1 per kW to the price of electricity. With a 30 kW power generator under the same conditions, this would add UAH 2 per kW.

autonomous power supplies, whereas consumption of nonstaple goods and services is decreasing.

Figure 5. Impact of electricity supply interruptions on annual inflation, pp, eop



* Offset by other factors.

Source: NBU staff estimates.

The impact of electricity shortages on the annual change in the CPI was estimated at +0.5 pp as of the end of 2022. The pro-inflationary impact on inflation readings will rise going forward. Under the baseline scenario, it will peak at 3 pp in Q2–Q3 2023 and decline to 2 pp at the end of the year. A small positive contribution to inflation will last through early 2024, reflecting the statistical effects of the growth in production costs in the previous year. The effect of this factor, however, will already be fading away at the end of 2024. Under the pessimistic scenario, despite higher costs, the overall effect on inflation is expected to be in line with the baseline scenario due to a decrease in aggregate demand.

Foreign Trade

The NBU assesses that electricity shortages will have a negative effect on exports of goods, and that this will be accompanied by an increase in import volumes. Exports will decline across all groups of goods, except for grains, as the process of their harvesting and transportation are practically independent of the mains electricity supply. In addition to the impact on economic activity, the estimates of changes in exports also took into account the indicators of exports of goods and services by sector from the tables *Input – Output in Consumer Prices* for 2020. According to the estimates, supplies of some food products (especially sunflower oil), iron ore, and metals will see the main reductions. According to the baseline scenario, the largest export losses are expected in Q1 2023.

As for imports of goods, electricity shortages will primarily affect two groups of goods[10] – petroleum and machinery products. Electricity shortages were already impacting imports of these goods in Q4 2022 (read more in the section *Balance of Payments* on page 32). Over the forecast period, procurement is expected to continue rising for both machinery needed, among other things, to reconstruct the energy system, and petroleum products to support the active use of power generators. In particular, the forecast of the change in imports of petroleum products used data on the available capacity of power generators, volumes of fuel required for their operation, and prices for petroleum products.

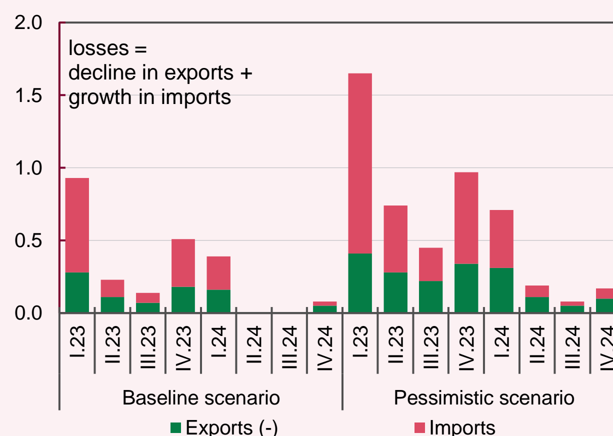
As a result, imports are expected to show the highest growth in Q1 2023, at around USD 220 million per month. Thanks to longer daylight, warmer weather, and the saturation of the market with emergency power supply goods, imports of machinery will decline, but will grow again as the weather turns cold. Under the adverse scenario, the greatest losses will also be incurred in Q1 2023, but they will be larger. The monthly average decline in exports is forecast at USD 135 million per month, and the rise in imports at USD 410 million.

Table 1. Losses to external trade, USD billions

Foreign trade	Baseline scenario		Pessimistic scenario	
	2023	2024	2023	2024
Exports	-0.6	-0.2	-1.2	-0.6
Imports	1.2	0.3	2.6	0.6
Balance	-1.8	-0.5	-3.8	-1.2

Source: NBU staff estimates.

Figure 6. Losses to external trade, USD billions



Source: NBU staff estimates.

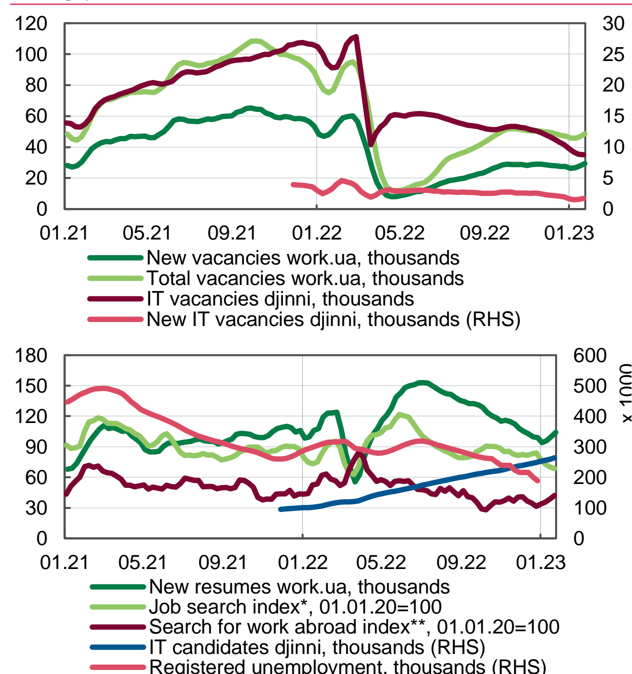
The said scenarios can bear both positive and negative risks. Additional difficulties in the energy system are possible due to a decrease in its flexibility caused by damage to coal-fired power stations. The repair, installation, and adaptation of supplied equipment might take more time, or be unsuccessful. On the other hand, the resilience of the system will be supported by imports of electricity, prompter supplies and funding by international partners of energy equipment needed for repairs, and/or manufacturing of the necessary equipment in Ukraine.

[10] The NBU believes a decline in domestic production and the related decrease in the supply of some goods will not lead to an increase in imports, due to high prices (food products, clothing, and footwear) and weaker demand from households. In some cases, this could even reduce imports: a decline in domestic production would cause a drop in procurements of intermediate goods (chemicals, metals). Therefore, these changes were not taken into account when estimating foreign trade losses.

2.3. Labor Market and Household Income

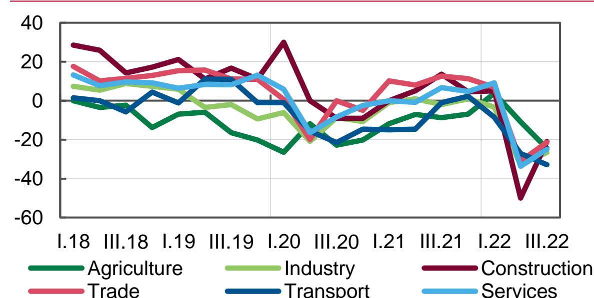
- The recovery of the labor market is slowing in the wake of a series of large-scale russian attacks on energy infrastructure. Both labor supply and demand have decreased, and unemployment remains high. In contrast, more migrants are finding employment as they adapt to life abroad. This partially offsets the loss of labor income in Ukraine, but poses long-term risks to the Ukrainian labor market.
- Between 2023 and 2025, domestic employment will grow slowly due to labor market mismatches, which have deepened because of the war. Real wages will recover at a moderate pace, restrained by high inflation and lower-than-pre-war productivity.

Figure 2.3.1. Labor force supply and demand (4-week moving average)



* Includes job search queries in Ukrainian and Russian.
** Includes job search requests in Poland, the Czech Republic, russia and Germany in Ukrainian and Russian made from the territory of Ukraine.
Source: work.ua, opendatabot, Google Trends, SCE, NBU staff calculations.

Figure 2.3.2. Expectations regarding the change in the number of workers in the next 12 month, by sector (balance of responses), pp



Source: NBU.

Labor market conditions worsened due to power outages in late 2022

The recovery of the labor market and its gradual adjustment to wartime conditions proceeded confidently from May to September 2022. Thanks to the revival of business activity and the liberation of Ukrainian territory, demand for labor increased, although this was partly due to seasonality. Attacks by russia on Ukraine's energy infrastructure and seasonal sluggishness in activity at the end of the year was already worsening the labor market situation in Q4 2022.[11] The number of job openings on job search sites, including remote work job offers, decreased.

Disruptions to power supplies, communications, and public transport, as well as increased security concerns, have also made it difficult to find a job. An additional factor may have been a seasonal shift in job seekers' behavior in the run-up to the New Year. Only the number of IT job candidates continued to grow. However, the high security risks of doing business in Ukraine hampered employers' plans to increase worker numbers.

Overall in 2022, finding people was not a problem for employers. The NBU's business outlook survey shows that only about 14% of respondents (almost half the number prior to the full-scale war) cited a lack of workers as being a limiting factor in developing a business[12]. At the same time, a significant number of companies are already experiencing a shortage of skilled workers, and this problem is likely to persist up to the forecast horizon[13]. Because of blackouts, however, businesses are cautious in their assessments of their hiring potential in the short run.[14]

Migration, both domestic and cross-border, will impact the Ukrainian labor market over the entire forecast horizon

The labor market continues to be shaped by the large number of migrants within Ukraine, and by migration to other

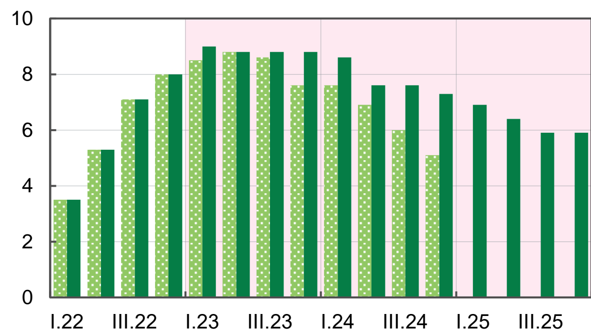
[11] According to IER surveys, the number of businesses laying off employees and holding back on new hires increased in October through December.

[12] The IER survey shows a similar pattern: in November 2022, only 16% of surveyed businesses reported a dearth of labor due to conscription and/or cross-border migration (this ranked as the ninth-biggest problem for companies).

[13] Specifically, 70% of employers polled by robota.ua in October expected a shortage of qualified personnel to be the main hiring hurdle in 2023, and 29% expected difficulties with finding new employees. An Advanter poll shows 54% of businesses experiencing a shortage of qualified personnel and 16% struggling to fill a 20% deficit of workers.

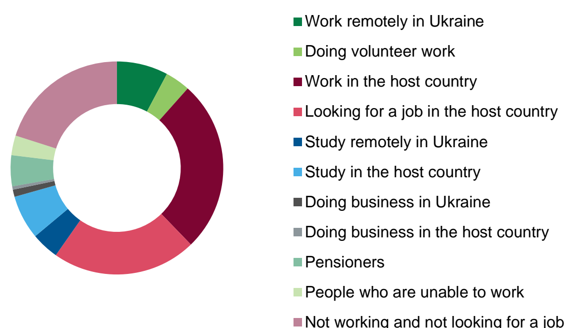
[14] In particular, the NBU's business outlook survey for Q4 2022 shows that the vast majority of respondents (62%) anticipated that the number of their employees would not change in the next 12 months. According to the IER survey, in October through December the share of those who planned to hire new employees in the next three months decreased, and the share of those who expected to lay off employees increased.

Figure 2.3.3. Number of migrants staying abroad, millions (at the end of the quarter)



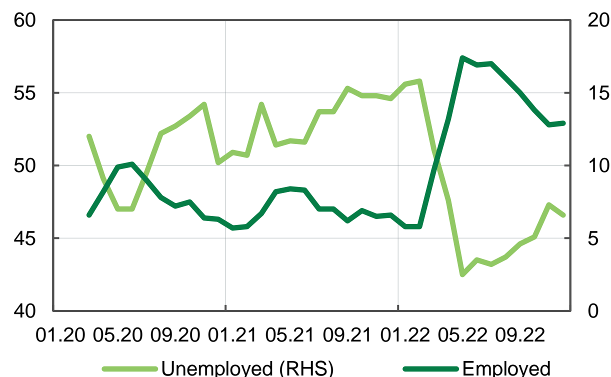
* Shaded columns indicate the preliminary forecasts published in the October 2022 IR.
Source: UNHCR, NBU staff estimates.

Figure 2.3.4. Employment status of Ukrainian migrants abroad, % of responses



Source: CES.

Figure 2.3.5. The employed* and unemployed according to consumer confidence surveys, % of answers, 3-month moving average



* The employed include persons who are employed for wage/salary, registered entrepreneurs, and the self-employed. The unemployed includes those who temporarily do not work.
Source: Info Sapiens, NBU staff estimates.

countries.[15] Although the number of migrants abroad in late 2022 matched the NBU estimates published in the October 2022 Inflation Report, the number of border crossings (both entry and exit) came out higher, which can be attributed to more active border traffic in the period leading up to the holidays.[16]

During the summer and early autumn, migrants' willingness to return increased. But enemy attacks on infrastructure, which caused power outages, coupled with the onset of cold weather adversely affected people's propensity to return in the near future.[17] However, there was no significant increase in departures. Most of those who intended to leave Ukraine, including through fear of a difficult winter, have probably done so by this time, while others have adapted.[18]

With security risks looming large and problems with energy supplies set to persist throughout 2023, the number of migrants outside Ukraine will remain high. As these risks moderate, migration back to Ukraine will pick up. At the same time, after martial law is lifted, departures for family reunification purposes may pick up slightly. The returns will not begin to surpass departures until 2024–2025, and when they do, the excess will be smaller than previously projected.

Finding a job remains a problem for both IDPs and for migrants who stay abroad. Employment among migrants is gradually rising, which supports the labor market in general, but this employment rate is still significantly lower than that of people who have not left their places of residence.[19] Migrants' search for work is complicated, among other things, by the longer time it takes to set up a household.

The probability of employment abroad largely depends on the host country. The undisputed leader is Poland, but even there a significant proportion of migrants are still looking for work. In countries such as Germany and Italy, the employment of Ukrainian immigrants is between half or one-third of their employment level in Poland and the Czech Republic.

