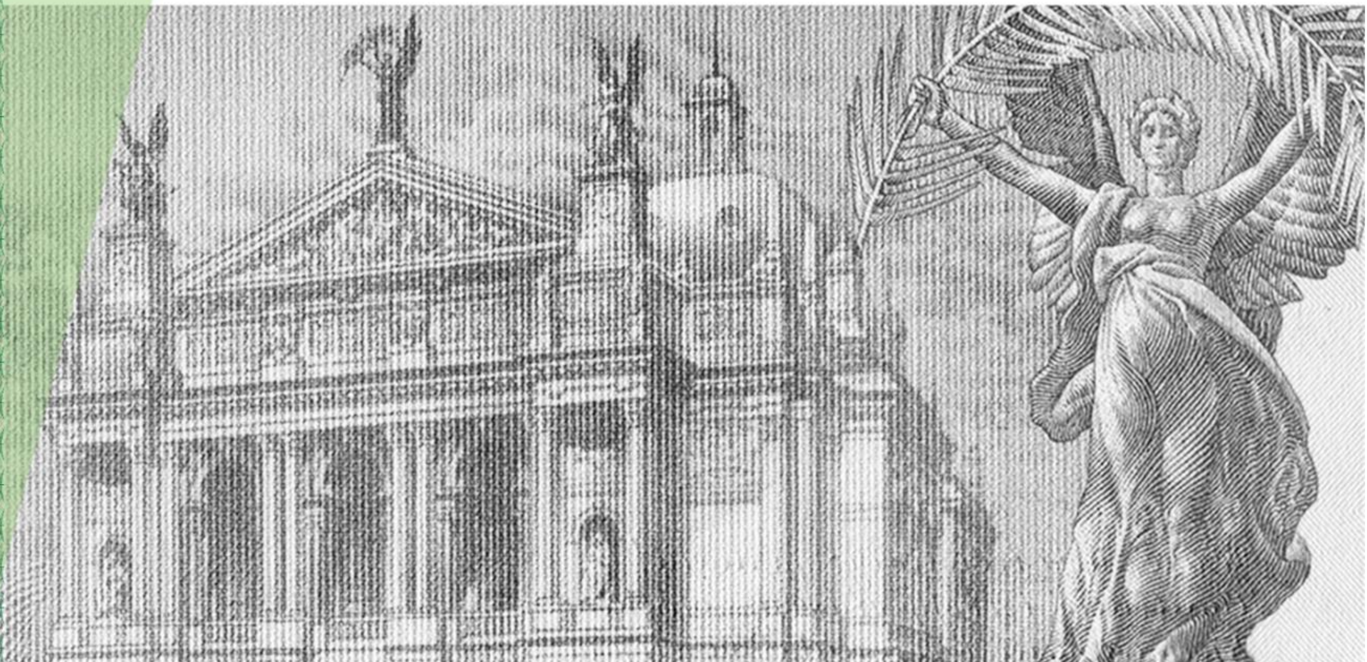
National Bank of Ukraine

Inflation Report

July 2022



National Bank of Ukraine (NBU) has resumed the publication of its Inflation Report. The pause in publishing the report was primarily due to the high uncertainty caused by the large-scale russian invasion of Ukraine, which made it impossible to forecast economic processes with an acceptable degree of probability. Uncertainty still remains high, but it is now lower than at the initial stage and is approaching the level when the central bank can produce relatively reliable macroeconomic scenarios. This publication will enhance the transparency and improve understanding of the NBU's monetary decisions.

Lower effectiveness of market-based monetary instruments and high uncertainty caused by full-scale hostilities made the usual inflation targeting format 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 and impose a number of administrative restrictions, including those on FX transactions and capital movements.

Due to strong psychological pressure, changing the key policy rate was unlikely to slow down inflation and stabilize expectations. Therefore, the NBU postponed the decision to change the key policy rate during the period of February–May 2022: the rate remained unchanged at 10%. Moreover, in line with the amended legislation, the NBU for the period of martial law was temporarily given the opportunity to purchase government debt securities in order to provide limited financing of the government's critical expenditures, primarily the expenditures on defense.

The said changes to the monetary policy principles were envisaged in 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, the central bank has resumed conducting an active interest rate policy by hiking its key policy rate. At the same time, under current conditions, the monetary policy remains focused on maintaining the exchange rate. The NBU is taking measures to balance the FX market and strengthen the transmission mechanism of the key policy rate, which are the preconditions for the NBU's return to the traditional monetary policy format. Another step in this area is the recovery of the forecast cycle and resuming the practice of quarterly publications of the Inflation Report.

The July 2022 Inflation Report reflects the NBU's vision of the current state of the Ukrainian economy. The analysis in the Inflation Report 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 20 July 2022 for the majority of indicators. Taking into account the still high uncertainty, the Inflation Report contains several program scenarios of economic development of the country in 2022–2024, which were prepared by the Monetary Policy and Economic Analysis Department and approved by the NBU Board at its monetary policy meeting on 21 July 2022[1].

The NBU Board will continue to decide on the key policy rate in line with the schedule it publishes in advance. In October, the NBU Board will base its decision on the new macroeconomic forecast, which will be published in the Inflation Report a week later. At the remaining two meetings (taking place in September and December), the decisions will be based on assessments of risks and uncertainty taking into account new economic developments in Ukraine and beyond that have emerged since the latest forecast.

The NBU Board announces its interest rate decision 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 monetary policy decision to be made. That includes dissenting views and the reasoning behind them.

Previous issues of the Inflation Report, the presentation of the Inflation Report, the forecast of the main macroeconomic indicators, and time series and data for tables and figures in the Inflation Report are available on the NBU website at the following link: https://bank.gov.ua/monetary/report.

[1]NBU Board decision No. 365 *On Approval of the Inflation Report* dated 21 July 2022.

Contents

Summary

The NBU's first wartime forecast is a program forecast, as the baseline scenario takes account of effects from taking a number of necessary measures in the area of the state economic policy implementation, along with the assumption that security risks will decline significantly by the end of this year thanks to the success of the Ukrainian army

The baseline scenario envisages that Ukraine's Black Sea ports will fully recommence operations from the beginning of 2023. In 2023–2024, security risks will be much lower but will remain important, making both foreign and domestic private investors more reluctant to invest.

At the same time, the forecast envisages the continued active financial support to Ukraine from the international community to help the country finance its budget needs and cover the balance of payments deficit. In particular, the forecast assumes the successful implementation of the new IMF program in 2023–2024. The program will be aimed at restoring macro-financial stability and promoting structural reforms to prop up the post-war reconstruction and help Ukraine advance toward EU accession.

The policies of the NBU and the government will gradually normalize. The NBU will return to the traditional principles of inflation targeting with the floating exchange rate. The monetary financing of budget needs will be phased out. The government will return to borrowing from the market to cover the budget deficit by means of ensuring proper yields, will conduct the fiscal consolidation, and scale down quasi-fiscal imbalances. In particular, this scenario takes into account the mobilization of additional revenues, support to Ukrainian producers by imposing additional taxes on imports, and adjustment of utility tariffs closer to the market level.

Due to the consequences of the war, inflation will exceed 30% yoy as of the end of 2022. It will slow in the next years, albeit remaining above the NBU's target of 5%

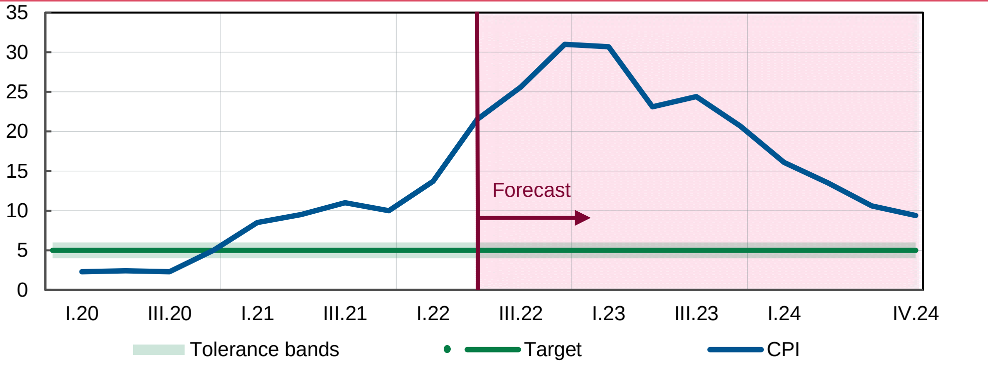
The war caused a disruption of supply chains, a decrease in supply of some goods, higher business costs, physical destruction of production facilities and infrastructure, and temporary occupation of some territories. Persistently high energy prices and record-high inflation in partner countries also fueled price pressures in Ukraine. Inflation expectations of businesses and households increased markedly. This was reflected in deteriorated maturity structure of bank deposits and higher spending on some durable goods, primarily imported goods. As a result, inflation has been growing rapidly over the last months, reaching 21.5% yoy in June.

Administrative measures of the NBU and the government – primarily fixing the hryvnia exchange rate and natural gas and heating tariffs – were the key factors helping to curb inflation. Price growth was also constrained by setting up supplies of goods through western borders and by excess supply of raw agricultural products caused by the sea port blockade.

Supply shocks caused by the full-scale war will continue to strongly affect price dynamics. In the near term, the probability remains high that russia will continue its terrorist attacks on infrastructure and production facilities in Ukrainian cities, which will disrupt logistics, increase businesses' risks, and destabilize expectations. Global energy prices will also remain high, especially natural gas prices. Inflation will keep accelerating and will slightly exceed 30% at the end of the year, despite tight monetary conditions resulting from the NBU's interest rate policy, FX interventions, and FX restrictions.

From the start of 2023, security risks will decrease, supporting a recovery in logistics and a potential to increase harvests. This would have a positive impact on expectations and weaken the inflationary effect of supply shocks. In addition, a gradual decline in global inflation and the NBU's tight monetary conditions will additionally foster disinflation in Ukraine. Consumer and investment demand will remain subdued for a long time, which will also slow down inflation. On the other hand, persistently high energy prices will be an obstacle to stronger disinflation and will require a review of utility tariffs in order to reduce quasi-fiscal imbalances. Taking into account the consequences of the war and the large contribution of the increase in administered prices, inflation will drop to 20.7% in 2023, and 9.4% in 2024. Inflation is forecast to return to the 5% target in 2025.

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



Source: SSSU, NBU calculations.

The economy of Ukraine will shrink by a third in 2022. However, the drop is to be only partly compensated in 2023–2024

The full-scale russian invasion caused a sharp fall in economic activity in Ukraine. A third of businesses suspended their operations at the start of the war, due to physical damage and temporary occupation of territories of several oblasts, high uncertainty and risks, disruption of logistical and production chains, and forced massive migration. As a result, GDP plunged in March, falling by 15.1% in annual terms for Q1 as a whole, according to the flash estimate of the State Statistics Service of Ukraine (SSSU). The economic activity started to recover in April, and businesses and households gradually adapted to new conditions. This was also due to the liberation of northern oblasts and a decrease in the number of regions affected by active hostilities. According to the NBU's flash surveys, only 14% of businesses remained dormant at the end of the spring. Still, the capacity utilization of operating businesses was much below the pre-war period. As a result, the economy fell by around 40% yoy in Q2, as estimated by the NBU.

Hostilities in the east and south of the country, destruction of infrastructure in other regions, the blockade of sea ports, and weak demand in the majority of sectors will restrain economic recovery in the next months. A major contribution to the decline in GDP will also come from weaker activity in agriculture due to the temporary occupation and laying landmines, loss of equipment and elevators, and occasional untimely and insufficient treatment of land with fertilizers and plant protection products. This will lead to the economy shrinking by a third this year.

It is expected that consumer demand will rise moderately, technological and logistical processes will be set up, and investment activity will revive in the coming years – among other things, thanks to Ukraine's European integration prospects. However, in view of the large losses of production and human potential and the still-high security risks, the Ukrainian economy will recover at the rate of around 5%–6% per year in 2023–2024.

This year, the current account will show a temporary surplus thanks to international aid. Going forward, however, it will return to deficits due to the economy's high need for imports, including imports needed for recovery

Although slumping at the beginning of the russian invasion, Ukraine's foreign trade recovered gradually in the following months. Compared to March–April, imports grew faster than exports, due to their less heavy dependence on the blocked sea routes, rebounding domestic demand, and the expansion of the list of critical imports. This widened the external trade deficit. Large-scale migration has led to higher spending by Ukrainians abroad. However, FX outflows were partially offset by international aid, including grants (current transfers according to the balance of payments methodology), sustainable remittances from labor migrants, and a reduction in reinvested earnings. As a result, although the current account posted a surplus in January–May, the overall balance of payments recorded a deficit, due to the capital outflows, among other things, resulting from cash withdrawals from cards in other countries.

Looking ahead, the current account will return to deficits, driven by the economy's high need for imports, particularly imports needed for recovery. The deficit will be offset by substantial international aid and a gradual decline in the private capital outflows. It will allow maintaining international reserves at above USD 20 billion next year and increase them to USD 29 billion in 2024.

Maintaining the key policy rate at 25% will make hryvnia assets more attractive and – coupled with fixing the exchange rate at a new level – will help balance the FX market, thus improving the resilience of the economy

At the start of the large-scale war, the NBU fixed the official exchange rate of the hryvnia in order to retain control over businesses' and households' expectations and kept the key policy rate unchanged at 10%, taking into account the low effectiveness of the transmission mechanism when economic agents are under psychological shock. The fixed exchange rate and the NBU's FX interventions became key instruments to support macrofinancial stability. However, as the economy adapted to the war and households and businesses regained the ability to make decisions based on the economic logic, the NBU in June returned to active monetary policy and hiked its key policy rate by 15 pp, to 25%. This step aimed to protect households' income and savings in the hryvnia, raise the attractiveness of hryvnia assets, reduce the pressure on the foreign exchange market, and thus enhance the NBU's capability to maintain the stability of the exchange rate and restrain inflation processes during the war.

The June increase in the key policy rate has already started to be reflected in higher interest rates on deposits and yields of domestic government debt securities. However, the reaction of the interest rates was slow, whereas FX market pressures were rising rapidly, in particular due to a sizeable growth in imports and high demand for FX cash. Taking this into account, the NBU kept the key policy rate at 25%, which will ensure further growth in hryvnia rates, and fixed the UAH/USD exchange rate at a new level in order to support Ukrainian producers, reduce demand for foreign currency, and thus balance the FX market. These steps will allow maintaining sufficient international reserves and ensuring macrofinancial stability.

The new level of the exchange rate will continue to be the anchor for the economy at times of uncertainty. As before, fixing the exchange rate will enable the NBU to maintain control over inflation dynamics and to support the uninterrupted functioning of the financial system. The policy of expensive money will also contribute to this. Thus, the baseline scenario of the macroeconomic forecast envisages that the key policy rate will be maintained at 25% at least until Q2 2024.

The key risks to the forecast are that the liberation war against the russian invaders will last longer and the economic policy measures will not be sufficient to achieve macrofinancial stabilization

If materialized, these risks will delay economic recovery and the return of inflation to its target. That said, the unbalancing of state finances could be an even bigger threat, in particular due to the lack of or insufficient measures to achieve fiscal consolidation and activate market mechanisms of budget deficit financing. This could pose a substantial threat to macrofinancial stability, including the risk of losing control over inflationary processes.

Other risks also remain important for the forecast:

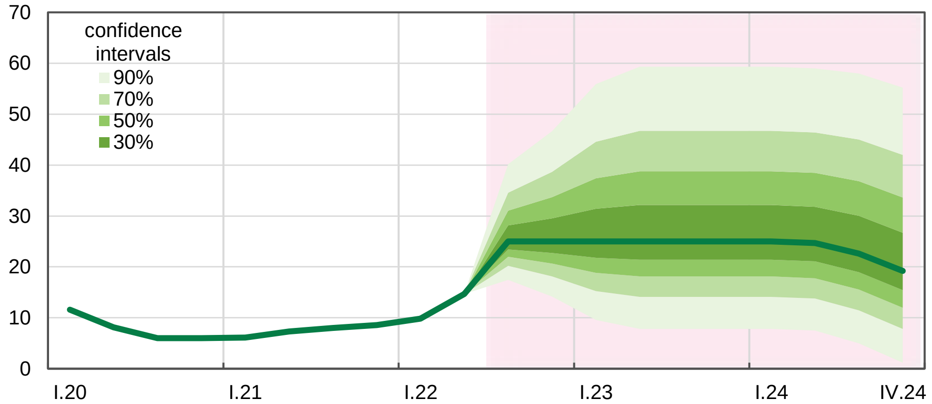
- increased emigration, which could threaten to reduce the labor force and have long-term negative effects on the labor market and economic growth after the war;
- a global economic downturn, which will decrease global commodity prices and, consequently, export earnings, while also stepping up pressure on the hryvnia exchange rate and consumer prices.

If these risks materialize, the NBU will stand ready to raise the key policy rate and take other measures to maintain monetary stability and keep inflation processes under control.

On the other hand, the rapid approval and launch of a recovery plan for Ukraine, generating foreign investment inflows and substantial funding for the country's recovery projects, could significantly accelerate economic growth and return inflation to its target more quickly than envisaged by the baseline scenario of the NBU's forecast.

Overall, the NBU assesses the balance of risks for its forecasts of inflation and the key policy rate as tilted to the upside. Moreover, current estimates bear a higher uncertainty level compared to the pre-war forecasts.

Figure 2. Key policy rate, average, %

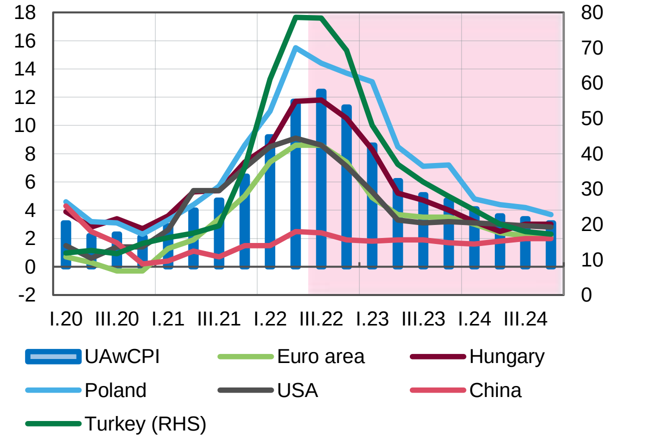


Source: NBU staff estimates.

Part 1. External Environment

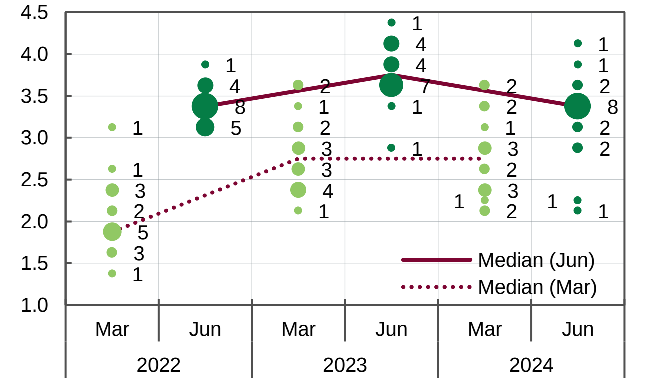
- Global inflation continued to rise due to the ongoing shocks to the energy and other commodity markets caused by russia's invasion of Ukraine and disrupted supply chains amid another wave of the pandemic in China. Curbing high inflationary pressures will require tighter financial conditions worldwide.
- As a result of this, and coupled with the slow recovery of supply chains and the weak revival of global trade, global GDP growth will remain sluggish.
- The weak growth in the global economy will put downward pressures on global commodity prices, which, however, will remain moderate due to limited supply growth.

Figure 1.1. UAwCPI and consumer inflation of selected countries (eop), % yoy



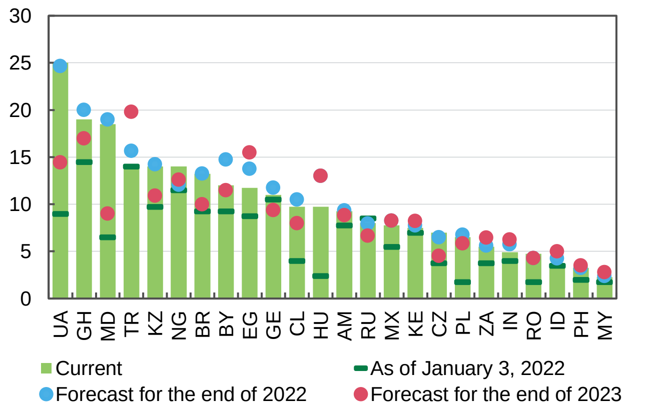
Source: National statistical agencies, NBU staff estimates.

Figure 1.2. The number of FOMC members that expect the respective policy rate*



Source: Fed.

Figure 1.3. Key policy rates in selected EM countries, %



Source: official web pages of central banks, Focus Economics, Trading Economics, as of 22.07.22.

Central banks will have to conduct tighter monetary policies to rein in high inflation

Global inflation continued to rise: inflationary pressures caused by the post-Covid recovery, amid ongoing supply chain disruptions, were prolonged by shocks from russia's invasion of Ukraine and another wave of the pandemic in China. The latter shocks were mainly reflected in higher global prices for energy and food. In particular, energy prices accounted for almost half of the 12-month headline inflation rate for the advanced foreign economies. Meanwhile, food prices drove inflation in EM economies, largely due to russia's war on Ukraine and its threat to already fragile food security in these economies. Global core inflation also grew. Global inflation will remain high until the end of this year, after which it will decline due to tighter monetary policies being conducted by most central banks. These measures, together with a gradual drop in global commodity prices, will decrease global inflationary pressures.

Inflation in the United States is well above its longer-run goal, reaching a high not seen in over 40 years. The Fed accelerated its rate hikes and will continue to conduct an active monetary policy to reliably anchor long-term inflation expectations. The Fed will also cut back on its assets.

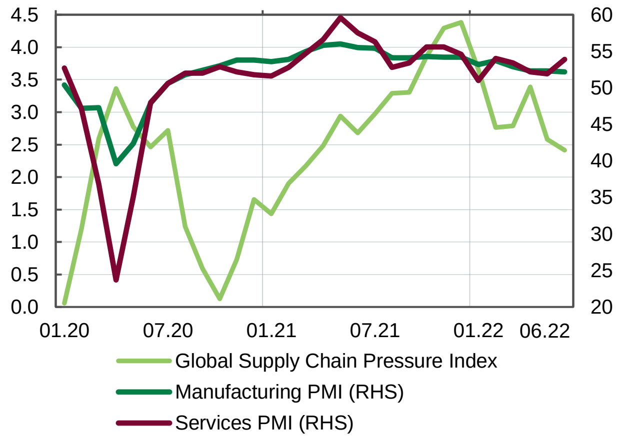
Euro area inflation reached a new historic high, driven by an increase in both energy and food prices. Despite decelerating gradually, inflation will remain above its target throughout the next year as well. In order to contain inflation, the ECB ended net asset purchases under its asset purchase program (APP) and started a cycle of key rate hikes from July 2022.

Inflationary pressures in EMs have also increased noticeably, prompting their central banks to accelerate interest rate hikes. Exceptions are the central banks of Turkey, russia and China, which are trying to stimulate their economies.

Sovereign bond yields rose significantly, as central banks raised interest rates or signaled that they would do so soon. Fears about persistently high inflation and the associated tightening of monetary policy in various countries, the consequences of russia's invasion of Ukraine and quarantine in China negatively affected the prices of risky assets. The largest decline was seen in Euro area and Central and Eastern Europe (CEE) countries, because of their trade and financial ties with russia and Ukraine.

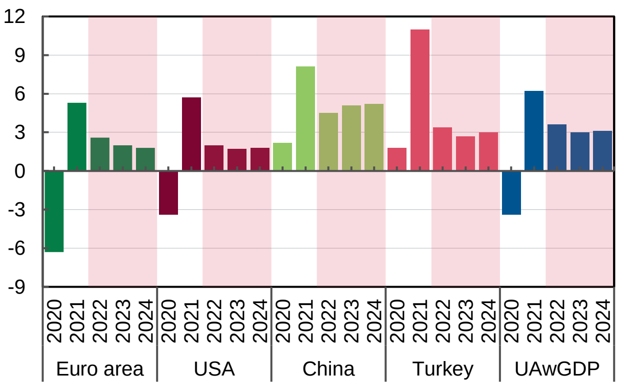
EMs are expected to continue to raise their interest rates to contain inflationary pressures, and to maintain their financial competitiveness with advanced economies.

Figure 1.4. Global PMI and Global Supply Chain Pressure Index



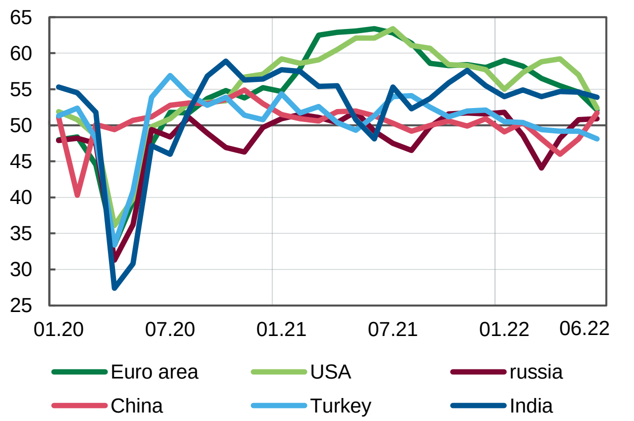
Source: J.P.Morgan, S&P Global, FRB of New York.

Figure 1.5. Real GDP of selected countries and weighted average of annual GDP growth of Ukraine's MTP countries (UAwGDP), % yoy



Source: National statistical offices, NBU staff estimates.

Figure 1.6. Manufacturing PMI of selected countries



Source: S&P Global.

Global economic growth will be moderate due to tightening financial conditions, the slow recovery of supply chains, and weaker global trade

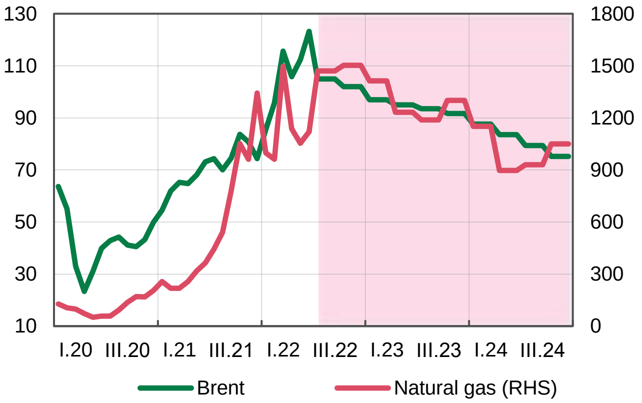
Global economic growth remains weak. The main reasons for this are disrupted supply chains, increased inflationary pressures, the war in Ukraine and weak production in China. Despite some improvement in global supply chains, transport shortages hit a record high, while the container shipping index remained below its trend, largely due to continual delays at ports. A lack of production resources and high inflationary pressures restrained world merchandise trade. World merchandise trade volume is expected to grow by 3.0% yoy in 2022 (down from 4.7% yoy forecast previously), and by 3.4% yoy in 2023. Weaker global trade growth, supply chain disruptions (which, despite easing, are likely to linger into 2023), together with tighter financial conditions, will slow growth in both advanced economies and emerging markets.