Unemployment will remain at high levels for a long time due to the effects of the war

The number of job seekers significantly exceeds the number of vacancies, so the unemployment rate remains high. The economic revival in Q3 contributed to a reduction in unemployment. The deterioration of labor market conditions

[15] According to UN data as of 16 January 2023, eight million people remained outside Ukraine, of whom almost five million have received temporary protected status in the EU. The IOM estimated the number of IDPs in Ukraine at 5.9 million as of 5 December 2022. As of 25 December 2022, Ukraine had 3.6 million registered IDPs.

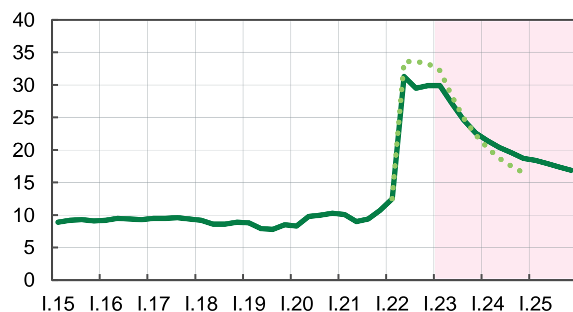
[16] Departures and returns increased by 40% and 58% in the last two weeks of 2022, up from the average of the previous four weeks.

[17] According to a Gradus survey, the share of those who planned to quickly return shrank to 67% in October (down from 78% in September). Meanwhile, the share of those who planned to stay abroad increased. Those who have already found work abroad are less inclined to return.

[18] According to the IOM survey, only 7% of those polled were actively preparing to relocate for the winter due to energy supply disruptions. At the same time, a KMIS survey shows that a large part of households have adapted to the power cuts: in December, 34% indicated that they were fully prepared for heating supply disruptions in winter, 40% were partially prepared, and 8% were not ready.

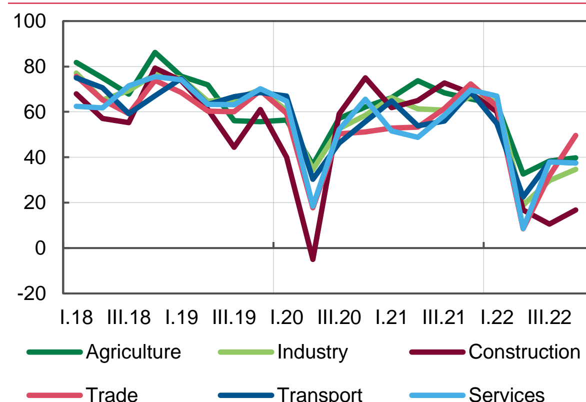
[19] Specifically, a Rating survey shows that 55% of those who relocated who had a job before russia launched its full-blown invasion do not currently hold a job. In contrast, only 35% of those who stayed are unemployed. According to round ten of the IOM survey, in October, the share of IDPs who had a paid job was 34%, up from 29% in July. For persons other than IDPs, the number is almost unchanged at 49%. An IOM survey of Ukrainian migrants in Poland, conducted between 17 June and 10 December, showed that 30% of respondents were unemployed but looking for work, 21% were employed, 16% were unemployed and not looking for work, and 16% were retired. According to a UN survey, most migrants (63%) had a job before leaving Ukraine, while only 28% of respondents were employed at the time of the survey. According to a CES study of migrants' behavior, 69% were employed or owned a business prior to 24 February, but at the time of the survey, 36% were employed, most often in their host countries (27% worked full-time or part-time or, owned a business) or worked remotely in Ukraine (8%, and 0.4% found a new remote job after 24 February). Another 22% are looking for work in their host country.

Figure 2.3.6. **Unemployment rate according to the ILO methodology sa, %**



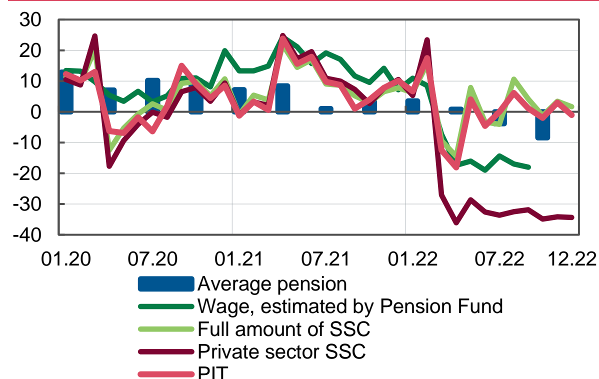
Source: SSSU, NBU staff estimates.

Figure 2.3.7. **Expectations regarding changes in labor costs per employee in the next 12 months by type of activity (balance of answers), %**



Source: NBU.

Figure 2.3.8. **Indirect indicators for estimating household incomes in real terms*, % yoy**



* Deflated by CPI.
** The private sector SSC is calculated as the difference between total SSC and SSC on wages from the consolidated budget.
Source: Pension Fund of Ukraine, SSSU, STSU, NBU calculations.

in Ukraine in Q4 was offset by the increase in the employment of migrants in the EU as they adapted to working abroad. Thanks to an abundance of detailed information on migrants in the EU,[20] estimates of labor market performance in 2022 have been refined by factoring migrants into the calculation.[21] In particular, the average unemployment rate for 2022 is estimated at 25%–26%, which corresponds to a total of 3.2 million unemployed individuals. However, even excluding migrants, the estimate of the average unemployment rate for 2022 is practically unchanged at 25%–26%. Nevertheless, Ukraine's domestic unemployment dynamics deteriorated in Q4 after improving in Q3, and the average number of unemployed people was estimated at 2.9 million.

The labor market will stay weak for a long time, but it will gradually recover as households and business adjust to wartime conditions. Unemployment will begin to decline this year. A revival of economic activity after security risks moderate will strengthen the demand for labor. At the same time, unemployment will stay above its natural rate throughout the forecast horizon due to the long-term fallout from the war. Restoring the level of employment to pre-war levels will take a long time due to the significant damage done to production facilities, and also because of supply chain disruptions and weak domestic demand. In the labor market, qualification-related and regional mismatches will persist, as in the post-war period not only the structure of demand for labor, but also the supply of labor will undergo changes due to migration.

Households' nominal incomes were supported by military allowances and social security payments, but real incomes declined significantly. Over the forecast horizon, real wages will grow slowly due to lower-than-pre-war productivity

According to available data,[22] households' nominal incomes returned to growth in H2 2022. To a large extent, this was achieved at the expense of budget sector payments, including military allowances. There was significant support from social transfers, pensions, IDP payments and other social benefits, although many recipients consider the amount of social assistance insufficient.[23] Taking into account high inflation, households' real incomes – primarily private sector salaries and pensions – decreased throughout 2022. Migrants' financial standings have worsened: the main problems both abroad and in Ukraine remain a lack of funds

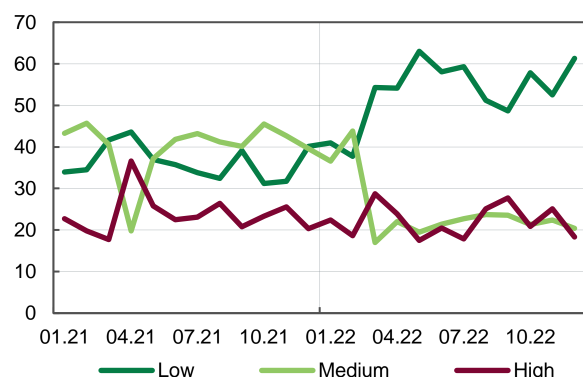
[20] Estimates are based on the results of the December CES survey of migrants in the EU. The survey made it possible to estimate the distribution of migrants by gender, age, business activity status, and more, and to include migrants in estimates of the labor force and employed and unemployed people. At the same time, the number of migrants in russia and belarus will continue to be excluded from the calculations.

[21] Under the Law of Ukraine *On Employment of the Population*, persons working abroad are part of the employed population of Ukraine. According to the SSSU's labor survey methodology, the only group that cannot be polled are those who are temporarily absent from their workplaces while visiting their homes and are not expected to return within the next 12 months. The surveys have shown that the share of migrants who are determined to return to Ukraine is high. This group has therefore been included in the estimates of labor market performance. Over time, however, the residence status of these individuals abroad will change, which will be accompanied by their exclusion from the labor force in Ukraine.

[22] Since the full-scale war broke out, the SSSU has stopped publishing data on the salaries of full-time employees. To estimate households' incomes, indirect indicators were used: consolidated budget revenues from taxes, the payroll tax in particular, social benefits, the average salary from which insurance contributions were paid (calculated by the PFU), the average pension, and more.

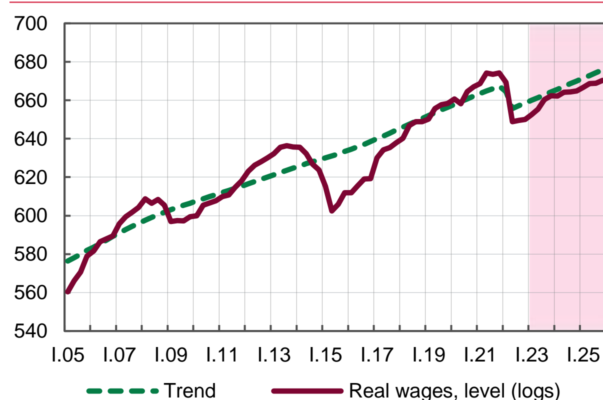
[23] According to a study by CEDOS, although a large share of respondents, especially those who are in a difficult situation (IDPs, low-income people, those who have lost their homes), consider the aid insufficient, the majority (58%) agree that the distribution of this assistance is generally fair, even though it is difficult to get it, according to almost half (43%) of respondents.

Figure 2.3.9. Assessment of the households' level of well-being in Ukraine based on the results of consumer sentiment surveys, % of responses



Source: Info Sapiens.

Figure 2.3.10. Real wages, level (logs)



Source: SSSU, NBU staff estimates.

and difficulty finding housing and work.[24] Social support from the government therefore remains vital.

According to the Q4 2022 Business Outlook Survey, businesses have improved their estimates of salary increases in the forthcoming 12 months.[25]

The NBU also projects active growth in households' nominal incomes in 2023–2025. This will be supported by the real sector adjusting this year to working in conditions of high risk, and significant expenditures on defense and security. Going forward, the increase in labor demand as the economy recovers will be the main driver of the growth in nominal wages. However, the increase in real wages over the entire forecast horizon will be slow because of significant inflation.

The growth in household incomes will also be driven by high budget payments – social expenditures in particular.

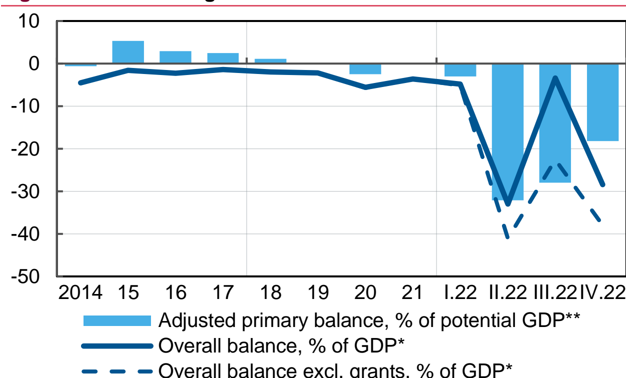
[24] According to the IOM survey, the biggest problem for IDPs remains a lack of funds (53%). This is less of an issue for IDPs who have already returned to their permanent places of residence or for people who did not relocate. Some 56% of IDPs have already spent all of their savings (43% of all respondents). IDPs from the south of Ukraine are better off than those from other areas. IDPs from the west are in the worst situation.

[25] A robota.ua survey yields a similar outcome: in 2023, 58.2% of respondents plan to raise their salaries, including the 40% that expect 5%–10% increases.

2.4. Fiscal Sector

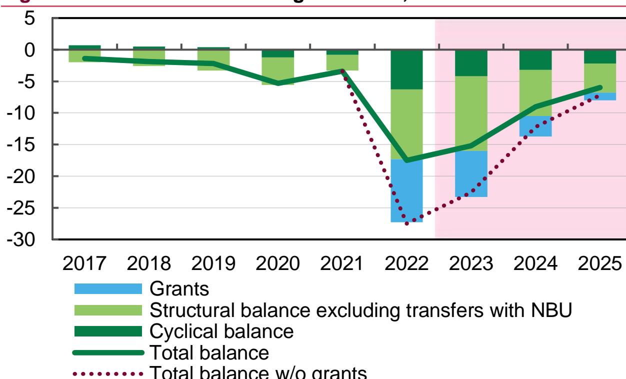
- In 2022, fiscal policy was extremely loose: the consolidated budget deficit (excluding grants) exceeded 27% of GDP. Negative balance will gradually narrow (to 6% of GDP in 2025), but will remain significant due to the moderate recovery of the economy and the need to maintain Ukraine's defense capability and economy as a whole.
- International aid will be the key source of financing for the budgetary needs in 2023. Its significant volumes, together with the intensification of domestic borrowing, will make it possible to implement the budget without monetary financing over the entire forecast horizon.
- The debt to GDP ratio will increase in 2023 and remain high (at almost 100%) for a long period due to significant financing needs amid a gradual reduction of grant support and a moderate pace of economic recovery.

Figure 2.4.1. General government fiscal balance



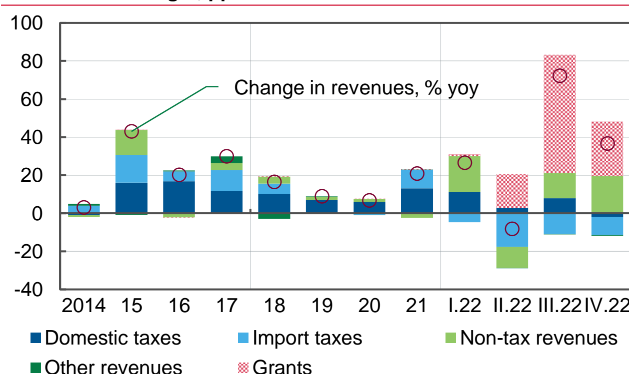
* Overall balance is the consolidated budget balance, taking into account loans to the PFU from the STA. ** Cyclically adjusted primary fiscal balance (CAPB) of the general government (% of potential GDP). CAPB is the difference between seasonally adjusted revenues, in the structure of which tax revenues 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.