U.S. economic growth was mainly driven by rapidly rebounding consumption. The unemployment rate was near a 50-year low and job vacancies were at historic highs, speeding up wage growth. However, there are signs of a slowdown in the economy: investment growth is slowing, while activity in the housing sector is declining due to rising mortgage rates. Higher commodity prices and supply chain hurdles will have a dampening effect on the U.S. economy until the end of 2023, although the impact from these factors will decrease. The Fed's tighter monetary policy will produce an additional restraining effect.

Economic activity in the Euro area weakened, primarily in the manufacturing sector, on the back of geopolitical uncertainty, supply delays and high energy prices. Under these conditions, the announced increase in ECB interest rates intensified negative expectations of a possible recession in the Euro area, causing a rapid depreciation of the euro to parity with the U.S. dollar. At the same time, the services sector propped up growth. The sector's recovery is expected to accelerate with the lifting of quarantine restrictions, while a strong labor market will support consumption. The positive output gap will narrow this year in the wake of the negative impact of the war in Ukraine on the global markets, although overall real GDP will exceed its pre-Covid level in mid-2022. Looking ahead, the hurdles resulting from high energy prices, deteriorating terms of trade, greater uncertainty and the negative impact of high inflation on incomes will gradually disappear.

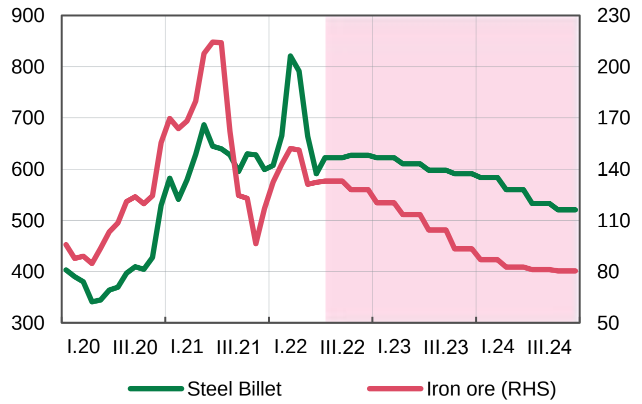
The war in Ukraine and the quarantine in China have also affected the EM economies, in particular those of CEE countries. Thus, economic growth in CEE countries is slowing down, reflecting low real income, deteriorating business confidence, disrupted supply chains, and accelerating inflation. Despite a drop in the unemployment rate and rising demand for labor, high production costs are limiting the scope for wage increases. In addition, negative business sentiment will decrease private investment. Work-in-progress inventories will remain large due to logistical problems and, accordingly, exports will be subdued until mid-2023. As the war in Ukraine de-escalates and global logistical chains recover, consumption and investment will return to growth. In addition, growth will be supported by EU-funded government investment. In turn, despite significant government support,

Figure 1.7. World crude oil prices (USD/bbl) and Netherlands TTF natural gas prices (USD/kcm)



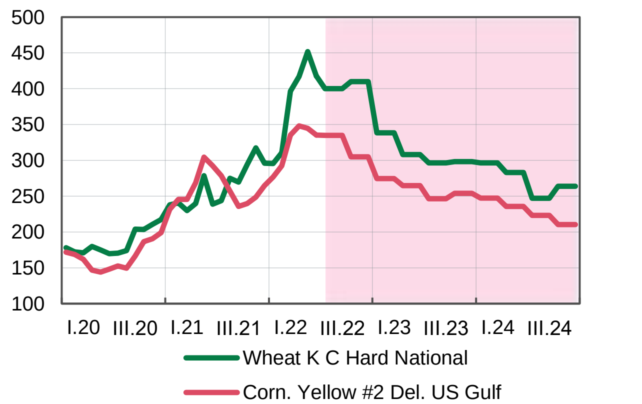
Source: Refinitiv, NBU staff estimates.

Figure 1.8. World price of ferrous metals and iron ore*, USD/MT, quarterly average



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

Figure 1.9. World grain prices, USD/MT, quarterly average



Source: Refinitiv, NBU staff estimates.

China's economic growth will also decelerate, dampened by narrowing external demand and existing internal imbalances.

Sluggish global economic growth will put downward pressure on prices. However, the pressure will remain moderate due to limited supply growth

In Q2 2022, the global oil and natural gas markets in Europe saw significant supply constraints, which kept prices at high or even record levels. Price volatility was driven by low inventories, which made prices sensitive to changes in market supply and demand. Oil prices are expected to decline gradually. The sanctions imposed on russian oil, which limited its access to the European market, continue to refocus oil deliveries to the Asian market. This will enable Asian countries to buy oil at reduced prices and fully meet their demand (China is one of the world's leading oil importers). Stepped-up production by OPEC+ countries and the United States will also help balance rising demand. Conversely, despite larger LNG imports from the United States, natural gas prices in Europe will remain high due to political pressure from russia.

After a temporary shock caused by the russian invasion of Ukraine, global steel and iron ore prices fell for the most part, dragged down by weak business activity in most regions, and significant global inventories resulting from oversupply. The effect of these factors will persist over the forecast horizon, pushing steel and ore prices further down.

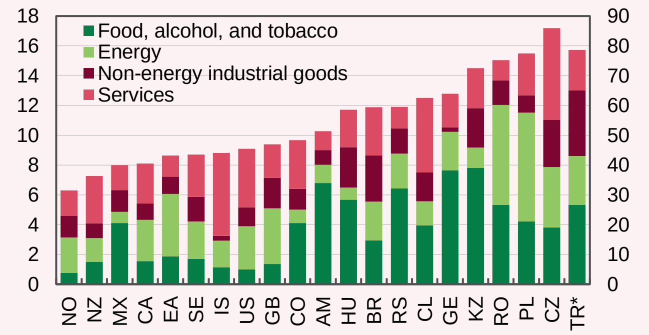
russian aggression had the most profound impact on the grain markets, through limiting export opportunities and reducing cultivated areas in Ukraine. As a result, global prices for wheat and corn soared to record highs, correcting only slightly after Northern Hemisphere countries started to harvest new crops. Despite the correction, these prices are expected to remain close to current levels until the end of 2022. Next year, grain prices will decrease slowly, provided that Ukraine fully resumes its participation in the wheat and corn markets. The high cost of growing grain due to expensive fuel and fertilizers will remain a restraining factor.

Box 1. Unanchoring Inflation Expectations in the Face of Supply-Side Shocks: Is There Room for Delaying Monetary Policy Response?

Since the pandemic broke out, many countries have more than once revised their forecasts for consumer prices dynamics. At first, central banks feared deflation due to a drop in demand, and most of them were slow to respond with monetary policy to rising prices. On the contrary, monetary and fiscal stimuli have been increasing at an unprecedented rate. It was assumed that the surge in inflation resulted primarily from temporary supply-side shocks, which are mostly beyond the effective influence of monetary policy. However, inflation worldwide hit a high not seen in several decades, while also turning out to be unexpectedly persistent for most central banks. Whatever the initial nature of the inflationary shock may be, if inflation expectations become unanchored, it can trigger an uncontrollable inflationary spiral. This will ultimately have a negative impact on financial stability and economic development. Therefore, the risk of inflation expectations becoming unanchored is causing increasingly more concern among central banks. Since the introduction of inflation targeting, the NBU has managed to significantly improve the anchoring of inflation expectations. However, the acceleration of inflation at the end of 2021, amid rising geopolitical pressures, and the subsequent russian invasion led to a significant deterioration in expectations. To keep them under control, the NBU tightened its interest rate policy and is taking measures to stabilize the exchange rate.

Over the past 18 months, inflation has accelerated noticeably around the world. The main reasons for this were disrupted supply chains and rapid growth in commodity prices, due to unprecedented fiscal and monetary stimulus among other things. These shocks were fueled by China's "zero-Covid" policy and intensified markedly when russia invaded Ukraine. Higher food and energy prices had the most effect on inflation in those countries where the share of these goods accounts for 40% to 50% of the consumer basket. According to Moody's Analytics estimates, inflation in emerging markets hit 25.1% yoy in May – the highest level since 2008. In advanced economies, price growth also accelerated to a record high since 1982.

Figure 1. Contributions to annual CPI growth in selected countries in June of 2022, pp

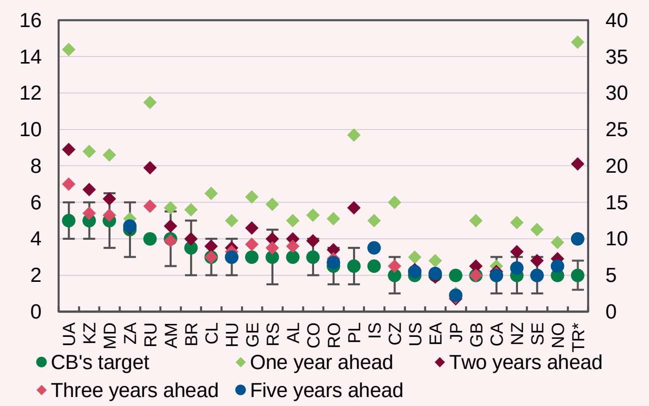


* Turkey is on the right-hand scale.
Source: OECD, national statistical agencies, NBU staff estimates.

Longer-lasting and stronger than expected price growth raises risks of an inflationary spiral. Usually, supply-side shocks have a temporary effect on inflation and do not require any strong monetary response. However, this only happens when the inflation expectations (IEs) of economic agents remain well anchored to the central bank's target. At the same time, a prolonged and significant increase in prices could have a negative impact on IEs (Bracha and Tang, 2019, Galati et al., 2022). Faced with high inflation, consumers become more sensitive to news and more inclined to change their short- and long-term IEs (Bracha i Tang, 2022), especially in countries where people have a negative experience of inflation surges (Cavallo et al., 2017, Coibion et al., 2020, and Ha et al., 2022). As a result, workers demand faster wage increases to compensate them for falling real incomes and start to spend their savings more to prevent a decrease in their purchasing power. Meanwhile, banks include higher inflation premiums in their loan rates. Manufacturers that expect higher wages, higher loan servicing costs, and an increase in raw material and equipment prices are also likely to raise their product prices to compensate for future losses. In this light, the absence of a proper monetary policy response increases the risk of another round of the spiral, and consequently even higher inflation.

Inflation-targeting countries are seeing a notable worsening in short-term IEs, while long-term expectations remain reasonably well anchored. In most countries, for the next 12 months, analysts forecast inflation almost twice as high as their central banks' targets. At the same time, over two decades of low inflation, thanks to the introduction of the IT regime among other things, the pass-through effect of deteriorations in short-term IEs to medium- and long-term expectations has significantly decreased (Yetman, 2020). That is why today, in more than 70% of the countries, inflation forecasts for the next two years remain close to the target ranges of their central banks (or deviate from the target by less than 1 pp in those countries that have no target range).

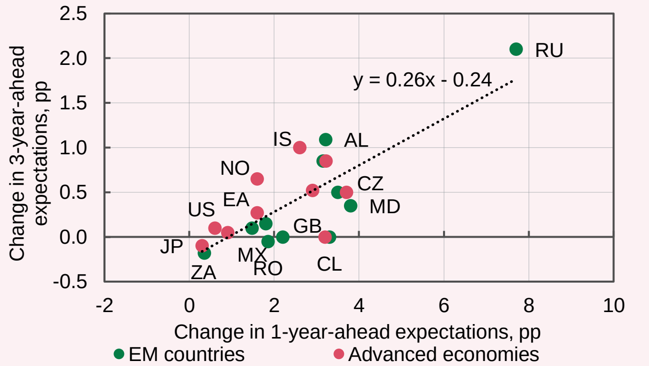
Figure 2. CB's inflation target and financial analysts' IE in selected countries by forecast horizon, pp



* Turkey is on the right-hand scale.
Source: official web pages of central banks, Consensus Economics, Focus Economics (June).

At the same time, the risk of medium- and long-term IEs becoming unanchored is increasing. Current price trends and short-term IEs still have an influence on the long-term inflation forecasts of financial analysts,[2] despite the analysts being mostly guided by central bank targets (Vincent-Humphreys et al., 2019). Even in advanced economies, persistent deviations from the target, primarily upward, had a statistically significant effect on medium- and long-term IEs (Moessner and Takats, 2020). At present, in only a few countries do medium-term IEs fully coincide with the central banks' targets – in most cases they exceed it. This may indicate higher risks that the long-term IEs of financial analysts will become unanchored, and even more so - the IEs of the households and businesses (Coibion et al., 2020, Galati et al., 2022).

Figure 3. **Changes in one- and three-year-ahead* IEs of financial analysts in selected countries relative to Q4 2019, pp**

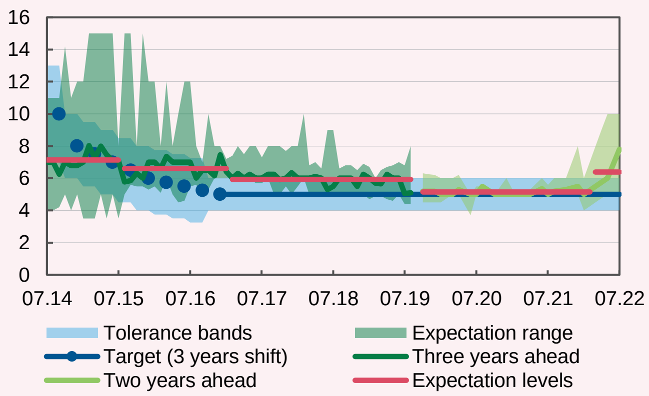


* If country has only two- and five-year-ahead IE, then three-year-ahead IE are estimated with the Nelson-Siegel (1987) model.
Source: official web pages of central banks, Focus Economics, Consensus Economics, NBU staff estimates.