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



Source: STSU, SSSU, NBU staff estimates.

Fiscal policy will remain expansionary to support Ukraine's defense capability and economy, and will be primarily driven by international aid

Fiscal policy was extremely loose in 2022. This was evidenced by the rapid expansion of the primary deficit which was adjusted for the cyclical position of the economy in Q2, and its being maintained at a significant level until the end of 2022. The record increase in the consolidated budget deficit (up to over UAH 844 billion or – excluding grants – over UAH 1,325 billion or 27% of GDP) was due to a sharp narrowing of the resource base because of the war, and a surge in expenditures to ensure defense capabilities and to support households. Running such a significant deficit was primarily made possible by international financial aid (more than USD 32 billion, including USD 14.2 billion in grants), which increased every quarter, to USD 12.3 billion in Q4, including USD 3.8 billion of grants.

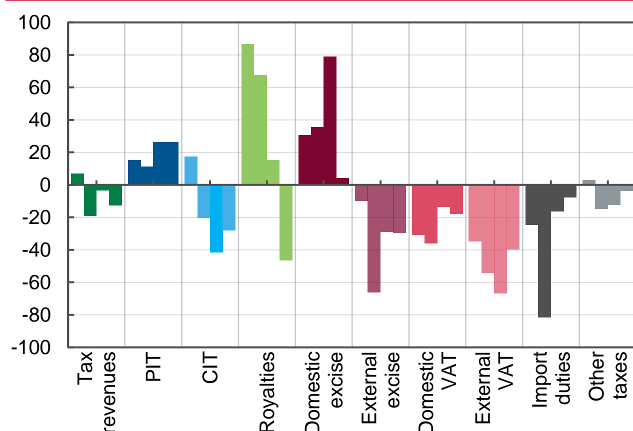
In 2023, the budget deficit will remain significant due to the combination of still limited domestic opportunities to mobilize revenues and high expenditures. Going forward, however, the budget gap is expected to narrow significantly, to 6% of GDP in 2025. Despite the initiated fiscal consolidation, fiscal policy will stay loose in the forecast period, taking into account the need to finance the post-war recovery of the country's economy and to support households. International assistance, including through the new IMF financing program, will continue to be vital for covering budgetary needs and maintaining macrofinancial stability.

The sharp drop in the tax base in 2022 has been offset by significant nontax revenues, as well as inflationary and exchange rate effects. Going forward, revenues will grow moderately due to the war

The resource base shrank dramatically in 2022 due to both a slump in business activity and tax breaks temporarily introduced in the earliest months of the full-scale war. The overall decline in tax revenues, however, was moderate (7.6% yoy). They were driven by strong financial performance in the previous year, significant military allowances, a relatively quick recovery of imports, inflationary and exchange rate effects, and the gradual rollback of emergency tax benefits.[26] At the same time, uneven VAT refunds also had an impact. By the end of the year, they had slowly increased from the limited volumes seen in the first months

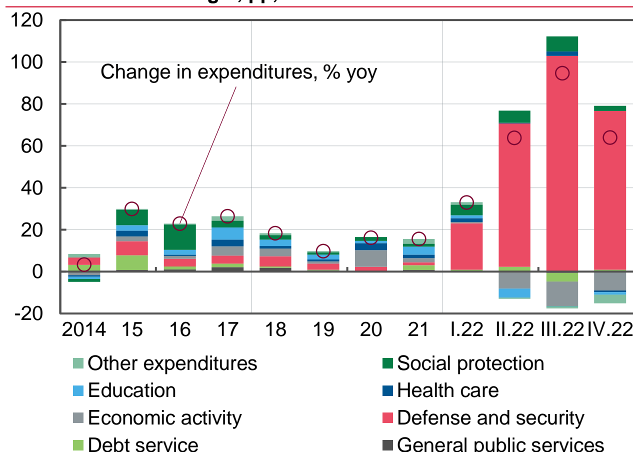
[26] As of the end of 2022, the possibility still existed of using the simplified taxation system (2% rate), the VAT rate was reduced, excise taxes on fuel were partially suspended, etc.

Figure 2.4.4. **Change in tax revenues of the consolidated budget, by quarters, % yoy**



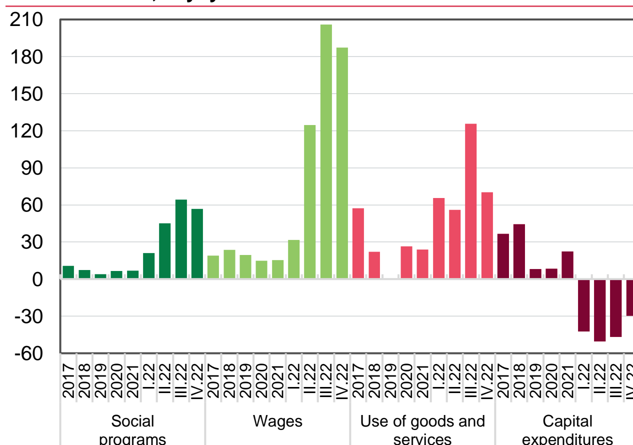
Source: STSU, NBU staff calculations.

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



Source: STSU, NBU staff calculations.

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



Source: STSU, NBU staff calculations.

of the invasion. Coupled with the effects of power shortages (see the section *Demand and Output* on page 16), this led to a deepening of the fall in tax revenues in late 2022.

The weakness of tax revenues was compensated for by nontax revenues, in particular charitable contributions from Ukrainian and foreign citizens, businesses, organizations, humanitarian aid providers, and grant donors. The latter have provided about a quarter of the revenues since the beginning of the russian invasion. Thanks to this aid, overall revenues of the consolidated budget grew by more than 32% yoy, or by 3.2% yoy excluding grants.

Over the forecast horizon, revenues are expected to grow, albeit slowly. This increase will be driven by tax proceeds, which will increase due to the revival of private consumption, the rollback of tax breaks, and still rather high inflation. The share of grants will shrink every year.

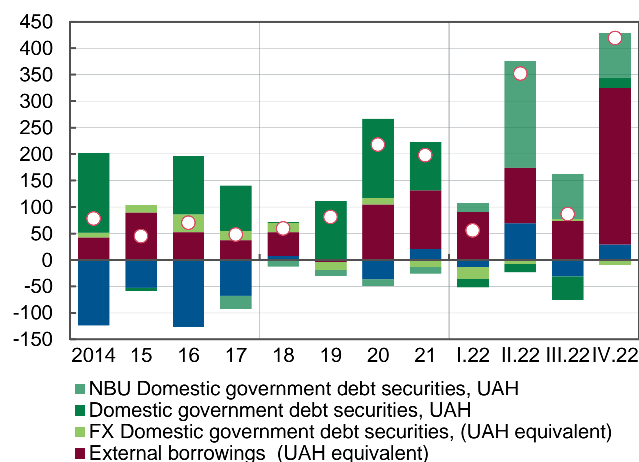
After the unprecedented increase seen in 2022, spending will grow more slowly, with an unchanged focus on defense and social security

Consolidated budget expenditures exceeded their 2021 levels by more than 1.5 times, although this growth decelerated slightly at the end of 2022. Specifically, most of the money went towards defense and security, as expected. Spending on social programs also played a key role. It included support for households via payments to IDPs, a number of social benefits, and housing and utility benefits and subsidies. Budgetary support for the Pension Fund of Ukraine was also significant. Expenses on the salaries of employees continued to surge, driven primarily by military allowances. All of this bolstered household incomes and thus consumer demand. At the same time, humanitarian and cultural spending was restrained because of both limited resources and a smaller number of consumers of these services.

At the end of the year, the government caught up with some of the delayed capital expenditures, in part due to the need to repair damaged energy infrastructure. For the year as a whole, however, capital expenditures were significantly lower than in 2021. But taking into account the deterioration of businesses' financial performance and the overall scaling down of investment projects due to uncertainty and damage to facilities, government funding has been the main source of investment during the war.

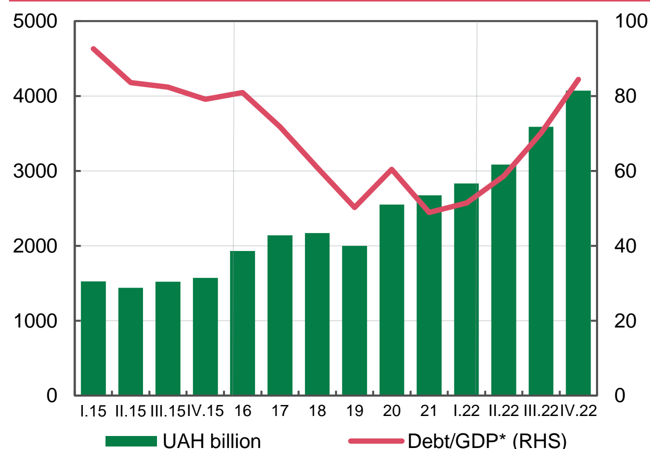
In the years ahead, the growth in expenditures will decelerate significantly, including due to the optimization of the budget sector. The emphasis will remain on defense spending until security risks moderate. However, it will be a priority in the post-war period as well. The share of capital expenditures will gradually expand because of the need for post-war reconstruction. After people return to their places of permanent residence, social support will gradually shift focus towards housing and utility subsidies. A high debt burden will drive a further increase in debt-servicing expenditures, which will require gradual fiscal consolidation.

Figure 2.4.7. State budget balance financing*, UAH bn



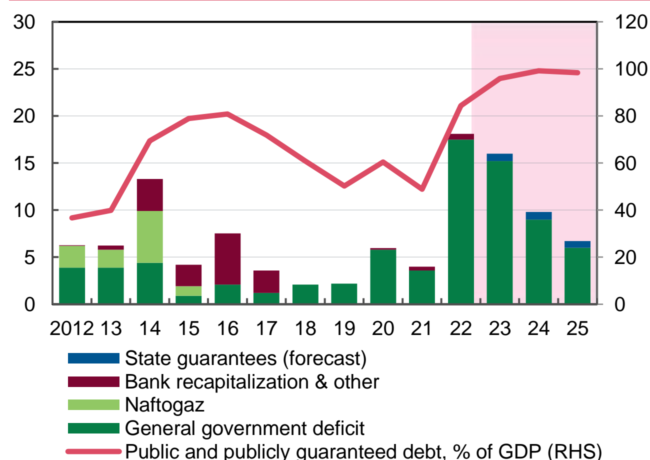
* Borrowings in UAH include government bonds issued to increase the authorized capital of banks, Deposit guarantee fund (DGF), and other state-owned enterprises.
Source: STSU, MFU, NBU staff calculations.

Figure 2.4.8. Public and publicly guaranteed debt, eop*



* GDP in 2022 – NBU estimates.
Source: MFU, SSSU, NBU staff estimates.

Figure 2.4.9. Broad public sector deficit, % of GDP



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

The monetary financing of the budget deficit in 2022 did not exceed the announced levels and is not foreseen in future

Demand for marketable government securities rose at the end of the year, driven by higher yields, but it was generally weak throughout 2022. Specifically, the rollover for hryvnia and FX domestic government debt securities was 65% and 70%, respectively. As international financial aid at the onset of the full-scale war was irregular, the NBU commenced the monetary financing of the deficit in order to maintain the continuity of budget expenditures in the first months of 2022, after russia invaded. To mitigate risks to macrofinancial stability, this type of funding was significantly reduced in H2 2022. Thanks to greater and more regular international assistance, the monetary financing effort was limited to UAH 30 billion a month. Overall in 2022, the NBU purchased UAH 400 billion worth of domestic government debt securities. The pursuit of this monetary financing strategy helped to stabilize expectations and ease pressure on the FX market.

Going forward, the government is expected to utilize the domestic debt market's potential more intensively, in particular due to the convergence of the yield on domestic government debt securities with its market level. This will make it possible to avoid the monetary financing of the deficit over the forecast horizon, in line with the government's and the NBU's declared goals. In addition, the gradual reduction of the risk premium when there is a relatively high key policy rate will help rekindle foreign investors' interest in domestic debt instruments. In future, the decrease in the risk premium will lay the groundwork for Ukraine's return to the global capital markets.

Significant fiscal needs will drive further debt growth in 2023, despite grants. Going forward, the debt to GDP ratio will stabilize, but at a high level

Public and publicly guaranteed debt exceeded 80% of GDP in 2022, the NBU estimates. Significant international aid loans, especially in Q4, public guarantees to support businesses, and the issuing of government bonds to fund the capitalization of the Ukrainian Financial Housing Company PJSC led to an increase in debt. The revaluation of FX debt due to the exchange rate change made a significant contribution, considering its large share of the total debt. In contrast, net domestic repayments restrained the growth in debt. Despite significant volumes, international credit assistance is provided to Ukraine on preferential terms: in addition to low interest rates, principal repayments are deferred in time. This will take some pressure off the budget in the coming years.

With primarily debt-financed large deficits persisting, and with GDP growth expected to be restrained from 2024 onwards, the debt-to-GDP ratio will increase in 2023, but will stabilize at a high level as gradual fiscal consolidation takes place. Compared to the previous forecast, this ratio has noticeably worsened over the entire forecast horizon, primarily due to larger budget deficits amid the longer persistence of security risks and slower economic recovery.