The risk of IEs becoming unanchored is causing increasingly more concern for central banks in both emerging markets (in particular, Brazil, Chile, Hungary, and Mexico) and in advanced economies (the Fed, the ECB, and the Bank of England). This risk is also forcing these banks to tighten their interest rate policies at a fast pace (read more in *External Environment* on page 8). In addition, more and more central bankers and experts admit that central banks made a big mistake in their assessments of the strength and duration of inflationary surges and, consequently, in their initial monetary response to these surges. Central banks are currently making sweeping changes to their rhetoric – they say that are determined to do whatever is necessary to return inflation to its target. Turkey is a different example, which clearly shows that the lack of a proper monetary response to high inflation results in an increase in IEs over a five-year period to a level twice as high as the central bank's target.

Since the introduction of IT, the NBU has significantly improved the anchoring of IEs. A transparent and predictable monetary policy had a positive effect on both short- and medium-term IEs. Thus, the IEs of banks, companies and financial analysts in 2020 came very close to the NBU's target range of 5% ± 1 pp. The volatility of IEs, together with their range and sensitivity to retrospective price dynamics, decreased significantly. When shaping their IEs, economic agents started to be guided more by the NBU's forecast. The IEs of financial analysts are the most anchored around the NBU's inflation target and forecasts, while those of households are the most volatile, and shifted upward. This is quite common even in countries that have engaged in inflation targeting for a long time (Adeney et al., 2017, Coibion et al., 2020). Until recently, the medium-term IEs of analysts were within the NBU's target range.

Figure 4. **Medium-term IE of financial analysts and their range*, %**



* Median value. The estimation of IE levels was done using the Bai i Perron (2003) methodology.
Source: NBU.

The acceleration of inflation in H2 2021 had a negative impact on IEs, and after the russian invasion, expectations became even more unanchored. Rising inflation and growing risks at the end of 2021 amid high geopolitical tensions caused an increase in the average level of IEs, their volatility and adaptability. The short-term IEs of banks and financial analysts increased and approached 20%. This level of IEs mostly corresponds to the NBU's April estimates, but is lower than the inflation forecast for the end of 2022, which the NBU revised in July. The deterioration in the medium-term IEs of financial analysts remains moderate (12% and 7.8% yoy at the end of 2023 and 2024 respectively). At the same time, the test conducted according to Bai and Perron (2003) methodology showed a structural upward shift in the median of the distribution of such IEs**.**

That is why the NBU is paying considerable attention and taking measures to keep IEs under control, despite there being "supply shocks". To maintain macroeconomic stability in Ukraine, calm expectations, and prevent an inflationary spiral, at the onset of the invasion the NBU was forced to change its monetary policy approaches through fixing the UAH/USD exchange rate and imposing a number of administrative restrictions on FX transactions and capital movement. Despite the fact that, under current conditions, the exchange rate continues to play an important role as an anchor for expectations, the NBU is taking other measures to prevent IEs from deteriorating even further. Among other things, in June the NBU recommenced conducting an active interest rate policy.

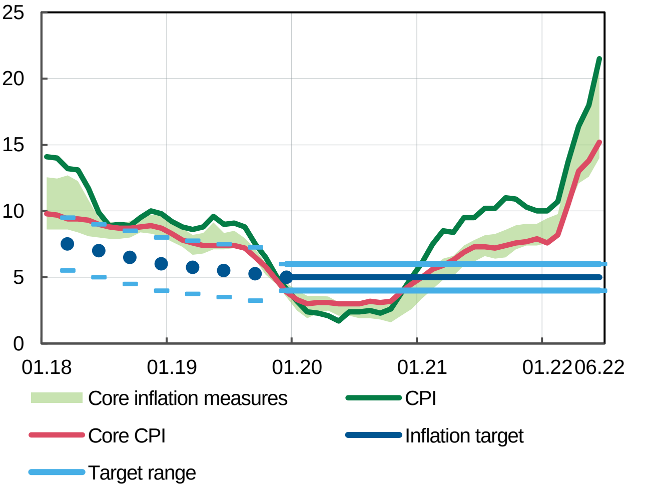
[2] According to a study conducted by Adeney et al. (2017), in advanced economies, the expectations of professional forecasters are the least biased and have the lowest root mean square error (RMSE), and are therefore more reliable in determining how anchored expectations are.

Part 2. Ukrainian Economy

2.1. Inflationary Developments

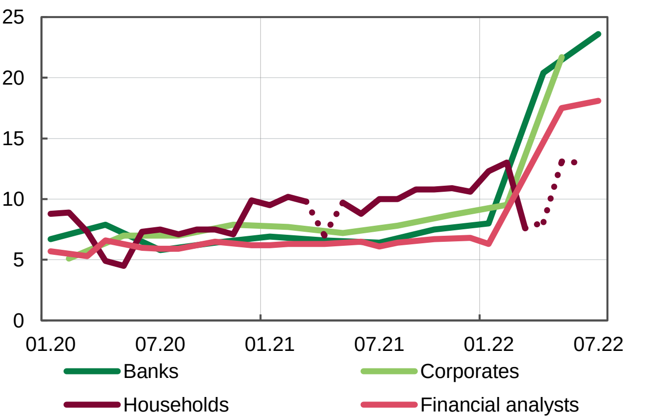
- War-related supply factors, such as disrupted production and logistical processes, the destruction of assets, the occupation of territories and high global energy prices, are speeding up inflation. Coupled with substantial volumes of monetary financing of the budget deficit, these factors are further unbalancing expectations.
- A significant drop in demand, the fixed exchange rate of the hryvnia and a moratorium on utility price increases are reining in inflation. That said, over the forecast horizon these factors will mostly turn into pro-inflationary ones.
- However, from the next year inflation will gradually decelerate due to lower security risks, which will revive logistics and increase crop harvests. Inflation will be also dragged down by a drop in global inflation, a tight monetary policy and stabilized inflation expectations. However, due to the significant contribution of the administrative component through the correction of some utility prices, inflation will be above its target on the forecast horizon and will only return to it in 2025.

Figure 2.1.1. 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 to a telephone interview.
Source: NBU, GfK Ukraine, Info Sapiens.

Consumer inflation accelerated sharply when the war broke out, driven mainly by supply factors

Inflationary pressures began to intensify before the launch of the full-scale war, fueled by high global prices and other commodity prices, as well as by negative expectations in the run-up to the invasion. Russia's invasion of Ukraine in late February sped up price increases for most goods and services, due to disrupted supply chains, destroyed corporate assets, rising business costs, and unevenly distributed household demand. Pressures from global inflationary processes also increased.

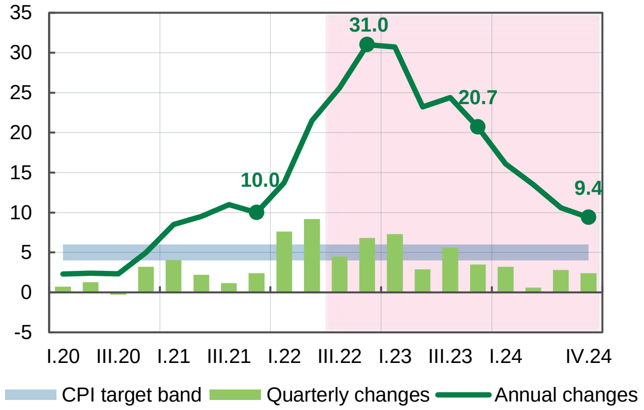
Actual consumer inflation hit 21.5% yoy in June 2022, deviating markedly from its target (read more in Box 2 *Factors That Cause Inflation to Deviate from Its Target in Wartime* on page 18).

At the same time, inflation was curbed by a significant drop in demand, effects from the fixed exchange rate of the hryvnia, and a moratorium on utility price increases. The first two factors primarily prevented underlying inflationary pressures from strengthening, while the latter factor was mainly reflected in the moderate growth of administratively regulated prices.

The fixed exchange rate of the hryvnia not only had a direct restraining effect on the growth in the cost of goods and services, in particular through import components, but also curbed the unbalancing of households' and businesses' inflation and exchange rate expectations. Unchanged utility prices also prevented inflation expectations from deteriorating further. More specifically, despite worsening, the inflation expectations of all respondents for the next 12 months remained close to current inflation levels, while households' inflation expectations were even lower.[3] That said, expectations continue to deteriorate, responding primarily to rising prices for certain foods and for fuel, which serve as the most representative price benchmarks for respondents. Long-lasting effects from such factors may significantly unbalance inflationary expectations over the forecast horizon. Thus, the banks' three-year-ahead inflation expectations, and those of financial analysts two years

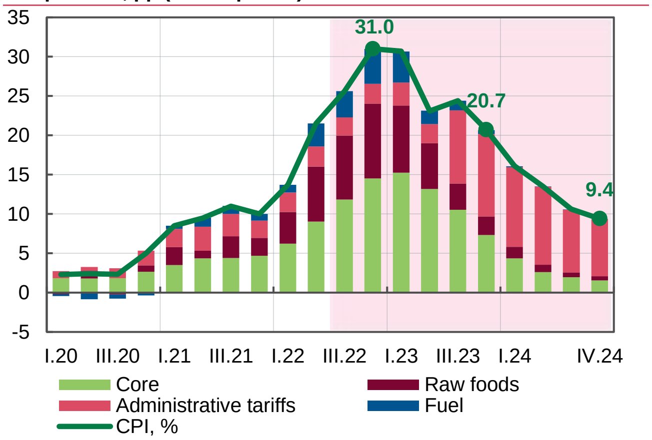
[3] Households' inflation expectations may have been affected by the change in the survey method from a face-to-face to a telephone interview. The same effect was observed in previous years during strict lockdowns.

Figure 2.1.3. CPI, %



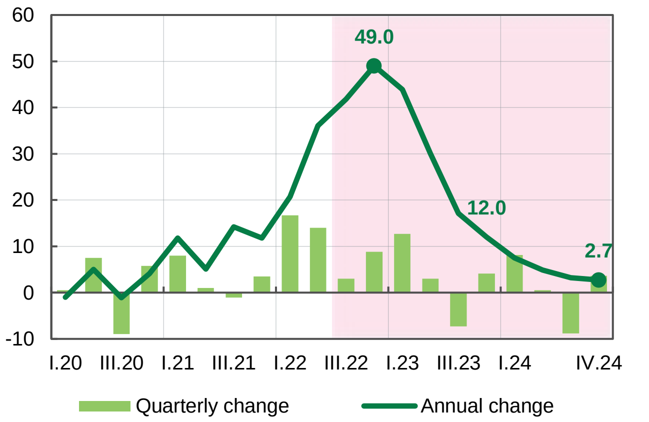
Source: SSSU, NBU staff estimates.

Figure 2.1.4. Contributions to annual CPI growth by main components, pp (end of period)



Source: SSSU, NBU staff estimates.

Figure 2.1.5. Raw food inflation, %



Source: SSSU, NBU staff estimates.

ahead, have worsened, and exceed the NBU's inflation target. Inflationary expectations are also being negatively affected by the substantial amounts of monetary financing of the budget deficit.

Inflation will begin to decrease next year thanks to recovering production and logistics, a drop in global inflation, a tight monetary policy and stabilized inflation expectations

In the short term, inflation will accelerate to 31.0% at the end of the year, as the impact of most supply-side shocks, both internal (rising costs due to the forced rebuilding of logistical and technological links, destroyed production facilities and warehouses), and external (high energy prices), will persist.

However, the expected end of hostilities will have a positive effect on the inflationary expectations of economic agents next year, while also directly weakening the pro-inflationary effects of supply-side shocks – logistics will improve, risks to businesses will decrease, and harvests will gradually grow. A decline in global inflation, coupled with the NBU's tight monetary policy, will also help bring inflation down.

A substantial decline in real disposable income, together with a high unemployment rate, will rein in demand-pull inflation. Despite a significant drop in potential GDP and the expected recovery of economic activity, the GDP gap will remain negative through the end of the forecast period, restraining underlying inflationary pressures.

Rapid disinflation and the return of inflation to its target over the forecast horizon will be hindered primarily by high energy prices, and the need to bring energy prices for households to market levels in view of the need to minimize imbalances in public finances. Although prices will be brought to market levels in several stages starting from H2 2023, given high global energy prices, the contribution of administered prices to headline inflation will become decisive and will remain so until the end of the forecast period. Therefore, the NBU expects that consumer inflation will only drop to 9.4% by the end of 2024, and will return to its target only in 2025.

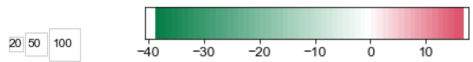
War-related factors had the strongest effect on food and fuel prices

At the beginning of the war, local supply disruptions together with a surge in demand in safer regions due to population migration were significant price drivers. After that, the growth in most inflation components was fueled by disrupted supply chains, rising business costs – particularly energy costs – and the physical destruction of corporate assets due to russia's full-scale invasion of Ukraine.

According to the latest business outlook survey, in Q2 2022 respondents cited the logistical hurdles factor as one of the most important selling price drivers (third after energy prices and raw material and supplies prices). For trading companies, this factor was the most important one. At the same time, under the influence of negative labor market trends, respondents from all economic sectors reported a noticeable decrease in the impact of the labor costs factor.

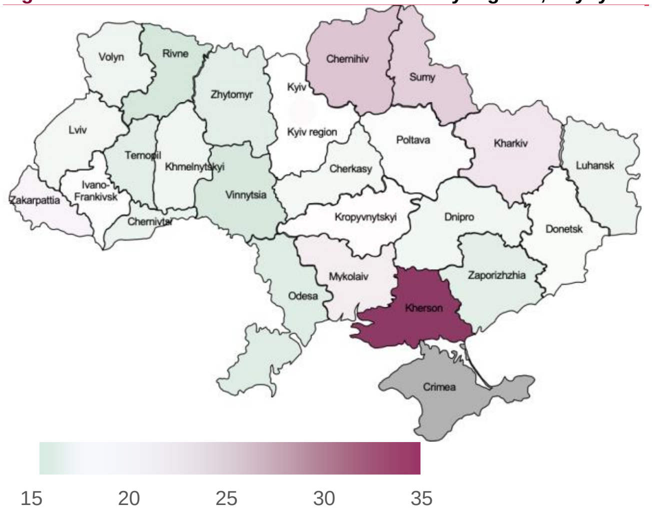
Figure 2.1.6. Respondents' estimates for the major factors affecting their expectations of price growth for their goods and services in Q2 2022, %**

* The factor "Problems with logistics" was included in the survey only since Q2 2022.
** The size of the figure corresponds to the balance of responses, %, the color is the difference compared to the Q2 2021, pp



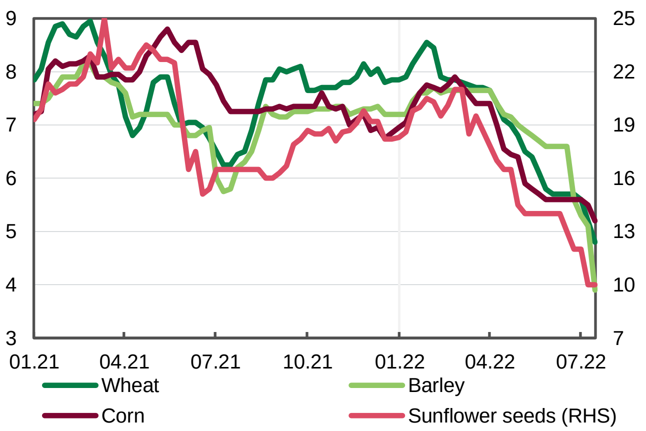
Source: NBU.

Figure 2.1.7. Consumer inflation in June 2022 by regions, % yoy



Source: SSSU.

Figure 2.1.8. Demand prices for basic agricultural foraging cultures, EXW, exports, UAH per t



Source: APK-inform.

Fruits and vegetables rapidly rose in price amid a lack of supply of early produce from the temporarily occupied southern regions of Ukraine. Cereals, in particular buckwheat and rice, became more expensive due to depletion of stocks and reduced import possibilities. Salt prices also grew at a faster pace, primarily in the wake of the destruction of the country's main salt producing plant. Prices for dairy and fish products and for soft drinks rose more quickly.

The growth in the prices of nonfoods and services accelerated rapidly on the back of limited supply resulting from the difficulties in supplying certain goods, the physical destruction of warehouses, rising production costs, and high global inflation. Prices for household goods (kitchenware, furniture and household appliances), personal care items, electronic devices and cars increased most of all.

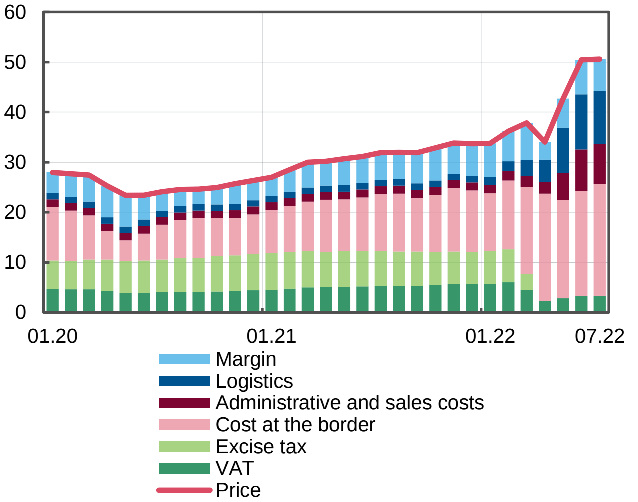
Price increases are unevenly distributed among regions. Thus, temporarily occupied territories, deoccupied regions and frontline zones have seen a significant rise in prices. Consumer inflation in Kherson oblast hit 34.0% yoy in June as a result of the russian invaders blocking supplies of goods from other Ukrainian regions.

At the same time, problems with exporting and storing harvested crops led to a slump in the purchase prices of grain and oilseeds. As a result, the growth in sunflower oil prices decelerated rapidly. A surfeit of agricultural raw materials made fodder cheaper, which, together with shrinking markets for these products and falling domestic demand, restrained the growth in prices for animal breeding products. More specifically, beef and chicken prices grew at a slower pace, while egg prices remained at the level of the previous year.

Food price inflation will be high until the end of the year, driven by war-related supply-side shocks. The arrival of newly harvested crops on the market will have no significant overall disinflationary effect, due to logistical hurdles and the pass-through effects of higher production and other business costs, including fuel costs. Food price inflation is expected to slow rapidly from next year, thanks to the reestablishment of technological and logistical links, an increase in cultivated areas, and the deoccupation of the southern regions of Ukraine. A fall in global prices for food and energy, coupled with better harvests in Ukraine, will also help bring inflation down. Provided there are no significant supply-side shocks (in particular, due to adverse weather conditions or outbreaks of epizootic diseases), food price inflation will decrease to 2.7% by the end of the forecast period.

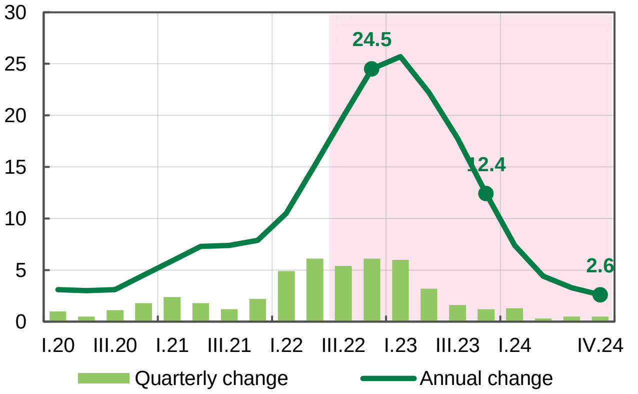
Fuel shortages and rising logistics costs, together with the destruction of oil refineries and logistical infrastructure, blocked ports and high oil prices, pushed up fuel prices sharply – in June 2022, fuel prices were almost twice as high as last year. A reduction in VAT and the cancellation of the excise duty on fuel in the latter half of March somewhat restrained the growth in prices. In order to saturate the fuel market, the government stopped administering fuel prices in May. Although the situation on the Ukrainian fuel market will improve closer to the autumn, when long-term contracts with

Figure 2.1.9. Composition of the retail price for gasoline A-95, UAH / L



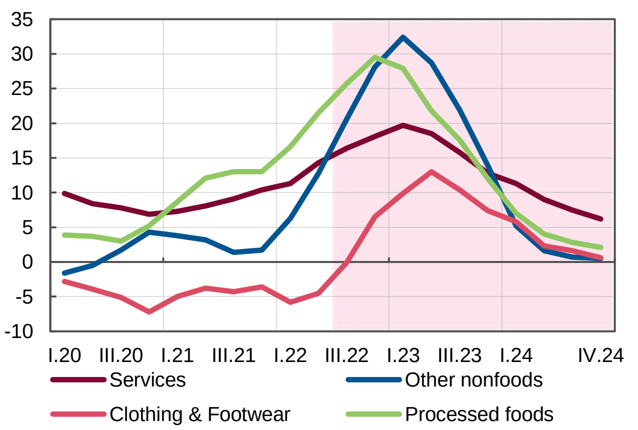
Source: minfin.com.ua, Refinitiv Datastream, NBU staff estimates.

Figure 2.1.10. Core inflation, %



Source: SSSU, NBU staff estimates.

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



Source: SSSU, NBU staff estimates.

foreign suppliers are signed, prices have already stabilized, albeit at a high level.

Fuel prices will continue rising next year. Thus, the expected gradual fall in global oil prices is likely to be offset by the need to return the fuel taxation system to its pre-war level. High fuel prices will drive headline inflation through second-round effects, in particular through an increase in prices for transportation services, as well as through the higher production costs of other goods and services.

Depressed demand will curb underlying pressures on prices, but its uneven distribution will support price growth for some components

Core inflation has been accelerating since the launch of the war, hitting 15.2% yoy in June 2022. An increase in underlying inflationary pressures was reined in by weak demand for nonessential goods and services. More specifically, the prices of clothes and footwear remained significantly lower than last year, while the growth in prices for telecommunications, financial and insurance services decelerated.

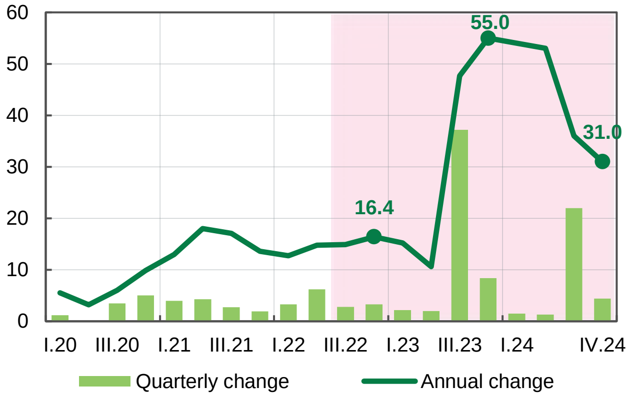
That said, this factor was not enough to offset the pro-inflationary pressures from other factors. As a result, most other components of core inflation grew at a faster pace.

With high housing demand in Ukraine's relatively safe western regions, housing rentals and hotel rates rapidly increased in price. The cost of housing repair services increased, due to the partial resumption of housing construction and the need to rebuild housing in deoccupied and shelled territories, as well as due to the ongoing shortages of some consumables.

The rise in the prices of cars, household appliances and electronic devices was also supported by the temporary demand resulting from people's desire to protect their hryvnia savings from depreciation, and to take advantage of tax benefits. This is evidenced by the sharp increase in households' propensity to consume seen in May–June.

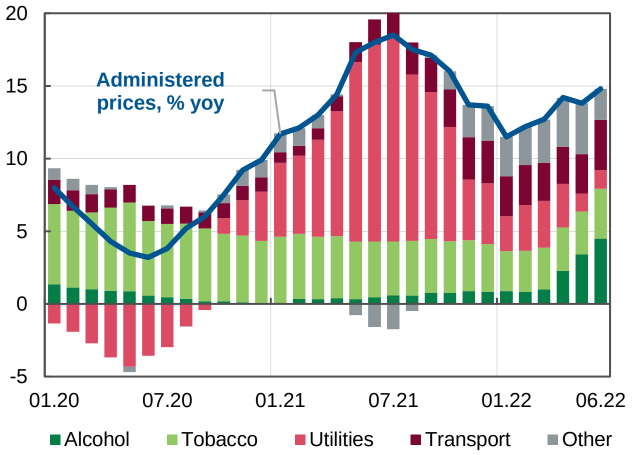
That said, underlying inflationary pressures will be low over the forecast period. Suppressed demand in wartime is a significant disinflationary factor in the current year, but even when household income returns to growth next year, demand will remain below its pre-war level. As a result, this year the over 20% rise in the price of core CPI components will be driven primarily by war-related supply-side shock effects and second-round effects resulting from the pass-through of business costs. However, demand for certain goods and services, mainly those needed to restore housing, is expected to increase, propping up the growth in prices for these goods and services. In 2023 and 2024, core inflation will decelerate to 12.4% and 2.6% respectively on the back of a weaker impact of supply-side factors due to a tighter monetary policy, and lower global inflation.

Figure 2.1.12. Administered price inflation, %



Source: SSSU, NBU staff estimates.

Figure 2.1.13. Contributions to the annual change in administered prices, pp



Source: SSSU, NBU staff estimates.

Although administrative price inflation is currently being curbed by a moratorium on utility price increases, over the forecast horizon, utility prices will become a potent pro-inflationary factor

In June 2022, the growth in administered prices sped up to 14.8% yoy. More specifically, the rise in the prices of alcoholic beverages accelerated significantly, which may be explained by higher costs, packaging shortages, and the limited supply of alcohol. Prices for tobacco products grew at a faster pace, due to some production facilities halting operations and shifting to imported goods. The cost of transportation services grew at a higher rate amid rising fuel prices. The growth in pharmaceutical prices accelerated, driven by unevenly distributed demand and supply. However, the growth slowed in late Q2 after the panic buying of these goods stopped and supplies recovered.

Over the forecast period, further increases in tobacco and alcohol prices, primarily due to higher excise taxes, will support the high administrative component of inflation. The main contribution to a significant rise in administrative price inflation over the forecast horizon will be made by an increase in utility prices. At present, the fixing of tariffs for heating and gas for the period of martial law is restraining growth in headline inflation – the growth in the cost of these services slowed to 1.2% yoy and 9.3% yoy respectively, reflecting high base effects. Thus, high global gas prices will have practically no direct impact on consumer inflation in Ukraine this year.

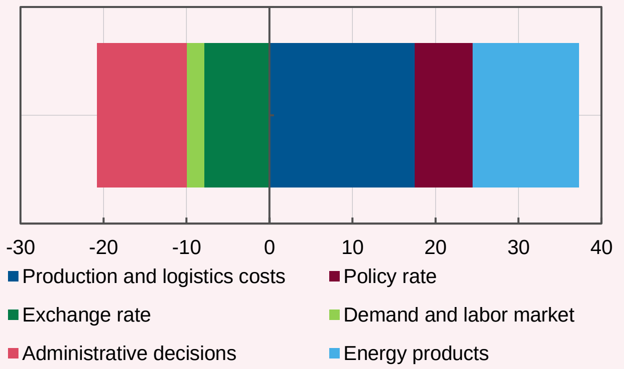
The gradual bringing of utility prices to market levels in the coming years will keep inflation well above its target. However, taking into account the great social significance of utility prices, prices are likely to be increased step-by-step and will entail an expansion in social support.