Box 3. Ukraine's 2023 State Budget in Figures

The 2023 state budget was drawn up and will be implemented under conditions of great uncertainty, given the unprecedented security risks. That is why the budget parameters are likely to be revised many times over the year. The deficit approved by the Law On the State Budget of Ukraine for the Year 2023 (the law) is currently smaller, both in nominal terms and as a percentage of GDP, than the planned and actual deficit seen in 2022, excluding grants in revenues. In spite of that, it remains substantial – 20.6% of GDP.[27] Although all budget parameters face significant risks, the major risks are related to resources. More specifically, economic losses generated by power shortages pose risks to the budget's receiving the planned tax revenues.

Although the law does not provide for the monetary financing of the deficit, the risk of this happening still exists. The prospects for receiving the planned amounts of external financing, which will cover almost the whole of the deficit, have significantly improved compared to those when the law was adopted and the NBU's October forecast was published. That said, some international aid programs are still being negotiated. What is more, irregular arrivals of external assistance could pose a challenge to the budget's implementation, as was the case in 2022.

The planned deficit of the 2023 state budget is smaller than the actual 2022 deficit (excluding grants in revenues), with the primary deficit narrowing sharply (to 15.5% of GDP, from almost 26% of GDP in 2022, excluding grants in revenues). This shows that the government intends to tighten fiscal discipline even in the face of wartime challenges, which will help support macroeconomic stability and reduce risks to the sustainability of public finances in the future. This should also have a positive effect on Ukraine's international partners' perception of Ukraine as a responsible partner.

The government's forecast envisages in 2023 a rather sluggish increase in state budget revenues, and lower expenditures compared to the actual figures for 2022. The share of GDP redistribution is also significantly reduced, which is mainly due to expectations – held when the forecast was being developed – of a rebound in economic growth in 2023 on the back of rather high and persisting inflation.

Table 1. The main state budget parameters, UAH bn

Indicator	2021	2022	2023
			Law
Revenues	1 296.9	1 306.7	1 329.3
% yoy	20.5	0.8	1.7
% GDP	23.8	27.1	21.2
Expenditures	1 490.3	2 705.4	2 580.7
% yoy	15.7	81.5	-4.6
% GDP	27.3	56.1	41.1
Net lending	4.5	-3.3	45.1
Balance (- deficit)	-197.9	-1 395.4	-1 296.5
% GDP	-3.6	-28.9	-20.6

* Revenues and balance for 2022-2023 – w/o grants except for those envisages by the law. GDP for 2022 - NBU estimates.
Source: STSU, VRU, NBU staff estimates.

Nevertheless, the planned budget deficit is substantial, and is likely to widen, driven by power shortages, which could persist throughout 2023 (read more in Box *The Impact of Power Shortages on the Ukrainian Economy* on page 20). Weaker economic performance in 2023 than that expected when the law was being drawn up could decrease the tax base and, consequently, budget revenues (if the NBU's baseline macroeconomic scenario materializes, revenues could fall short of the target by 4.5%). Given the government's limited ability to optimize expenditures in wartime, this could increase the budget deficit. These risks could be mitigated through further steps to roll back emergency tax breaks[28] and through improving tax administration. However, even if the budget receives the full amount of planned revenues, these revenues will be sufficient to cover only half of planned expenditures.

Table 2. The main macroeconomic parameters

Indicator	2023	
	CMU	NBU
Nominal GDP, UAH billion	6 279	5 985
Real GDP, %	3.2	0.3
Consumer price index,% (Dec /Dec)	28.0	18.7
Exports of goods and services (USD billion)	61.3	49.0
Imports of goods and services (USD billion)	76.6	99.9
Exchange rate, UAH/USD (average)	42.2	-
Nominal average wage, UAH thousand	18.3	17.6

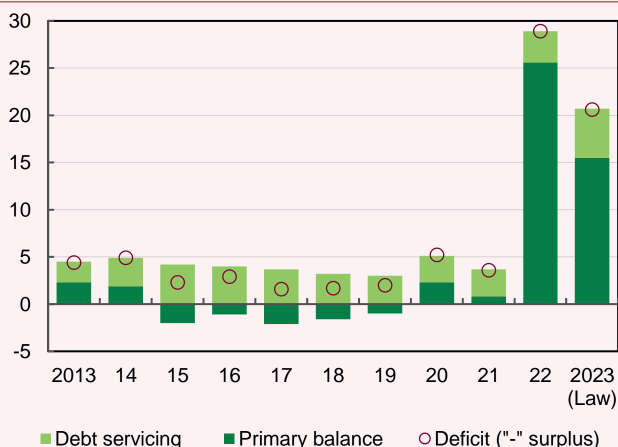
Source: VRU (explanatory note to the second reading), NBU January 2023 Inflation Report.

Expenditures focus mainly on Ukraine's defense capability and social support for the population. Although the basic social standards[29] were left at the level of 2022, the budget envisages considerable expenditures to support Ukraine's Pension Fund, in particular in order to index pensions, continue payments to IDPs, and pay housing and utilities benefits and subsidies for households. Economic activity will be shored up by expenditures from the Fund for Countering the Consequences of the War (using a portion of the funds transferred by the NBU), and from the Road Fund (using revenues from the fuel excise tax). Despite the restrained approach taken when planning expenditures, there is a risk that the government will be forced to step up these expenditures, mainly if security risks increase and critical infrastructure is destroyed. The large number of displaced persons abroad poses a risk of a reduction in Pension Fund revenues, which, in turn, will necessitate additional budgetary support for the fund.

[27] Unless stated otherwise, the GDP data used here and further were taken from the Cabinet of Ministers forecast on which the 2023 state budget is based.
[28] The budget was drawn up on the basis of the draft law proposing to amend Ukraine's Tax Code to reimpose, from 1 July 2023, the fuel tax that was in effect before the war. In early 2023, the Finance Ministry prepared a draft law that restores the taxation system that was in place before 24 February 2022. Among other things, the draft law cancels the 2% unified flat tax payable by category III sole proprietors and legal entities on their income, while also reinstating the unified social tax for category I and II sole proprietors.
[29] The minimum wage is UAH 6,700, while the subsistence level is UAH 2,589.

The law envisages covering almost the whole of the deficit using external financing. Borrowing is estimated to hit over 27% of GDP, of which external borrowing will account for 25.7% of GDP (over UAH1,612 billion or USD 38.2 billion). Ukraine's prospects for receiving such ambitious amounts of international financing have improved since the law was adopted and the NBU published its October macroeconomic forecast. However, at present only USD 30.5 billion in the equivalent have been committed, of which EUR 18 billion will arrive from the EU, and almost USD 11 billion from the United States. The risk of this financing arriving on an irregular basis still persists.

Figure 1. State budget balance*, % GDP



* To calculate the primary balance for 2013-2022 functional classification was applied, and program classification – for 2023. Deficits for 2022-2023 do not include grants except for those envisages by the law. GDP for 2022 - NBU estimates

Source: STSU, VRU, NBU staff estimates.

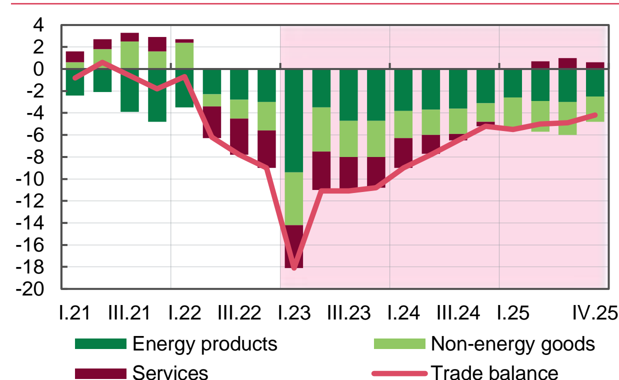
At the same time, in order to meet its planned financing figures, Ukraine needs to continue to actively cooperate with its partner countries and international financial organizations, primarily the IMF. Complying with the terms and conditions of the IMF's Program Monitoring with Board involvement will not only help launch the program, which will finance budgetary needs, but will also act as a clear signal for other partners that Ukraine is prepared to discharge its obligations and conduct reforms in the face of war challenges.

Conversely, domestic borrowing is expected to be low, at about UAH 91 billion. On the one hand, this shows that there are no plans to resort to the monetary financing of the budget deficit. On the other hand, given the substantial liquidity of the banking system, tightened reserve requirements for banks and the arrangement with Ukraine's Finance Ministry to bring yields on domestic government debt securities close to market levels, which are enshrined in the Memorandum to the IMF's Program Monitoring with Board involvement, Ukraine has a good chance to ramp up its borrowing on the primary market for domestic government debt securities. This will enable the country to raise enough funds to implement expenditures, while also decreasing the risk of monetary financing if revenues and/or external financing fall short of the target.

2.5. Balance of Payments

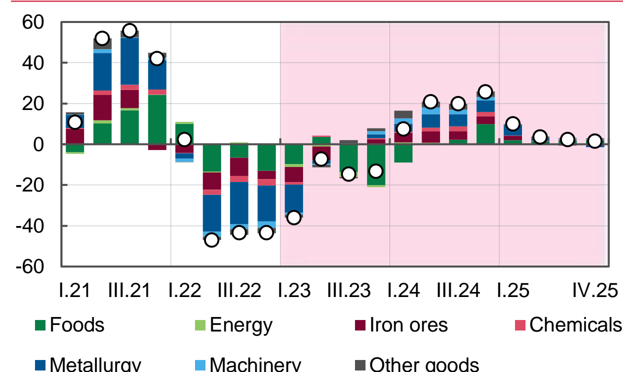
- Export earnings remained rather stable in Q4, despite missile attacks and russia's attempts to undermine the operation of the "grain corridor". At the same time, households' and businesses' active preparations for the winter amid power shortages pushed up demand for FX. In spite of that, substantial official financing had by end-2022 increased international reserves to USD 28.5 billion – a level higher than that before the full-scale invasion.
- In 2023, the deficit in the trade in goods will widen rapidly, propelled by a drop in exports resulting from a lower harvest and elevated demand for emergency power supply goods. Together with a rise in the number of migrants and, consequently, their spending abroad, this will decrease reserves to USD 27 billion by late 2023, despite international assistance remaining substantial.
- Reserves will return to growth in 2024, thanks to official financing, returning migrants, and reviving exports. By late 2025, they will hit almost USD 35 billion.

Figure 2.5.1. Trade balance, USD bn



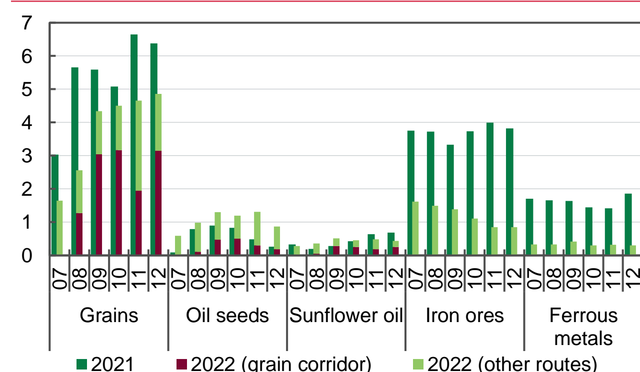
Source: NBU staff estimates.

Figure 2.5.2. Contributions to annual change in merchandise exports, pp



Source: NBU staff estimates.

Figure 2.5.3. Exports of selected goods, m t



Source: SCSU, Black Sea Grain Initiative JCC.

Exports will shrink in 2023, dragged down by a low harvest and the adverse effect of power shortages on producers. However, after that exports will return to growth, driven by economic recovery and fully operating ports

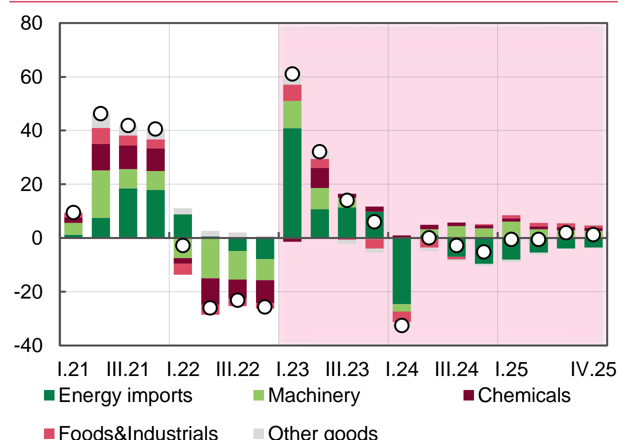
Exports of goods remained rather stable in Q4, despite all of the challenges exporters faced. More specifically, intentional delays in ship inspections by russia's representatives somewhat slowed shipments through the "grain corridor" in November. What is more, Ukrainian foods are being sold at large discounts because of logistical hurdles and high risks. Together with a lower harvest, this significantly reduced food exports compared to previous years. That said, food exports almost doubled in Q4 compared to Q3. The main reasons for this were the operation of the "grain corridor" and an increase in food export volumes via other modes of transport. As a result, food exports accounted for almost two thirds of total exports of goods.

The performance of exports of goods was also affected by russia's missile attacks on Ukraine's energy infrastructure. Ukraine completely stopped exporting electricity to the EU due to domestic power shortages. Coal export volumes also dropped on the back of higher domestic needs. Lower production of iron ore and metals, narrowing demand from EU producers, coupled with costly and complicated logistics, continued to decrease exports of ferrous metals and iron ores. Exports of wood industry products dropped, dragged down by rising domestic demand for solid fuel and a ban on exports of fuel wood. Conversely, the fall in chemical exports slowed thanks to fertilizer producers adapting rather quickly to power shortages.

In 2023, exports of goods will shrink and will be smaller than envisaged in the previous forecast, mainly due to the war's effects, including due to power shortages persisting into 2023. Falling demand from EU countries amid a global recession and logistical hurdles will be additional factors restraining exports, primarily exports of iron ore and metals. Food exports are also expected to contract due to a poor grain harvest and continued large discounts. Power shortages will slow exports of sunflower oil, which will only in part be offset by exports of sunflower seeds.

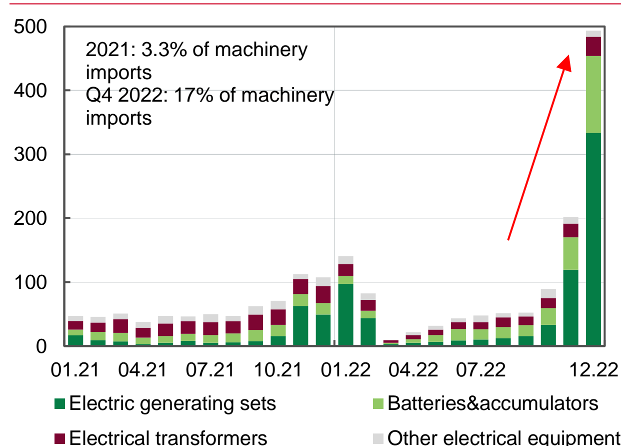
Exports of goods will return to growth in 2024, albeit this growth will be distributed unevenly across sectors. Larger harvests will gradually push up Ukrainian food exports,

Figure 2.5.4. Contributions to annual change in merchandise imports, pp



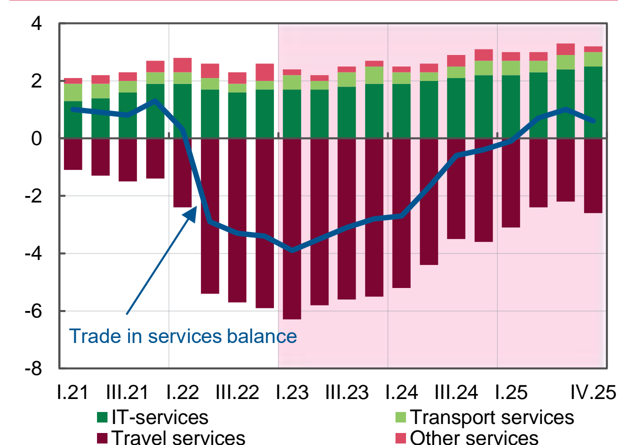
Source: NBU staff estimates.

Figure 2.5.5. Imports of emergency power supply equipment, USD m



Source: SCSU.

Figure 2.5.6. Trade in services balance, USD bn



Source: NBU staff estimates.

despite falling global prices. At the same time, metal exports, although growing after sea ports become fully operational, will be well below their pre-war levels over the entire forecast horizon because of destroyed production facilities and robust domestic demand for metal, which will be needed to restore infrastructure.

Although non-energy imports will remain high, falling energy prices and reviving exports will help narrow the deficit in the trade in goods starting in 2024

russia's terrorist attacks on Ukraine's energy infrastructure in Q4 boosted imports of emergency power supply goods for households and businesses. There was a surge in imports volumes of generators, accumulators, different types of batteries and other electrical equipment, thanks, among other things, to the exemption of these goods from customs duties. The share of these products in machinery imports rose from 3.3% in 2021 to 17% in Q4 2022. The active use of generators significantly increased demand for petroleum products, pushing import volumes of these products to a record high since the start of the full-scale war. International humanitarian aid also increased, including equipment needed for restoring energy infrastructure. The significant needs of the defense sector pushed up imports of food and industrial goods (clothes, footwear, and so on).

As a result, the deficit in the trade in goods widened substantially, to USD 5.6 billion in Q4. Over the whole of 2022, the deficit hit USD 14.6 billion – a high not seen since 2013. Given high energy prices, the need to replenish energy stocks, and power shortages, energy imports will grow markedly in 2023. However, a large portion of those imports is expected to be financed using external donor funds.

Looking ahead, the downward trend in global energy prices and the gradual normalizing of energy sector operations will decrease the share of energy imports.

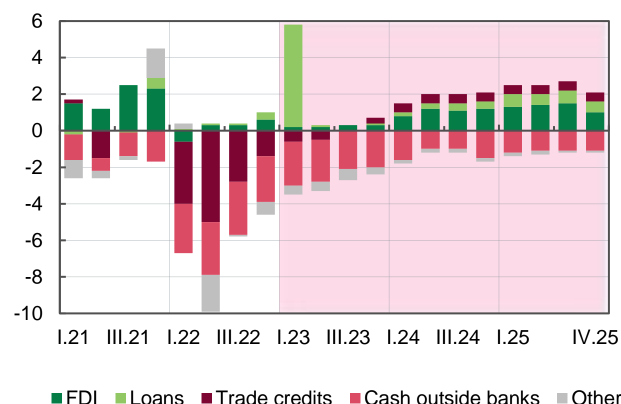
Problems in the energy sector will also increase non-energy imports in 2023, which will be driven mainly by robust domestic demand for emergency power supply goods. The defense sector will require substantial imports. In 2024–2025, non-energy imports will remain high to meet the needs of post-war recovery. Thus, after widening sharply in early 2023, the deficit in the trade in goods will start to narrow, but will still remain substantial over the entire forecast horizon.

Projections for 2023 imports of goods have been revised upward due to the country's greater need for energy, machinery and industrial goods. In contrast, imports of fertilizers have been revised downward because of a reduction in sown areas.

The large number of Ukrainian migrants will cause substantial FX outflows in 2023, which will gradually decelerate as the migrants return to Ukraine

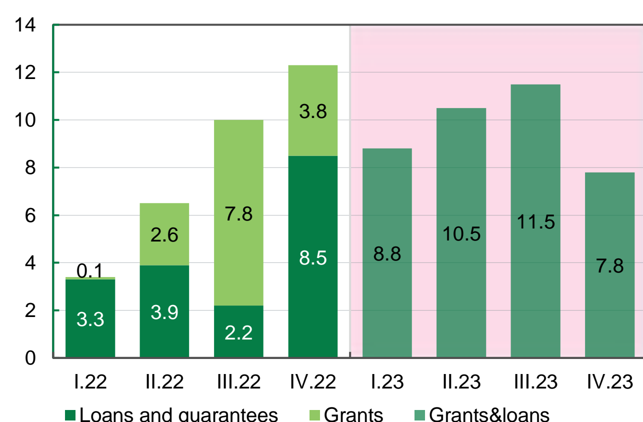
The deficit in the trade in services remained significant in Q4, at USD 3.4 billion. Exports of services grew somewhat compared to previous quarters, fueled by exports of IT services. This was due to the sector adapting to operating amid power outages. At the same time, a rebound in the foreign trade in goods increased imports of transport

Figure 2.5.7. Private sector: net external liabilities, USD bn



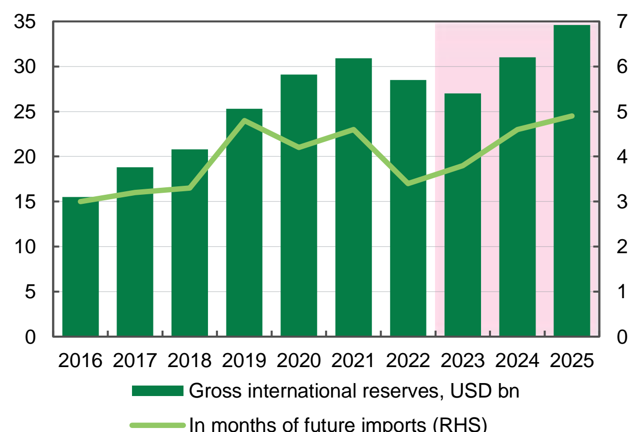
Source: NBU staff estimates.

Figure 2.5.8. International financial assistance, USD bn



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

Figure 2.5.9. Gross international reserves



Source: NBU staff estimates.

services. Meanwhile, imports of travel services continued to rise, propelled by the large number of Ukrainian migrants.

The stay of Ukrainians abroad contributed greatly to the ongoing increase in FX cash outside banks. The substantial liabilities of nonresidents under trade credits also persisted. These factors continued to generate sizable capital outflows from the private sector. On the other hand, migrants actively found employment abroad. This helped ensure stable remittances, which were only slightly lower than those last year.

The number of migrants is expected to grow in 2023 on the back of high security risks and power outages. This will push up imports of travel services, which will only in part be offset by a rise in remittances and a change in the resident status of migrants who have been abroad for more than a year. Ukrainian migrants are expected to gradually return from abroad starting in 2024 on the back of lower security risks, which will significantly decrease FX outflows in 2024–2025.

After declining in 2023, reserves will return to growth. International assistance will remain the main source for replenishing reserves

Despite the increase in interventions to sell FX seen in Q4, gross international reserves had by end-2022 grown to USD 28.5 billion – a figure larger than that at the start of the full-scale war. The private sector's balance of payments deficit continued to be mainly financed with international financial assistance – in Q4, Ukraine received USD 12.3 billion, while since the start of the full-scale invasion over USD 32 billion has arrived in the country.

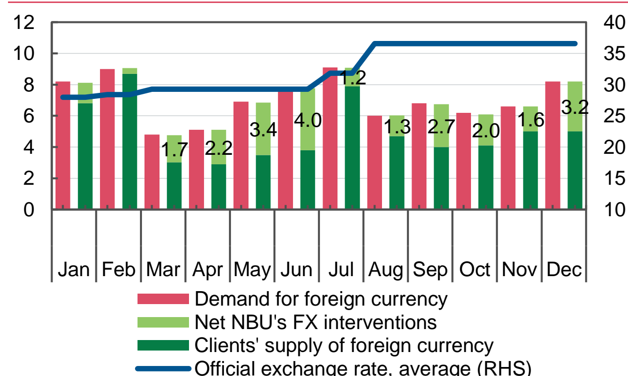
Despite the expected increase in international financial assistance in 2023 (compared to the previous forecast, the amount of this assistance has been significantly revised upward on the back of the already committed assistance from the EU and the United States), this assistance, together with the external financing of the country's energy needs, will only partly offset the widening in the trade deficit. This will push down international reserves to USD 27 billion. In spite of that, reserves will remain sufficient to cover almost four months of future imports.

Official financing will continue to maintain Ukrainian international reserves at a sufficient level. A decline in security risks will help resume capital inflows to the private sector, while also decreasing cash FX outflows outside the banking system. As a result, gross international reserves will rise, to USD 31 billion in 2024 and to almost USD 35 billion in 2025.

2.6. Monetary Conditions and Financial Markets

- A fixed exchange rate remains the nominal anchor for safeguarding macrofinancial stability. The NBU's interventions will continue to meet net demand on the FX market, despite the demand remaining substantial because of the repercussions of war.
- Tight monetary conditions will persist over the forecast horizon due to the hryvnia's REER being stronger than its equilibrium level and the real interest rate rising gradually amid lower inflation. Looking ahead, the balance of monetary conditions will enable the NBU to start cutting its key policy rate from Q2 2024.
- The persistently high key policy rate and the step-by-step tightening of reserve requirements for banks will strengthen monetary transmission and absorb the surfeit of liquidity. This will make hryvnia instruments more attractive, while also promoting the resilience of the FX market.

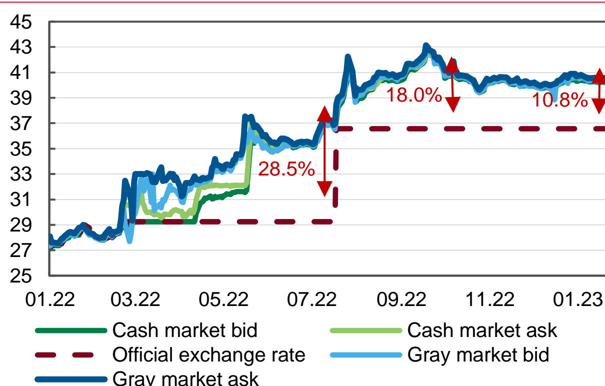
Figure 2.6.1. Demand and supply in the interbank FX market*, NBU interventions, USD bn, and official exchange rate in 2022



* The volume of purchases/sales of noncash foreign currency by banks' clients on the terms "tod", "tom", and "spot", and the balance of banks' transactions at the expense of their own position.

Source: NBU.

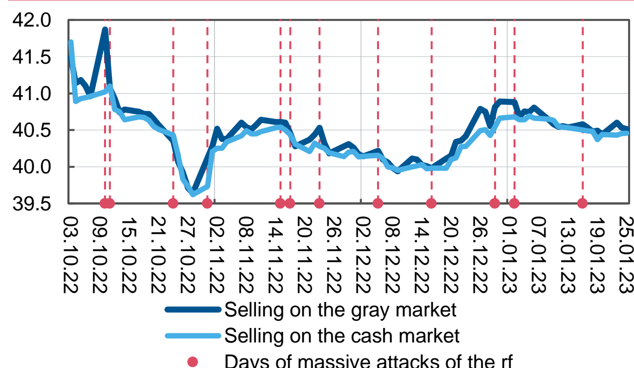
Figure 2.6.2. Exchange rate UAH/USD*



* As of 25 January2023.

Source: NBU, open data sources.

Figure 2.6.3. Exchange rate UAH/USD on the cash market *



* As of 25 January 2023.

Source: NBU, open data sources.