Box 2. Factors that Cause Inflation to Deviate from Its Target in Wartime

russia's war against Ukraine has led to a rapid increase in inflationary pressures. Consumer price inflation exceeded its target of 5% ± 1 pp by 16.5 pp in June, which is a great deal more than expected in all previous forecasts. To a large extent, inflationary trends in Ukraine reflected primarily war-related supply-side factors. Conversely, price growth was restrained by NBU measures, in particular those that fixed the hryvnia exchange rate, and government measures, in particular the imposition of a moratorium on raising tariffs for heating and natural gas for households, and cutting taxes on imports and fuel.

Inflationary pressures began to rise even before russia's full-scale invasion of Ukraine. **Thus, inflation stopped slowing in January 2022 (unchanged from December 2021), reflecting mainly the materialization of second-round effects from rising production costs and high energy prices, as well as the weakening of the hryvnia.** Since the russian invasion at the end of February, the growth in prices for most goods and services has accelerated rapidly, primarily due to disrupted production and logistical processes, unevenly distributed demand, and rising global inflation, in particular high energy prices. As a result, consumer inflation exceeded its target of 5% ± 1 pp by a significantly greater amount than expected in all previous forecasts.

Figure 1. Decomposition of inflation deviations from the target in June 2022, pp



Source: SSSU, NBU staff estimates.

The following factors had a considerable pro-inflationary effect:

- **an increase in production and logistics costs** 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 raw material and supplies stocks, and by the limited capacity of border checkpoints. As a result, the distances and terms of delivery of certain goods increased by several times, which affected production costs. Thus, the loss of Kremenchuk Refinery, the destruction of oil depots and the limited possibilities of import deliveries led to a rapid increase in the price of fuel, largely because of logistics costs (the NBU estimates that these costs in the price of A-95 patrol increased by 6 to 8 times in June 2022 compared to January 2022). Higher production costs also affected the prices of other goods and services (read more in *Inflationary Developments* on page 13).
- **high energy prices.** Natural gas prices in Europe remained high due to a reduction in russian gas supplies to a record minimum level, and a halt in its supply to several European countries. This factor affected consumer inflation in Ukraine through second-round effects. At the same time, growth in gas tariffs for households was restrained by administrative decisions. Global oil prices also increased, driven by the EU's introduction of a partial embargo on russian oil, and by a decrease in global stocks. Higher gas prices were mainly reflected in increased prices for energy-intensive goods, such as bread, building materials, glass and oil – in a rise in fuel prices and, consequently, transportation services.
- **the insufficient effectiveness of the transmission of the NBU's key policy rate.** Although the decisions the NBU took in late 2021 and early 2022 factor in the threat of an escalation of hostilities, the central bank did not include a full-scale war it its baseline scenario, considering it rather as a risk. Thus, in view of intensifying inflationary pressures, the NBU gradually tightened its monetary policy from the beginning of 2021, through raising its key policy rate and completely winding down its anti-crisis monetary measures. However, russia's full-scale invasion significantly limited the impact of the key policy rate on the functioning of the money and FX markets. Therefore, at the onset of the invasion, the NBU decided to refrain from taking any key policy rate decisions. With the gradual adaptation of the Ukrainian economy to the war, insufficient yields offered for holding hryvnia assets, coupled with the monetary financing of the budget, increased risks of the economy's dollarization, the depletion of international reserves, and the increased sensitivity of households' and businesses' depreciation expectations. This significantly increased pressures on consumer prices. With that in mind, the NBU decided to return to taking key policy rate decisions in June 2022. The transmission of the key policy rate into market rates is not effective enough, but the NBU is taking measures to boost it. The central bank also expects that the transmission will become more effective when the war is over.

At the same time, a number of other factors restrained price growth:

- **the fixed exchange rate of the hryvnia** not only had a direct restraining effect on the growth in the cost of goods and services, in particular through the cost of critically important imports, but also curbed underlying pressures by affecting households' and businesses' inflation and exchange rate expectations. Interventions to sell foreign currency to fix the hryvnia exchange rate became the main monetary instrument that replaced the transmission mechanism of the key policy rate.

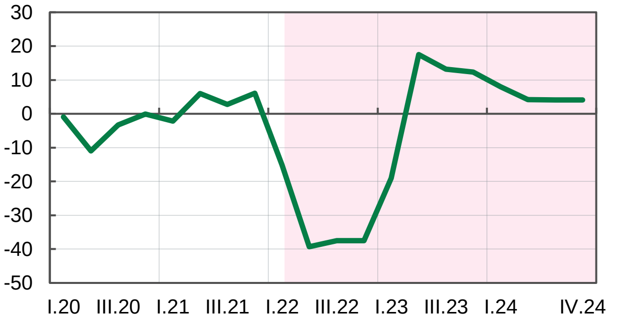
- **administrative decisions** also for the most part reined in inflation. The government's introduction of a moratorium on increasing tariffs for heating and natural gas for households limited the direct impact of higher gas and other energy prices on price growth, making a significant negative contribution to the deviation of inflation from its target. A reduction in the tax burden, in particular the cancellation of the excise duty and a decrease in VAT on fuel, had an additional negative effect.
- **weak demand and changes on the labor market** had a disinflationary effect. Thus, private consumption decreased due to falling household income, a significant part of the population going abroad, worsening labor market conditions, and significant security risks. All this forced households to refrain from buying nonpriority goods and services, such as clothes and footwear. At the same time, the forced reduction of wages restrained inflation through the production cost channel.

The return to an active interest rate policy will strengthen the NBU's ability to ensure exchange rate stability, and to rein in inflation during the war. Although the NBU will continue to conduct a tight monetary policy, given the potency of the pro-inflationary factors caused by the war, increases in administered prices and the specific nature of the transmission mechanism, inflation will decrease slowly.

2.2. Demand and Output

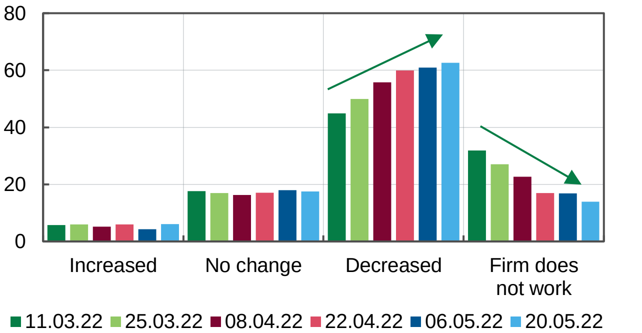
- Russia's full-scale war against Ukraine has led to both a dramatic plunge in business activity and the loss of the economy's medium-term growth potential. Although the economy is gradually recovering from the initial shock of the war, it is operating far below pre-war levels: in 2022, real GDP will shrink by one-third.
- The baseline scenario assumes there is a significant improvement in the security situation by the end of the current year, thanks to successful actions by the Ukrainian army and the full restoration of operations at Ukraine's Black Sea ports, beginning in 2023. Overall, security risks will significantly subside in 2023–2024, but they will remain relevant and drive down the propensity of domestic and international private investors to invest.
- With the easing of security risks, the Ukrainian economy stands to recover. GDP will grow, driven by the revival of consumer demand, rebuilding of production and logistics chains, and the recovery of investment amid prospects for European Union integration. At the same time, GDP will stay below its potential level, restraining inflation in the post-war period.

Figure 2.2.1. Real GDP, yoy changes, %



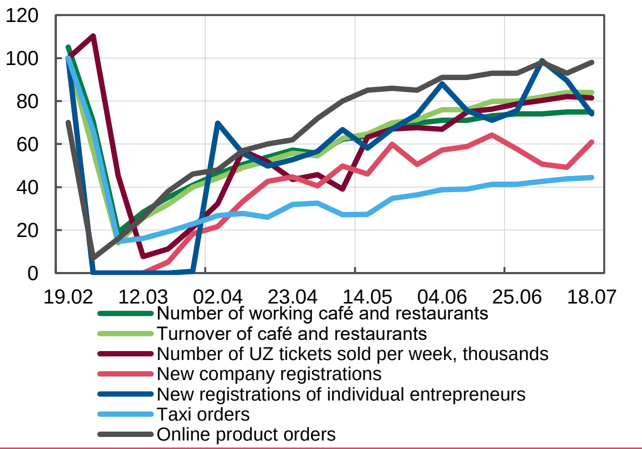
Source: SSSU, NBU staff estimates.

Figure 2.2.2. Change in the level of capacity utilization compared to pre-war level, % of responses



Source: flash NBU's surveys.

Figure 2.2.3. High-frequency indicators of economic activities in the service sector, % to the pre-war level



Source: Opendatabot, Poster, NBU staff estimates.

Military activities have plunged the economy into a deep recession. Now that the shock of the earliest months of the war has died down, the economy has been gradually adjusting to the new conditions...

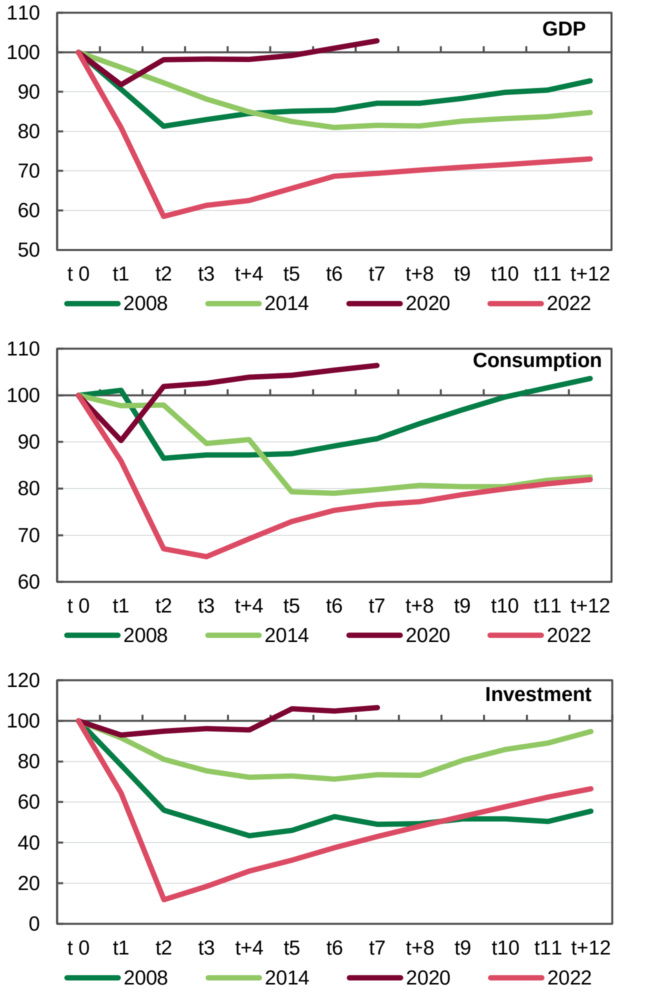
At the beginning of 2022, the economy came under pressure from geopolitical tensions due to the buildup of russian troops on the border with Ukraine, which in particular led to a deterioration in economic agents' expectations. Russia's full-blown invasion of Ukraine then caused a sharp slump in economic activity. According to a flash estimate by the SSSU, GDP in Q1 plunged by 15.1% yoy, primarily a result of the deep recession in March, when the situation was at its worst: ten oblasts and the city of Kyiv either came under occupation or had active hostilities. However, even in calmer regions, business activity significantly decreased owing to elevated uncertainty and risks, supply chain disruptions, production hurdles, and the mass migration of displaced people. In early March, almost one-third of businesses had to shut down, flash surveys by the NBU have shown.

In April, the economy started to adapt, and economic activity began to pick up. To a large extent, this was facilitated by the liberation of the northern regions and the decrease in the number of regions with active hostilities. At the end of May, only 14% of businesses were closed. However, those that did stay open were operating a workload that was far below the pre-war level, the NBU's flash surveys have shown.[4] SMEs were hit hardest, as they came into the war with lower financial margins of safety than large businesses.

However, the destroyed facilities and infrastructure, the occupation of about 20% of Ukraine's territory, supply chain disruptions, which have most significantly affected the volume of exports, and the drop in domestic demand are holding back the economy's recovery, in both the manufacturing and service sectors. As a result, real GDP in Q2 fell by almost 40%, according to the NBU's estimates (for more about the NBU's approaches to GDP estimation amid a lack of statistical data from the SSSU, see Box 3 *Features and Methods of GDP Nowcasting During the War* on page 24).

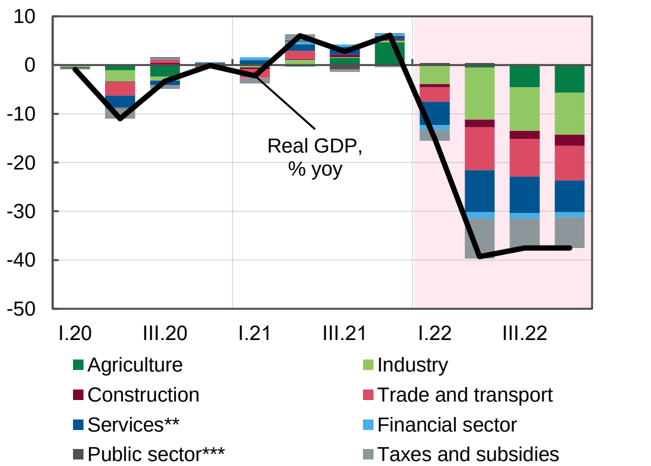
[4] Other surveys corroborate the gradual adaptation of the economy and the revival of economic activity, in particular those by the EBA (1 and 2), AmCham, Gradus, and IED.

Figure 2.2.4. Real GDP and its individual components during various crises, sa index (quarter before the crisis = 100%)



Source: SSSU, NBU staff estimates.

Figure 2.2.5. Contributions of selected sectors' GVAs to the annual GDP growth*, pp



* 2022 - NBU staff estimates.
** Services include temporary accommodation and catering; information and telecommunications; real estate transactions; professional, scientific and technical activities; activities in the field of administrative and support services; arts, sports, entertainment and recreation; other types of services.
*** Public sectors include public administration and defense; education; health care and social assistance.
Source: SSSU, NBU staff estimates.