The NBU's monetary measures aim to support exchange rate stability, which will help stabilize expectations and decrease the risk of rising inflation

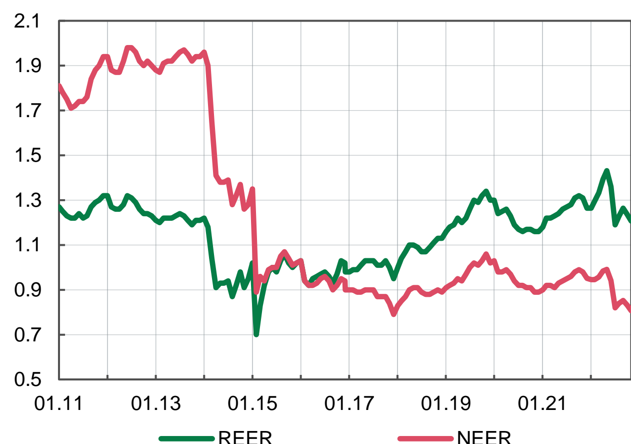
Although the overall ratio of demand and supply improved, demand still prevailed in the FX market. The cash FX market remained stable, despite russia's massive missile attacks. The deviation of the cash exchange rate from the cashless one remained at an acceptable level in Q4 – at about 10% to 11%. The following factors helped make the FX market more balanced and resilient:

- increasing and more regular international financial assistance
- rising export earnings
- keeping the key policy rate high
- the correction in the hryvnia's official exchange rate in mid-2022 and fixing the exchange rate at a new level
- sticking to the agreed conditions of the budget's monetary financing – no more than UAH 30 billion per month until the end of 2022, and stopping monetary emission from the start of 2023
- calibrating FX restrictions and introducing special deposit products (FX online deposits and deposits indexed to the change in the hryvnia's official exchange rate) and
- the gradual stabilization of inflation and depreciation expectations.

The main sellers of foreign currency were agricultural businesses and IT companies. The demand for FX was shaped by the need to ensure the country's defense capability, as well as by the need for energy products and electrical equipment. In late 2022, demand growth was also fueled by a substantial increase in budgetary spending, which was financed by international partners' funds. The demand for FX was also generated by the banks that purchased FX to settle transactions with international payment systems and to replenish the FX they sold to households. Overall, the NBU's net FX sales were USD 6.8 billion in Q4 and USD 25 billion over the whole of 2022.

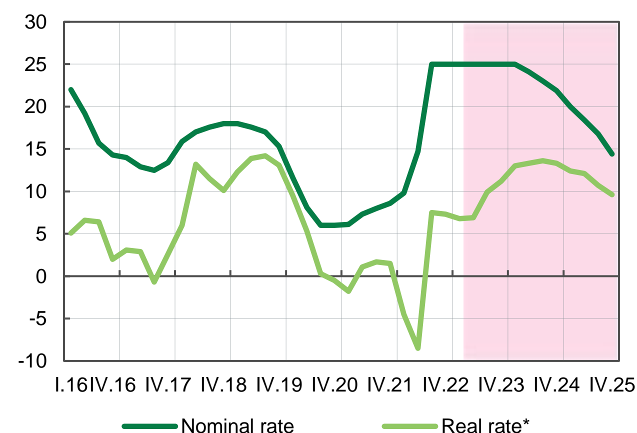
Given the FX market's limited ability to achieve equilibrium by itself, the NBU will continue to conduct FX interventions, while also taking measures to curb capital outflows, with a view to maintaining exchange rate stability. The NBU constantly monitors the effectiveness of measures to control capital flows and adjusts them so as to safeguard macrofinancial stability.

Figure 2.6.4. REER and NEER indices, 06.2015 = 1



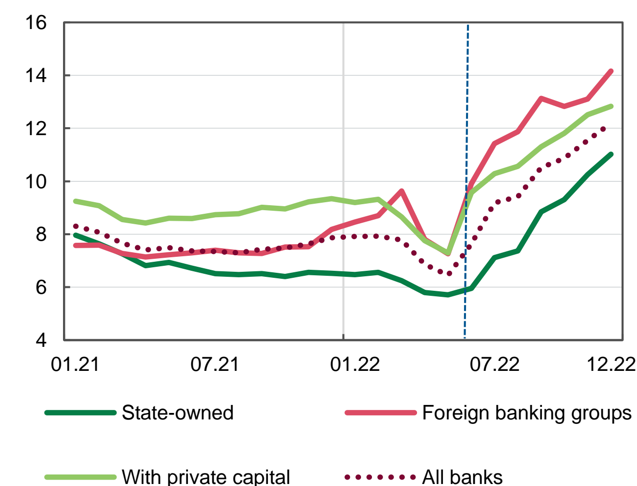
Source: IFS, NBU staff estimates.

Figure 2.6.5. Key policy rate, period average, %



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

Figure 2.6.6. Weighted average interest rates on household term deposits in hryvnia, %



Source: NBU.

The FX market's ability to self-balance will improve as security risks decrease. This ability could also be boosted by an increase in FX supply by exporters as they revive production and revitalize their logistical routes. This will enable the NBU to cut back on its interventions to balance the FX market and to gradually liberalize FX restrictions. That said, the NBU will still have to sell FX due to demand for imported goods rising more quickly than the country's ability to step up its exports due to its destroyed production facilities.

The July correction in the UAH/USD official exchange rate and the strengthening of the currencies of Ukraine's main trading partners against the U.S. dollar in H2 2022 weakened the hryvnia's REER even despite there being higher inflation in Ukraine compared to its main trading partners. Nevertheless, the hryvnia's REER remains stronger than its equilibrium level thanks to the NBU's large scale interventions to sell FX and ongoing restrictions on FX transactions. These same factors, together with persistently higher inflation in Ukraine compared to that in its main trading partners, will help maintain a reasonably stable and strong REER over the forecast horizon.

Despite being unchanged, the key policy rate will keep on rising in real terms until the beginning of 2024. Coupled with the hryvnia's strong REER, this will create tight monetary conditions, bringing inflation down

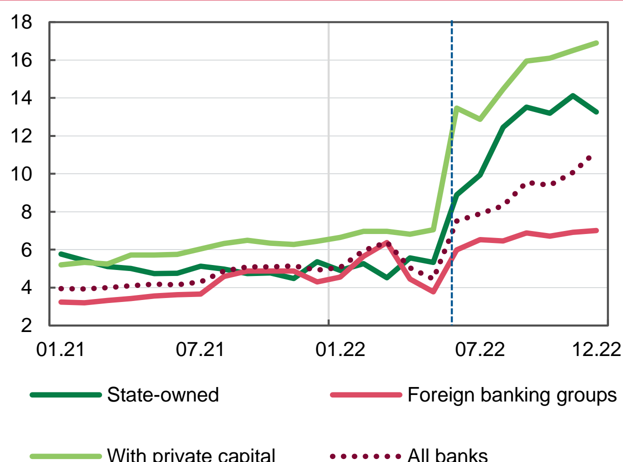
In January, the NBU kept its key policy rate unchanged, at 25%. The central bank expects that the key policy rate will remain unchanged at least until the end of Q1 2024. However, in real terms it will rise, on the back of lower inflation and the consequent fading of inflation expectations. Coupled with the hryvnia's strong REER, this will create tight monetary conditions, generating a steady disinflationary trend by making savings more attractive and decreasing the price of imported goods.

At the same time, if required, the NBU continues to stand ready to deploy tools to avoid the need for monetary financing of the budget deficit, make hryvnia assets more attractive, increase the resilience of the FX market, and lay the foundations for easing administrative restrictions.

The NBU is taking additional steps to bolster monetary transmission amid a surfeit of liquidity in the banking system

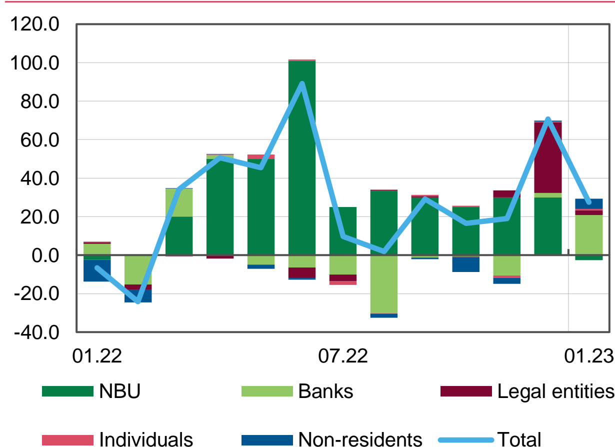
In late 2022, market rates started responding somewhat more strongly to the June hike in the key policy rate and its being maintained at a high level. This was mainly the result of the gradual anchoring of the banks' expectations that the key policy rate would be kept unchanged for a long time. In addition, in Q4 2022, the yield on hryvnia domestic government debt securities increased moderately during their initial offering. After that, the yield on domestic government debt securities that are traded on the secondary market correlated more closely with the key policy rate. The slight decrease in this yield on a short segment of the curve in December is explained by more active trading by nonresidents in the expectation that they will be able to transfer their money abroad after 1 April 2023. That said, both

Figure 2.6.7. **Weighted average interest rates on hryvnia deposits of NFCs, %**



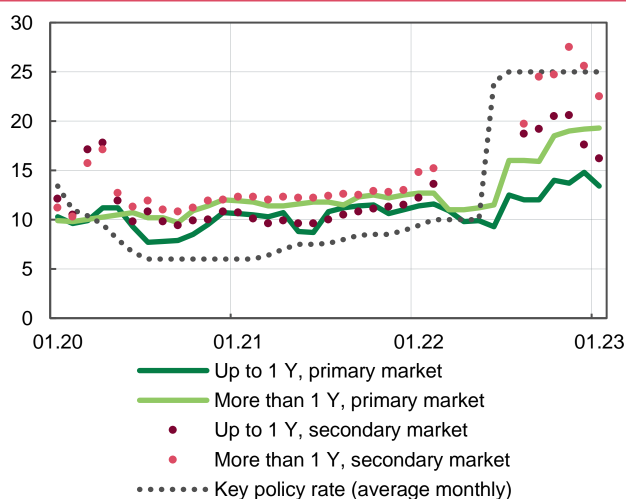
Source: NBU.

Figure 2.6.8. **Change in outstanding hryvnia domestic government debt securities in circulation by holder*, UAH bn**



* As of 25 January 2023.
Source: NBU.

Figure 2.6.9. **Yields on hryvnia government bonds*, % per annum**



* As of 25 January 2023.
Source: NBU staff estimates.

yields on domestic government debt securities and interest rates on bank deposit products did not create strong incentives to generate robust market demand for domestic government debt securities, and to give preference to hryvnia term deposits over the FX ones.

The slow response of deposit rates results largely from the significant surfeit of liquidity in the banking system, insufficient competition in the deposit market, and the limited number of alternative instruments for making savings, especially for households.

The banking system's liquidity continued to grow in Q4 2022. The main driver of this liquidity growth was a substantial increase in government spending (especially at the end of the year) through selling foreign currency. The amount of absorbed liquidity was also substantial. Liquidity was pushed down mainly by the NBU's interventions to sell FX and a faster increase in cash in circulation at the end of the year due to both seasonal factors and a short-term response to russia's attacks on energy infrastructure. In spite of that, the banking system's liquidity surplus reached a new high in late 2022 (the average daily balances of correspondent accounts and certificates of deposit were almost UAH 415 billion, compared to UAH 268 billion in Q3 2022).

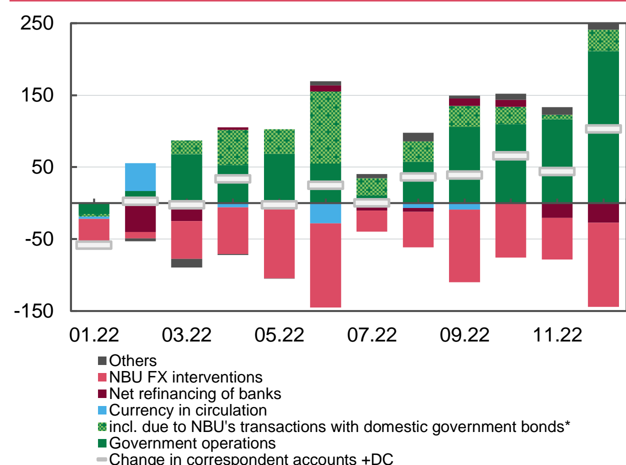
Since the start of the full-scale invasion, there has been an increase in concentration on the market for hryvnia deposits from both households and businesses. More specifically, the extremely high level of liquidity is concentrated in several of the largest market-maker banks. This is due to the fact that large amounts of social and other payments to individuals, in particular to the military are unevenly redistributed in the banking system. The banks' inert pricing policies are driving up demand for more liquid demand deposits, while also putting significant pressure on the FX market.

Looking ahead, the ample liquidity of the banking system will persist, propped up largely by considerable budgetary spending (including through the government converting FX). At the same time, the NBU's interventions to sell FX will absorb some excess hryvnia liquidity.

In order to lock up free liquidity, the NBU in mid-January tightened reserve requirements. This pushed up interest rates on hryvnia term deposits further. Already in December, when this measure was announced, the weighted average interest rate on households' hryvnia term deposits rose to 12.2%.

At the same time, the NBU allowed the banks to use benchmark domestic government debt securities to cover up to 50% of their total required reserves. This was done to increase the banks' participation in the primary market for domestic government debt securities, with a view to avoiding the monetary financing of the budget deficit in 2023. The first initial offering auctions that were held after these measures were announced proved these measures to be effective – some banks have already significantly expanded their holdings of hryvnia domestic government debt securities.

Figure 2.6.10. Factors affecting the liquidity of the banking system (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.

After assessing the effectiveness of the above measures and the dynamics of the banking system's liquidity, the NBU decided to additionally and gradually raise the required reserve ratios for demand deposits and current accounts. The NBU expects that these measures will help decrease the liquidity surplus in the banking system. These measures will also encourage the banks to compete more actively for term deposits, which will push up interest rates on hryvnia assets and increase the share of term deposits. This will make the FX market more resilient to situational factors, while also enabling the NBU to ease administrative restrictions for businesses and households in the future.

Box 4. Monetary Policy amid a Significant Structural Liquidity Surplus: Searching for an Effective Recipe

A substantial structural liquidity surplus resulting from the large-scale monetary and fiscal stimulus programs launched during the coronavirus crisis seems to have turned into a serious problem in 2022 for both the world's leading central banks and the central banks of emerging markets (CBEMs). The liquidity surplus is weakening the ability of central banks to rein in record-high price pressures. Therefore, increasingly more leading central banks, with a view to bolstering the effect from rising interest rates, are rolling back their quantitative easing (QE) programs and switching to quantitative tightening (QT). For CBEMs, the task of optimizing the liquidity surplus has become even more urgent: given the usually lower confidence in domestic currencies and less anchored inflation expectations, the threat of FX crises and inflationary spirals has increased in such countries. In order to boost the impact on inflationary processes, more and more CBEMs are deploying both traditional and rather "exotic" combinations of key policy rate hikes, required reserve tightening, and longer-maturity instruments for absorbing free liquidity.