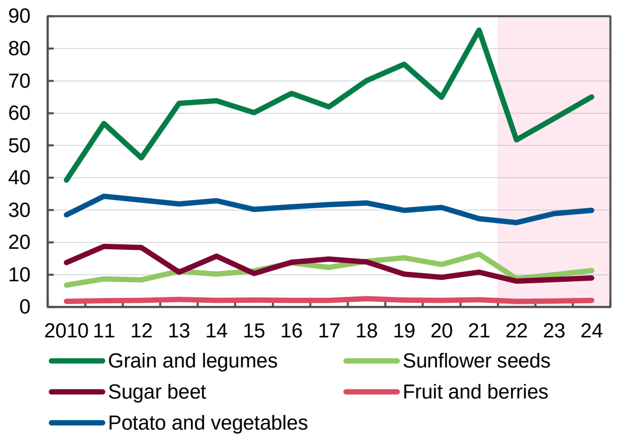
... however, the drop in GDP in 2022 will be the deepest in Ukraine's history

In 2022, the economy will shrink by one-third. The fall of the economy will be significantly deeper than during the financial, COVID-19, and 2014–2015 crises. In 2014–2015, the economic recession was also due to the occupation of Crimea and parts of the Donetsk and Luhansk oblasts, which led to the breakdown of economic ties and the loss of part of the country's production capacities and population. However, an even greater role was played by previously accumulated economic imbalances, which led to a rapid depreciation of the hryvnia and a banking crisis. Thanks to the implemented reforms and balanced macroeconomic policy, the economy came into the COVID-19 crisis with a significant margin of safety, which was preserved until the beginning of 2022. Together with the emergency measures the NBU took immediately after the full-scale invasion to maintain macrofinancial stability, this margin of safety enabled Ukraine to quickly adapt its economy to the conditions of a full-scale war. However, blocked ports and significant migration abroad, large-scale losses of capacity and infrastructure, as well as intense hostilities in a number of regions will limit both demand and supply in 2022 much more significantly than in 2014–2015. A Q2 2022 business outlook survey by the NBU has shown 86% of respondents indicating that the war and its consequences will hinder production growth in the next 12 months, a downturn that will most clearly manifest itself through a slump in demand and an increase in prices for energy and raw materials.

Agriculture will make an additional adverse contribution to the change in GDP in 2022. Despite the relatively successful spring sowing campaign[5] and the good condition of winter crops, the harvest will be significantly smaller than last year. The NBU estimates that about 30% of the winter crops have ended up in the battle zone or under occupation. Agriculture's output will also be affected by problems with harvesting near the frontlines, including the physical destruction of crops, machinery, and grain storage silos. In addition, the yields of most crops are expected to decline because of a shift in fertilizer application schedules or due to a low amount of fertilizers and plant protection products. As a result, harvests of grains and vegetables will be 40% smaller in 2022 compared to the previous year. The sunflower seed harvest will almost halve from a year ago. Livestock farming is also shrinking because of the war, although low feed prices support the segment's profitability and thus the food industry. Problems with exports, lost or insufficient grain storage capacity still hold grain from the previous harvest, and a drop in purchase prices for agricultural products pose significant risks to the financial standing of agricultural producers and thus for next year's harvest. However, the expected easing of hostilities in the fall and the unblocking of ports will make it possible for farmers to catch up on their sowing work, in particular with regard to spring crops. In the years following the liberation of territories and the setting up of logistics, harvests will grow (by 11%–12%) but will still fall short of pre-

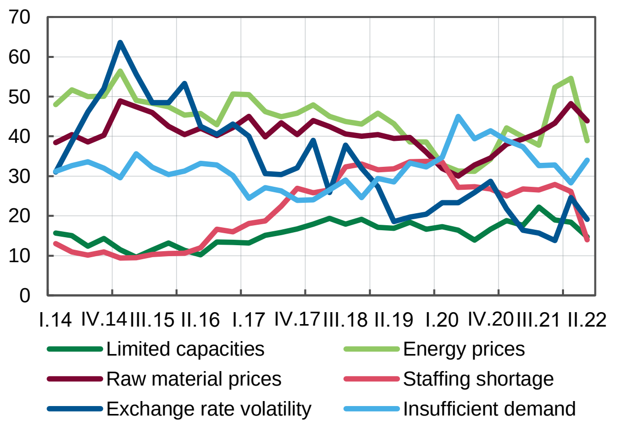
[5] According to the Ministry of Agriculture, sowing in 2022 was carried out on an area of 13.4 million hectares, down 20.6% on last year.

Figure 2.2.6. Harvest of main agricultural products, million tons



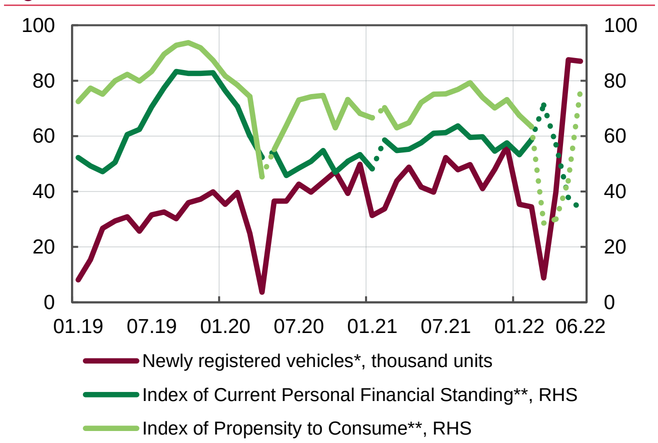
Source: SSSU, NBU staff estimates.

Figure 2.2.7. Assessment of the factors that will restrain production growth over the next 12 months, % of answers



Source: NBU.

Figure 2.2.8. Selected indicators of consumer demand



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

** Dotted line – change of the survey method from face-to-face to the phone interview.

Source: Info Sapiens, Ukravtoprom.

war levels because of losses incurred by farmers (damage to land, stolen equipment, destroyed storages, and more).

With the easing of security risks, a significant intensification of economic recovery is also expected. This will be facilitated by the revitalization of consumer demand, the establishment of production and logistics processes, and the revival of investment activities, including due to the prospects for European Union integration. However, given the significant losses of production and human potential, the recovery of Ukraine's economy in 2023–2024 will be slow (about 5%–6% a year). A faster pace of recovery is impossible without the involvement of significant international aid, in particular through an analogue of the Marshall Plan for Ukraine (for more on this, see *Risks to the Forecast* on page 43), which due to the significant uncertainty of both deadlines and parameters has not been included in the baseline forecast scenario assumptions.

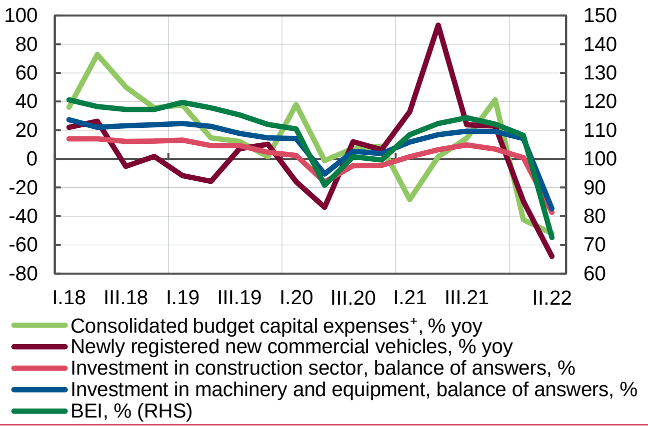
Domestic demand contracted substantially, although its fall was partly restrained by a significant easing of fiscal policy

Private consumption decreased due to a drop in household incomes, high uncertainty around security risks, active migration, and supply factors such as the destruction of warehouses and shops, limited access to and erratic operation of retail outlets, including due to curfews, and supply chain disruptions affecting certain products and fuel. Elevated uncertainty and the deterioration of financial performance due to losses of businesses and limited exports brought investment activities to an almost complete halt. Budget capital expenditures have been sequestered in favor of more spending on defense.

The reconstruction of infrastructure partially supported investments and construction. Support for investments was probably also provided by the relocation of businesses from the frontlines to calmer regions, and the reconfiguration of certain industries (food, light industry) to meet defense needs. In addition, domestic demand was underpinned by government programs to support households and businesses (for details, see *Fiscal policy* on page 30), fiscal incentives, and a significant increase in general government spending, primarily on defense and security. To a large extent, however, domestic demand, including from the defense sector, was met through imported supplies. Meanwhile, exports were limited by the blockade of ports, logistical hurdles on the western border, and the destruction of capacities (for more, see *Balance of Payments* on page 33). As a result, a significant negative contribution of net exports to the change in real GDP remained.

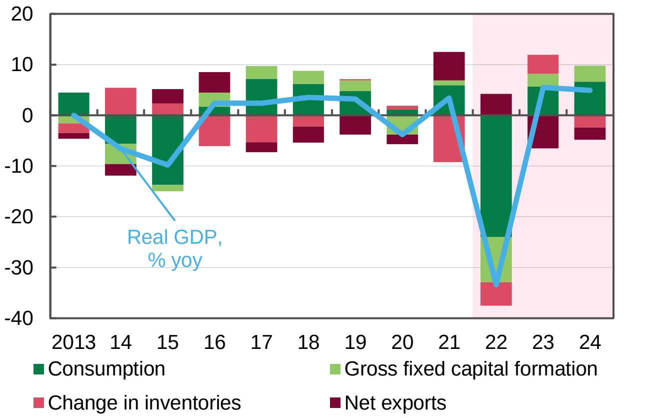
In the post-war period, private consumption will grow by 8%–9% per year thanks to the recovery of economic activity and improved consumer sentiment. After the cessation of hostilities, both the demand for and the supply of consumer goods and services will increase as migrants return from abroad and activity picks up in many sectors that saw a plunge in business during the war, including tourist, recreation, and entertainment services. Incomes of the

Figure 2.2.9. Some indicators of investment demand



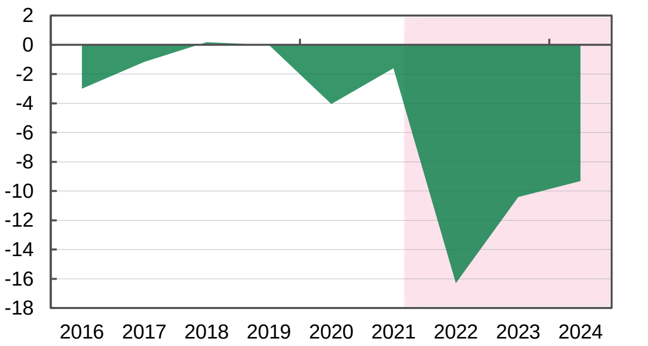
Source: SSSU, STSU, NBU, Ukravtoprom.

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



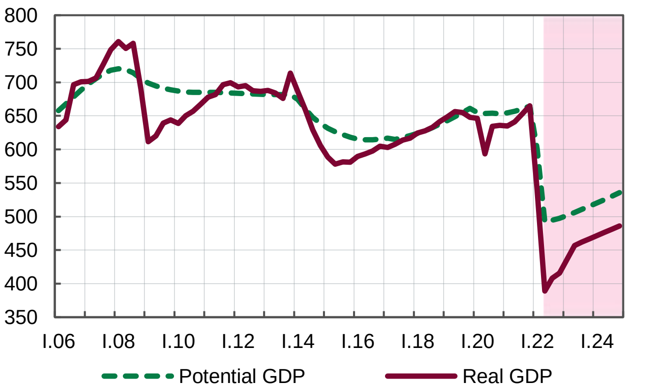
Source: SSSU, NBU staff estimates.

Figure 2.2.11. Output gap, % of potential GDP



Source: NBU staff estimates.

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



Source: SSSU, NBU staff estimates.

population will grow due to increasing wages and a gradual reduction of unemployment (for more, see *Labor Market and Household Incomes* on page 26). The positive effect of fiscal incentives will persist, despite the gradual consolidation of public finances.

Investment activity will significantly intensify, driven by the need to make up for significant losses of infrastructure and fixed assets of businesses, and by prospects for European Union integration. Despite high growth rates (about 50% each year), the share of investment in GDP will remain significantly lower (less than 10%) than in previous years, due to the persistence of elevated uncertainty and security risks. As a result, the state will play an increasingly important role in accumulating funds for post-war reconstruction, raising investments, and improving Ukraine's investment appeal.

Consumer and investment activity will rely heavily on imported supplies (in particular transport and equipment), which, coupled with increased consumer demand, will drive imports growth over the forecast horizon (2%–8% a year). A significant increase in exports in 2023 (by about 20%) will be due to the export of crop stocks as ships regain access to Ukraine's Black Sea ports, but further exports will remain limited (for more on the forecast, see *Balance of Payments* on page 33). The contribution of net exports to the change in real GDP will temporarily become positive only in 2023, and will return into negative territory starting from 2024.

The war resulted in a significant loss of potential GDP and a record negative output gap. GDP will remain below its potential level over the next two years

Russia's full-scale war against Ukraine has resulted in the destruction of capital, a slump in investment due to uncertainty, the loss of labor due to migration, and a drop in productivity owing to the disruption of logistical and technological chains. This led to a significant decrease in potential GDP. Going forward, potential GDP will grow, but it will not recover to its pre-war level over the forecast horizon because of the magnitude of the losses. The rate of potential GDP growth will depend on the volume of investments, meaning that state policies will play a greater role in setting up a favorable business climate and raising financial assistance from international partners.

Meanwhile, a negative output gap has been caused by a temporary decline in domestic demand, as well as the loss of export opportunities due to the maritime blockade. From H2 2022, the gap is expected to narrow, along with the recovery of the economy and maritime transportation, the return of migrants, further digitalization, the development of IT, including in the public sector, and institutional capacity building within European Union integration processes. However, the output gap will remain negative in the medium term due to the need to reduce inflation through monetary instruments and the gradual consolidation of fiscal policy.