The substantial liquidity surplus was a serious challenge for central banks in 2022. The surplus resulted mainly from the unprecedented monetary and fiscal stimulus programs launched during the coronavirus crisis of 2020–2021. More specifically, in order to support lending and aggregate demand both leading central banks and CBEMs widely applied QE programs (purchases of securities), as well as long-term and/or targeted refinancing of banks. Governments also ramped up their spending noticeably to support the economy.

These strong stimuli contributed to a significant inflation surge, ultimately unanchoring expectations. Consequently, in 2022 global inflation hit a record high in recent decades. At the same time, the resulting liquidity surplus considerably decreased the efficiency of monetary transmission channels, limiting central banks' ability to effectively curb inflation.

The central banks of advanced economies also saw a decrease in monetary policy effectiveness. After realizing that the inflation surge was not transitory, they sped up their monetary policy tightening cycles (read more in *the External Environment* Section on page 7), only to be faced with a sluggish response from market rates.

In order to make monetary transmission more effective, the Fed rolled back its QE and started to shrink its balance sheet. To cut back on its targeted long-term refinancing operations (TLTRO III), the ECB announced in October 2022 that it would peg the interest rate on these operations to its key policy rate, raising it effectively by 125 bp, to 2%.The ECB also said recently that it would start reducing its government bond holdings.

However, the liquidity surplus posed the biggest problem for CBEMs. In 2022, consumer inflation rose faster and more noticeably in these countries. Given the usually lower confidence in domestic currencies and less anchored inflation expectations, the financial systems of these countries became more vulnerable to situational factors. This, in turn, increased the threat of FX crises and runaway inflation. Realizing these risks, most CBEMs started key policy rate tightening cycles already in 2021. With a view to making their interest rate policies more effective, central banks used an array of tools to absorb liquidity.

Table 1. Monetary instruments of selected CBEMs with inflation targeting in 2022, %

Country	CPI, % yoy		Key policy rate		↑ RR ratio	CB's debt instrument
	max in 2022	*end of 2023**	*change, bp***	*end of year, %*		
Egypt***	21.3	9.2	**+800**	16.75	✓	✓
Ghana	54.1	17.5	**+1250**	27.00	✓	✓
Albania	8.3	3.3	**+225**	2.75		
Poland	17.9	9.0	**+500**	6.75	✓	
Romania	16.8	7.7	**+500**	6.75		
Hungary	24.5	6.7	**+1060**	13.00	✓	✓
Czech Rep.	18.0	4.0	**+325**	7.00		
Serbia	15.1	6.0	**+400**	5.00		
Georgia	13.9	3.8	**+50**	11.00		✓
Moldova	34.6	8.0	**+1500**	20.00	✓	
Indonesia	6.0	3.3	**+200**	5.50	✓	✓
India	7.8	4.9	**+225**	6.25	✓	
South Africa	7.8	4.5	**+325**	7.00		✓
Columbia	13.1	6.0	**+900**	12.00		
Chile	14.1	6.2	**+725**	11.25		✓

* IMF WEO, October 2022.
** Cumulative rise in 2022.
*** CB in the transition to IT (AREAER, 2021).
Source: official web pages of central banks, IMF.

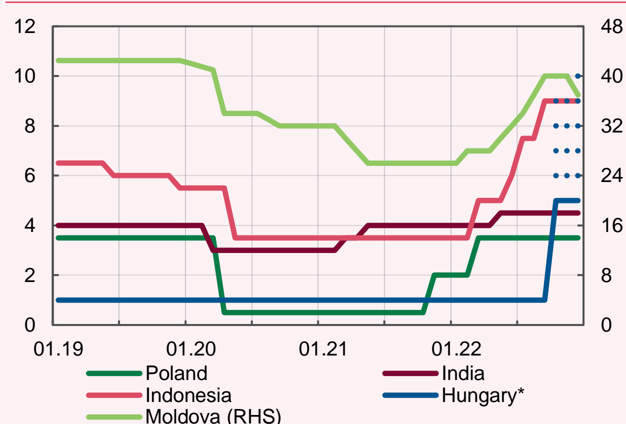
For instance, the central banks of Poland, Moldova, Egypt, India and Ghana tightened their reserve requirements to make key policy rate hikes more effective. After using this instrument mainly for macroprudential purposes for many years, in particular to decrease the dollarization rate, in 2022, central banks said clearly that they were deploying it to tighten monetary conditions (for instance, Poland and Moldova).

The advantages of reserve requirements, which explain the wide application of this instrument, are that they are easy to implement and yield results quickly. This instrument also makes it possible to estimate, rather accurately, the amount of liquidity to be absorbed.

More specifically, with a view to slowing inflation, the central bank of Poland in 2022 raised its policy rate from 1.75% to 6.75% – a level not seen since 2002. In addition, the central bank increased required reserve ratio from 0.5% to 2%–3.5% – a level held for a long time before the coronavirus

pandemic. By August, this had locked up about 19% of the total liquidity[30] of banks and credit unions.

Figure 1. Required reserve ratios in selected EM countries, %



* Banks are given the opportunity to optionally choose a ratio from the mandatory 5% to 10% quarterly.
Source: official web pages of central banks.

From July 2021 through October 2022, the central bank of Moldova raised its key policy rate from 2.65% to 21.5% in order to make savings in the domestic currency more attractive on the back of accelerating inflation. With a view to bolstering monetary transmission, the central bank also raised required reserve ratios several times (from 26% to 40% for domestic currency funds and from 30% to 45% for FX funds).

The central banks of Indonesia and Hungary resorted to rather "exotic" combinations of monetary instruments in order to withdraw some free liquidity, boost monetary transmission and restrain inflationary pressures.

In January 2022, in anticipation of monetary policy tightening in advanced economies, the central bank of Indonesia switched to a normalizing liquidity policy. The policy envisaged increasing reserve requirements in domestic currency in several stages. Starting off by raising the ratio for commercial banks from 3.5% to 5% in March, the central bank pushed the ratio up more rapidly in May – to the historic high of 9%. These measures absorbed about 22% of the banks' liquidity in March–September

In order to lock up more free liquidity, Indonesia's central bank started selling its government bond holdings and issuing its own debt instruments with maturities from one to 12 months. In August, the central bank also embarked on a key policy rate tightening cycle.

Hungary's central bank also responded to steadily rising inflationary pressures mainly by returning to an active interest rate policy. Starting from mid-2021, it gradually raised the key policy rate from 0.6% to 13%.

In addition, the central bank focused on absorbing the banks' free liquidity and strengthening monetary transmission, among other things, by deploying new instruments. For this purpose in late 2021 the central bank launched irregular issues of discount bills maturing within a month. The success of this instrument encouraged the central bank to start issuing these bills on a regular basis, starting in October 2022. This enabled the central bank to absorb in December about 13% of total liquidity in the banking system. In view of a further rise in inflation (above 20%), the central bank also proposed that the banks place their liquidity on deposits with maturities of up to six months. This measure absorbed about 20% of the banks' liquidity in December 2022.What is more, in October the central bank launched overnight deposit tenders at a rate of 18%. Thanks to the large amounts of absorbed liquidity (~40% of the banks' total liquidity in December), these overnight deposit tenders became the central bank's main operation, while the interest rate on these tenders turned into a de-facto key policy rate. As a result, despite the key policy rate remaining at 13% in nominal terms, the actual tightening in interest rate policy and monetary conditions was more substantial.

In addition, in October 2022, Hungary's central bank sharply raised required reserve ratio, from 1% to 5%-10%. In December, this made it possible to lock up about 25% of the banking system's liquidity in reserves.

Thanks to the above measures, the central bank was able to produce a stronger response of short-term interest rates to previous key policy rate hikes.

The NBU was faced with the problem of excess liquidity surplus in the banking system even before the war. The war only made this problem worse, as the NBU had to temporarily engage in the monetary financing of the budget deficit in order to support the country's defense capability. Together with the government's conversion of the FX provided by Ukraine's international partners, the monetization of domestic government debt securities widened the liquidity surplus in the banking system to a record level (read more in the *Monetary Conditions and Financial Markets* Section on page 35). With a view to preventing any possible adverse effect on macrofinancial stability, the NBU developed measures to optimize the structural liquidity surplus. In November, the NBU stopped providing unsecured refinancing loans to banks, while in December it announced that it was raising required reserve ratios, by 5 pp, for hryvnia and FX demand deposits and current accounts. Total required reserves grew by over UAH 70 billion (about 15% of the total banking system's liquidity as of 11 January 2023). In January, the NBU decided to further raise required reserve ratios (read more in the *Monetary Conditions and Financial Markets* Section on page 35). The NBU also does not exclude the introduction of other tools to narrow the banking system's liquidity surplus, and to encourage the banks to compete more actively for time deposits.

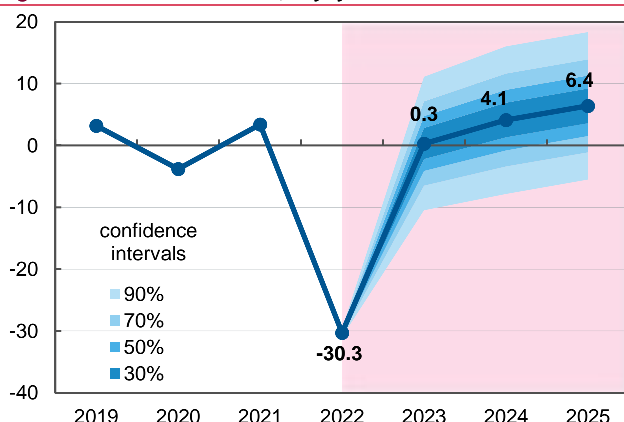
[30] NBU estimates. Here and below, the banking system's liquidity was calculated as the sum of balances on banks' correspondent accounts with the central bank, and balances on the central bank's instruments to absorb bank liquidity.

Part 3. Risks to the Forecast

- The main assumption of the macroeconomic forecast is that security risks will start to ease significantly at the beginning of 2024 thanks to successful operations by the Ukrainian army. The most serious risk is therefore the higher intensity and longer duration of russia's full-scale war.

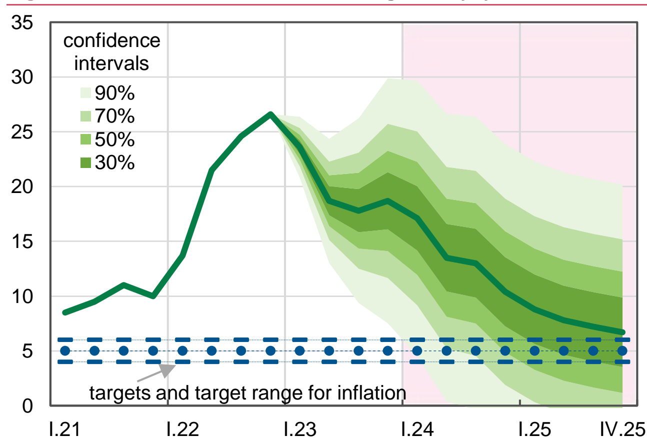
Ukraine's economy has been operating amid full-blown war for almost a year. Security risks will shape the prospects for the economy's development going forward. The most significant risk to this macro forecast is thus the intensification or longer duration of active hostilities in Ukraine. Each month of russia's aggression leads to significant human and economic losses and the deterioration of development prospects. In a scenario where high security risks persist for a longer period, the economy will suffer more significant losses in terms of GDP and will take longer to return to the path of sustainable growth, even as businesses adjust to wartime conditions. Accordingly, the labor market's recovery will be slower, both in terms of reducing unemployment and increasing wages. With the deterioration of consumer sentiment will come an increase in depreciation expectations, associated with a long-term decline in FX revenues from exports. At the same time, inflation in 2024 may be lower than in the baseline scenario due to a further extension of the moratorium on increases in utility tariffs. After the moratorium is lifted, however, inflation may come out higher than predicted in the baseline scenario due to the contribution of administered prices.

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 forecast is given in a fan chart. This chart type is used to illustrate uncertainty with regard to predicted future values. For instance, the probability that the inflation rate will be in the range of the darkest shaded area in the chart (around the central line) is 30%. The same applies to other chart areas, implying the 90% probability that the inflation rate will be in the range of the lightest shaded area.

In the harsh wartime economic conditions, public finances remain vulnerable. Economic losses from the shortage of electricity are putting planned tax revenues at risk. With the potential for optimizing wartime expenditures being limited, a lack of tax proceeds may lead to a larger budget deficit. Although the government has taken a restrained approach to the formation of expenditures, there is a significant risk that spending will have to be increased, primarily if security risks intensify and critical infrastructure is destroyed. In addition, the significant number of forced migrants poses the risk that the Pension Fund's own revenues may decrease, and thus that a need for more budgetary support could emerge. As war is unpredictable in nature, it is possible there will be problems with the regularity of international aid disbursements, and additional budgetary needs may emerge. This poses the risk that the NBU may have to resume the monetary financing of the state budget. Should such a scenario materialize, inflation and depreciation expectations will deteriorate, and the NBU will be forced to take a tighter approach to monetary policy than under the baseline scenario of the macro forecast.

A significant risk to the inflation forecast noted above is the timing and size of future adjustments to the energy component of housing and utility tariffs. The high social significance of energy prices will undoubtedly influence the decision to bring them to economically justified levels in the post-war period. On the one hand, a rapid increase in the cost of energy for households could eliminate imbalances in the energy sector and improve the financial standing of state-owned energy companies. On the other hand, this would create significant inflationary pressure, elevate social tensions, and increase the direct burden on the budget through the provision of subsidies

Degree of impact on the baseline scenario	Probability that a risk will materialize: Low <15%	Medium 15%–25%	High 25%–50%
Weak			
Moderate	Delays in cooperation with the IMF Cessation of the grain corridor	Increased emigration Growing deficit of electricity due to infrastructure damage	
Strong	Rapid implementation of the large-scale reconstruction plan of Ukraine "Marshall Plan"	Imprudent public finance framework (freezing tariffs for utilities, lower amounts of international assistance, budget monetization)	Prolonged war, escalation

to households. However, long-term delays in price increases will accumulate quasi-fiscal imbalances in the energy sector, which also pose risks to the budget. In addition, this will shift price pressures into the future.

Further growth in the electricity deficit if the country's energy infrastructure sustains more damage is a significant risk to the business activity forecast. A serious lack of capacity will make power outages for consumers, including industrial ones, more protracted, which will impede the conduct of business. Taking into account the importance of the energy sector for the economy and the high level of uncertainty over future missile attacks, this issue is discussed in detail in the Box *Impact of the Electricity Shortages on the Economy of Ukraine* on page 20.

The risk that some of the people who left Ukraine will remain abroad may rise if hostilities increase in duration and intensity, and energy infrastructure comes under further attack. In addition, unfavorable socioeconomic conditions in Ukraine in the post-war period may result in more emigration once men aged 18–60 are allowed to leave. Such an exodus will cause labor shortages and widen mismatches in the labor market, worsening the prospects for economic recovery. Heightened labor costs of businesses will ramp up inflationary pressure, but this increase will be offset by a weaker consumer demand. In the long run, there is a looming risk of a demographic crisis due to a significant number of young people having left Ukraine.

The partial unblocking of Ukraine's Black Sea ports has allowed the resumption of some food exports and mitigated the adverse effects of supply chain disruptions in trade with international partners. However, a considerable risk exists that the "grain corridor" may be shut down or significantly restricted. This would greatly dim the prospects for agricultural exports and reduce Ukraine's FX revenues. Such forced export restrictions would temporarily slow food price inflation in Ukraine due to higher supply on the domestic market. However, this will have an adverse impact on agricultural producers' expectations about future harvests and incentivize these businesses to reduce their planting of crops, restraining economic activity. In such a scenario, pressure on the exchange rate would intensify, potentially requiring a tighter monetary policy.

The plans for Ukraine's post-war recovery envisage close cooperation with international lenders and donors. The levels of investment needed to reconstruct infrastructure and production facilities damaged during the war amounts to hundreds of billions of U.S. dollars. The baseline scenario of the macroeconomic forecast does not assume massive inflows of funds for reconstruction, as the accumulation of such resources and the detailing of the relevant program are ongoing. Amplified by European integration reforms, the launch of such a project in the short run will significantly accelerate economic growth. Household incomes will grow much more quickly than the baseline scenario predicts, leading to an increase in underlying inflationary pressures. However, it will be offset by exchange rate effects as the country receives FX inflows and the risk premium declines. This will enable the NBU to start a cycle monetary policy easing earlier.

Macroeconomic forecast (January 2023)

Indicators	2019	2020	2021	2022						2023						2024						2025				
				I	II	III	IV	current forecast	forecast 10.2022	I	II	III	IV	current forecast	forecast 10.2022	I	II	III	IV	current forecast	forecast 10.2022	I	II	III	IV	current forecast
REAL ECONOMY, % yoy, unless otherwise stated																										
Nominal GDP, UAH bn	**3977**	**4222**	**5460**	1075	940	1374	1437	**4825**	4750	1097	1333	1713	1842	**5985**	6175	1387	1604	2003	2091	**7085**	7350	1578	1849	2328	2421	**8175**
Real GDP	**3.2**	**-3.8**	**3.4**	-15.1	-37.2	-30.8	-35.0	**-30.3**	-31.5	-19.0	11.7	1.5	8.2	**0.3**	4.0	7.6	4.5	3.3	2.2	**4.1**	5.2	3.6	5.4	7.1	8.6	**6.4**
GDP Deflator	8.2	10.3	25.1	24.0	26.0	28.0	27.8	26.8	26.9	26.0	27.0	25.0	18.5	23.7	25.0	17.5	15.2	13.0	11.1	13.7	13.1	9.8	9.3	8.7	6.6	8.4
Consumer prices (period average)	7.9	2.7	9.4	-	-	-	-	20.2	20.5	-	-	-	-	20.3	25.8	-	-	-	-	14.4	13.2	-	-	-	-	7.9
Consumer prices (end of period)	**4.1**	**5.0**	**10.0**	13.7	21.5	24.6	26.6	**26.6**	30.0	23.6	18.7	17.8	18.7	**18.7**	20.8	17.1	13.5	13.0	10.4	**10.4**	9.4	8.8	7.8	7.2	6.7	**6.7**
Core inflation (end of period)	3.9	4.5	7.9	10.5	15.2	20.4	22.6	22.6	24.5	21.5	17.4	15.2	15.8	15.8	13.3	15.1	13.9	11.6	8.7	8.7	3.0	6.3	4.9	3.7	3.0	3.0
Non-core inflation (end of period)	4.8	5.9	13.5	17.6	29.2	29.6	30.6	30.6	36.6	25.6	19.6	20.1	21.9	21.9	28.2	19.4	13.2	14.4	12.3	12.3	14.5	11.4	10.9	10.8	10.5	10.5
raw foods (end of period)	3.9	4.1	11.8	20.7	36.1	40.9	41.6	41.6	51.6	33.7	30.4	24.6	25.7	25.7	15.6	20.3	9.6	7.9	4.0	4.0	3.1	3.3	3.0	2.9	3.1	3.1
administrative prices (end of period)	8.6	9.9	13.6	12.4	14.8	14.7	15.3	15.3	17.0	14.4	10.9	11.4	14.7	14.7	46.7	15.1	14.8	24.6	24.5	24.5	29.7	23.6	22.6	21.2	20.2	20.2
Nominal wages (period average)	18.4	10.4	20.9	11.3	-2.7	-2.8	-2.7	0.5	-12.3	8.4	28.0	31.5	32.3	25.0	32.8	27.7	24.2	19.4	17.0	21.7	28.3	13.8	13.0	12.5	10.5	12.4
Real wages (period average)	9.8	7.4	10.5	0.1	-17.9	-21.2	-23.1	-15.8	-26.6	-13.8	6.3	11.4	12.1	3.3	4.6	8.1	8.1	4.9	5.2	6.5	13.4	4.3	4.7	4.8	3.5	4.3
Unemployment (ILO, period average)	8.2	9.5	9.8	-	-	-	-	25.8	28.3	-	-	-	-	26.1	26.9	-	-	-	-	20.0	18.2	-	-	-	-	17.6
FISCAL SECTOR																										
Consolidated budget balance, UAH bn	**-87.3**	**-224**	**-187**	-	-	-	-	**-845**	-764	-	-	-	-	**-912**	-804	-	-	-	-	**-635**	-591	-	-	-	-	**-487**
% of GDP	-2.2	-5.3	-3.4	-	-	-	-	-17.5	-16.1	-	-	-	-	-15.2	-13.0	-	-	-	-	-9.0	-8.0	-	-	-	-	-6.0
excluding grants from revenues, % of GDP	-2.2	-5.3	-3.4	-	-	-	-	-27.5	-25.6	-	-	-	-	-22.6	-19.1	-	-	-	-	-12.2	-11.9	-	-	-	-	-7.2
Public sector fiscal balance (IMF methodology), UAH bn	**-89.2**	**-243**	**-195**	-	-	-	-	**-846**	-764	-	-	-	-	**-912**	-803	-	-	-	-	**-636**	-590	-	-	-	-	**-487**
% of GDP	-2.2	-5.8	-3.6	-	-	-	-	-17.5	-16.1	-	-	-	-	-15.2	-13.0	-	-	-	-	-9.0	-8.0	-	-	-	-	-6.0
BALANCE OF PAYMENTS (NBU methodology)																										
Current account balance, USD bn	-4.1	5.3	-3.9	2.5	0.8	5.6	-0.3	8.6	6.8	-8.9	-2.5	-2.7	-6.3	-20.4	-8.0	-3.7	-2.5	-1.9	-0.3	-8.4	-5.1	-1.8	-1.4	-1.6	-0.7	-5.5
Exports of goods and services, USD bn	63.6	60.7	81.5	17.3	11.6	13.5	14.7	57.1	57.3	12.0	11.1	12.4	13.4	49.0	58.5	12.8	13.0	14.7	16.3	56.8	64.3	14.3	14.1	15.6	16.9	60.8
Imports of goods and services, USD bn	76.1	63.1	84.2	18.0	17.9	21.3	23.7	80.9	82.1	30.1	22.1	23.5	24.2	99.9	95.1	21.8	20.8	21.2	21.5	85.2	89.2	19.7	19.1	20.5	21.1	80.4
Remittances in Ukraine, USD bn	11.9	12.0	14.0	3.3	3.2	3.3	3.3	13.1	13.9	4.1	4.0	3.9	3.9	15.9	16.4	3.8	3.7	3.6	3.9	15.0	13.8	3.7	3.6	3.6	3.9	14.8
Financial account, USD bn	-10.1	3.3	-4.4	5.8	5.6	3.4	-3.3	11.5	11.7	-7.4	-1.2	-2.0	-2.6	-13.2	1.9	-1.1	-2.1	-1.9	-1.7	-6.8	-5.1	-1.8	-2.6	-1.1	-1.9	-7.4
BOP overall balance, USD bn	**6.0**	**2.0**	**0.5**	**-3.3**	**-4.8**	**2.2**	**3.0**	**-2.9**	-4.9	**-1.6**	**-1.2**	**-0.7**	**-3.7**	**-7.2**	-9.9	**-2.6**	**-0.4**	**0.0**	**1.4**	**-1.6**	0.0	**0.0**	**1.2**	**-0.5**	**1.2**	**1.9**
Gross reserves, USD bn	**25.3**	**29.1**	**30.9**	**28.1**	**22.8**	**23.9**	**28.5**	**28.5**	26.0	**26.3**	**26.8**	**28.1**	**27.0**	**27.0**	21.7	**25.5**	**26.8**	**28.0**	**31.0**	**31.0**	27.4	**31.1**	**32.7**	**32.7**	**34.6**	**34.6**
Months of future imports	4.8	4.2	4.6	3.6	2.8	2.9	3.4	3.4	3.3	3.4	3.6	3.8	3.8	3.8	2.9	3.7	3.9	4.2	4.6	4.6	3.5	4.6	4.8	4.7	4.9	4.9
MONETARY ACCOUNTS (Cumulative since the beginning of the year)																										
Monetary base, %	**9.6**	**24.8**	**11.2**	10.6	10.1	11.8	19.6	**19.6**	15.0	24.9	20.6	23.1	26.3	**26.3**	9.3	2.0	5.6	8.8	12.0	**12.0**	6.2	-1.0	2.8	5.8	8.4	**8.4**
Broad money, %	**12.6**	**28.6**	**12.0**	0.4	3.7	9.9	21.0	**21.0**	13.0	3.0	5.8	12.8	17.8	**17.8**	15.0	1.5	5.5	8.1	11.9	**11.9**	9.5	0.0	5.2	8.5	11.2	**11.2**
Velocity of broad money (end of year)	**2.8**	**2.3**	**2.6**	-	-	-	-	**1.9**	2.0	-	-	-	-	**2.0**	2.3	-	-	-	-	**2.1**	2.5	-	-	-	-	**2.2**

Forecast assumptions

Indicators		2019*	2020*	2021*	2022	2023	2024	2025
Full access to Black Sea ports					-	-	+	+
Official financing	USD bln				32.5	38.6	20.0	8.0
Migration (net)	mln people				-8.0	-0.8	1.5	1.4
Real GDP of Ukraine's MTP (UAwGDP)	% yoy	2.7	-3.4	6.2	3.5	2.0	3.1	3.0
Foreign CPI (UAwCPI)	% yoy	2.9	2.1	6.4	13.0	4.7	3.2	2.9
World prices:**								
Steel price, Steel Billet Exp FOB Ukraine	USD/t	410.9	389.4	615.0	618.1	597.8	549.3	497.2
	% yoy	-17.2	-5.2	57.9	0.5	-3.3	-8.1	-9.5
Iron ore price, China import Iron Ore Fines 62% FE	USD/t	93.8	108.9	161.7	121.4	106.5	82.8	74.7
	% yoy	34.6	16.1	48.5	-24.9	-12.3	-22.3	-9.8
Steel price, No.1 Hard Red Winter, ordinary protein, Kansas City	USD/t	164.7	185.5	263.5	360.2	310.3	272.6	251.8
	% yoy	-11.5	12.6	42.0	36.7	-13.9	-12.1	-7.6
Corn price, Yellow #2 Delivery USA Gulf	USD/t	170.1	165.5	259.4	318.4	259.9	229.2	215.8
	% yoy	3.5	-2.7	56.7	22.7	-18.4	-11.8	-5.8
Oil price, Brent	USD/bbl	64	42.3	70.4	99.8	89.9	81.4	69.5
	% yoy	-9.9	-33.9	66.4	41.8	-9.9	-9.5	-14.6
Natural gas price, Netherlands TTF	USD/kcm	161.4	115.0	575.5	1362.9	1371.0	932.3	704.3
	% yoy	-43.5	-28.7	400.4	136.8	0.6	-32.0	-24.5
Gas transit	bcm	90.4	55.8	41.6	20.6	20.0	20.0	20.0
Grain and leguminous harvest	m t	75.1	64.9	86.0	53.8	45.6	49.7	54.4
Minimum wage**	uah	4173	4815	6042	6550	7176	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