Box 3. Features and Methods of GDP Nowcasting During the War

The full-scale invasion of Ukraine by russia and the imposition of martial law have significantly limited possibilities for data collection, and narrowed access to official statistics. However, the assessment of the current state of the economy is an essential component of forecasting, and an important basis for making decisions on economic and monetary policy. Lacking conventionally collected statistics, the NBU has applied several indirect approaches based on the use of high-frequency indicators and historical information about the structure of the economy and interdependencies within it. However, there are disadvantages in using high-frequency indicators, as they are volatile, and this makes them more difficult to interpret compared to official statistics. In addition, historically formed ties and the structure of the economy were unprecedentedly reshaped by the hostilities and their consequences. Therefore, decision-making on monetary policy took into account GDP estimates based on these methods, but with awareness of the high levels of uncertainty inherent in both the methods themselves and the fact that martial law was in effect. Taking note of the specifics of certain methods, the fall in real GDP in Q2 2022 was estimated at 39.3% yoy.

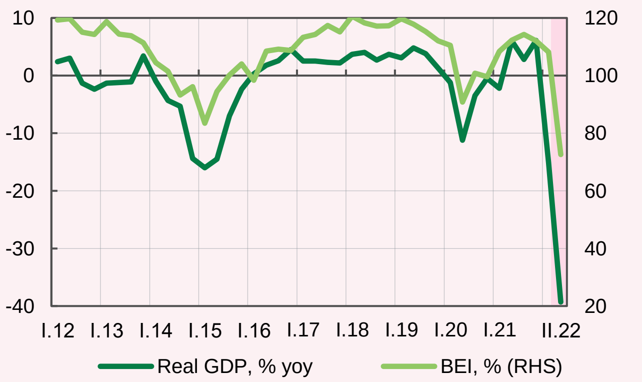
Assessing the current state of the country's economy – nowcasting – is an important element of central banks' system of analytical tools. Even before the full-scale invasion, the official statistics used in economic models to forecast and analyze policy measures were published infrequently and with considerable delays. For example, national accounts in Ukraine are processed quarterly, and the first flash estimate of real GDP (without details) is published on the 35th day after the end of the reporting quarter, while a detailed report is released on the 70th day[6]. It has been standard practice for central banks to use indirect methods that make it possible to estimate GDP based on alternative, high-frequency data. The use of such indicators in economic analysis proved its effectiveness during the COVID-19 crisis[7].

Amid the unprecedented shock of full-scale war, nowcasting economic activity has become particularly relevant, especially under conditions of limited availability of official statistics, and a changing and turbulent environment. Understanding the depth of the economic downturn, as well as the speed of recovery, makes it possible to take timely and effective economic decisions and adapt policy measures.

Thus, the NBU relied on three main approaches. The first method was based on the **use of the structure of GDP, with a breakdown into oblasts, and expert assessments of changes in economic activity of an oblast's sectors. The assessments, in turn, took into account a number of high-frequency indicators**: biweekly flash surveys of enterprises' operations conducted by the NBU from March to May; the number and turnover of cafés and restaurants at work; data from some of the largest retail chains; the number of new buildings put up for sale; electricity generation and consumption figures, etc. This method revealed that the steepest decline in GDP was observed in March–April (by an average of 42% yoy) with a gradual slowdown in the pace of decline to 36.5% yoy in June.

Another approach that was also used by the NBU in the past **was an assessment based on the NBU's quarterly business outlook surveys**[8]. These surveys examine the opinions and expectations expressed by enterprises regarding key macroeconomic trends, firms' current stance, and their prospects for future development. With enterprises' feedback, the NBU calculates an aggregate index – the Business Expectations Index (hereinafter referred to as the BEI). To forecast GDP and its components with ARDL and VAR models, enterprises' responses are aggregated by applying a principal component analysis. Although most questions concern a business outlook for the next 12 months, this method shows the best performance while estimating GDP in the current period[9], mainly due to the adaptability of business expectations. In particular, this method produces an estimated decline in GDP in Q2 of about 23% yoy.

Figure 1. Real GDP and Business Expectations Index



Source: SSSU, NBU staff estimates.

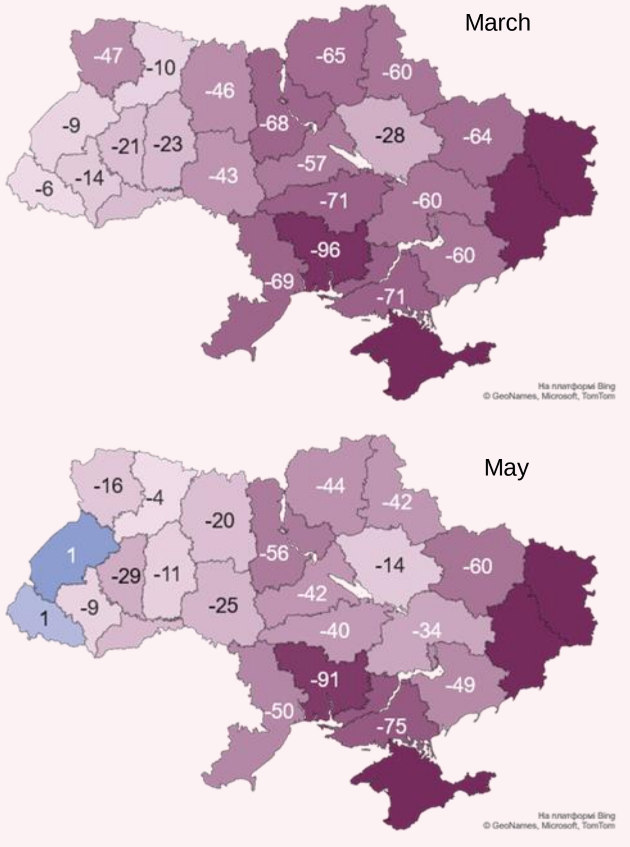
Another approach was the **approximation of the IKSO**[10]

[6] Ukraine's State Statistics Service has observed the above estimate release periods since 2022; GDP statistics were previously published on the 45th and 80th day after the end of the reporting quarter, respectively.
[7] So, for example, applying indirect methods in its July 2020 Inflation Report, the NBU estimated an 11% drop in Ukraine's real GDP in Q2 2020 yoy, which was caused by strict quarantine-related curbs amid the first COVID-19 wave. This, in fact, matched the official data.
[8] The surveys have been conducted since 2006. From 500 to 1,000 enterprises participate in them, the sample reflects the structure of GDP by oblast and by sector.
[9] Evaluating the predictive capability of the models with pseudo out-of-sample forecasting reveals that yoy growth in GDP and its components is best assessed in the current period by applying business outlook survey findings that have been generalized using a principal component analysis and the first difference of the Business Expectations Index. Read more in Lysenko, Kolesnichenko (2018).
[10] The Index of Key Sector Output (IKSO) is an indicator calculated by the NBU. It reflects the dynamics of the development of such industries as agriculture, industrial production, construction, retail and wholesale trade, and freight and passenger transportation. The IKSO is calculated every month and used as an indicator for nowcasting economic activity. The index, although it covers only half of the total value added in the country, has been seen to be highly effective in early warning models for predicting financial crises. In order to assess the effects of the shock of the full-scale invasion, the IKSO was synthesized at the level of oblasts.

with a breakdown into oblasts based on a large set of alternative data:

- nighttime light intensity based on satellite imagery (Source: NASA)
- Google trends for search by individual categories and topics (Source: Google)
- proceeds from trade delivered to banks' pay offices and individuals' noncash transactions (Source: reports on commercial banks' cash transactions)
- statistics on newly posted vacancies and the average salary offered for them by selected categories (Source: work.ua).

Figure 2. Geographical chart of economic activity decline in Ukraine in March and May 2022 (yoy, %)



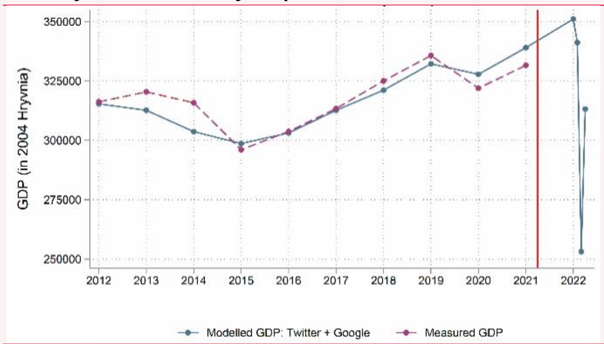
Areas colored in a darker/lighter shade reflect a greater/lower decline in economic activity in individual oblasts. Estimates for AR of Crimea, Sevastopol city, and Donetsk and Luhansk Oblasts in their administrative boundaries were not calculated.

Source: NBU staff estimates.

According to the findings of this method[11], Ukraine's economy in March 2022 shrank by 48% compared to March 2021[12]. Oblasts in the northern, eastern, and southern parts of Ukraine where active hostilities were taking place at that time were affected the most. Oblasts in the country's west reacted moderately to the initial shock of the full-scale invasion when compared to others. This can be explained by the remoteness from active hostilities and by the internal migration of the population from other oblasts. As early as in May, the economic decline slowed to 32% yoy (the deviation of the scores is ± 4 pp). However, the recovery of the economy did not proceed evenly.

A variation of this approach was [the researchers' assessment] based on the specification of a model that features Google Trends and Twitter. The estimation results of the study show that economic activity in Ukraine since the beginning of the active phase of the russian invasion plunged by 45% in March 2022 compared to the prewar level but the decline slowed to 15% as early as in April. However, the results of the model built on nighttime light intensity data suggest that economic activity fell by about 40% in April 2022 compared to the 2021 average.

Figure 3. Ukraine's real GDP: yearly data for 2012–2021 and monthly data for January – April 2022



Source: Constantinescu, Kappner, Szumilo (2022).

Using the available approaches for nowcasting has some limitations. First, high-frequency indicators are volatile, and this makes them more difficult to interpret than official statistics. Second, the models are built on historically formed ties and structures that are likely to have been reshaped by the unprecedentedly large-scale shock associated with the war. As a result, the ties may be distorted and the estimated coefficients could be unstable. Third, nowcasting models are not able to take into account other specifics of wartime that are apparent in the input data. For example, nighttime light intensity in oblasts in wartime may also reflect security and blackout measures, which have become widely practiced in many populated areas of Ukraine.

However, despite the shortcomings of each statistical method, their use makes it possible to more accurately assess the current state of the economy with a minimal time delay, and for this information to be used in decision-making in economic policy.

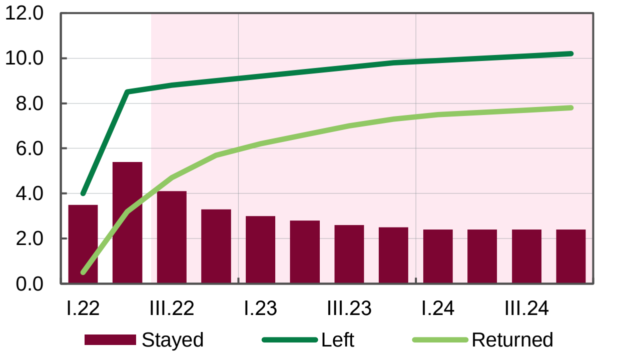
[11] The nowcasting model was run from January 2017 to December 2021. A large volume of the specifications of nowcasting models was analyzed to select the best ones in terms of their ability to approximate the past and preserve historical correlations. The input data were preprocessed depending on their characteristics. Nonstationary time series were converted into yoy changes. Stationary series were seasonally adjusted. Some data were interpolated and adjusted to remove outliers and missing values. The number of time series for new job openings, salaries, and Google Trends was reduced via a principal component analysis.

[12] The score is the average of a number of model specifications, and the standard deviation for the scores is ± 9 pp.

2.3. Labor Market and Household Income

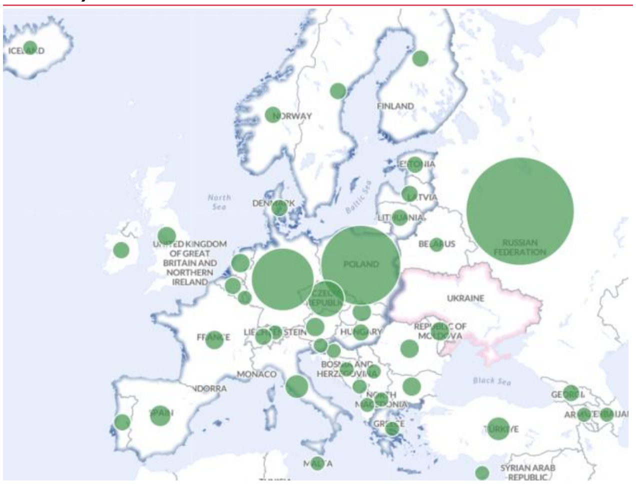
- The full-scale war has resulted in a humanitarian crisis and active migration, including abroad, which will influence Ukraine's demographic development and labor market conditions for many years to come. The deep economic recession led to a sharp reduction in household incomes and an increase in the unemployment rate.
- Despite the economic recovery and increased demand for labor, unemployment will remain above its natural level for a long time due to the long-term effects of the war. Real wages will gradually recover, but growth rates will be restrained by the excess of labor supply over demand.

Figure 2.3.1. Number of migrants staying abroad, millions (at the end of the quarter)



Source: UNHCR, NBU staff estimates.

Figure 2.3.2. Number of Ukrainian migrants by country (as of 19.07.22)*



* A significant number of migrants in russia may reflect the deportation of Ukrainians from the occupied territories.

Source: UNHCR.

The demographic changes wrought by the war will limit the development of the labor market for years to come

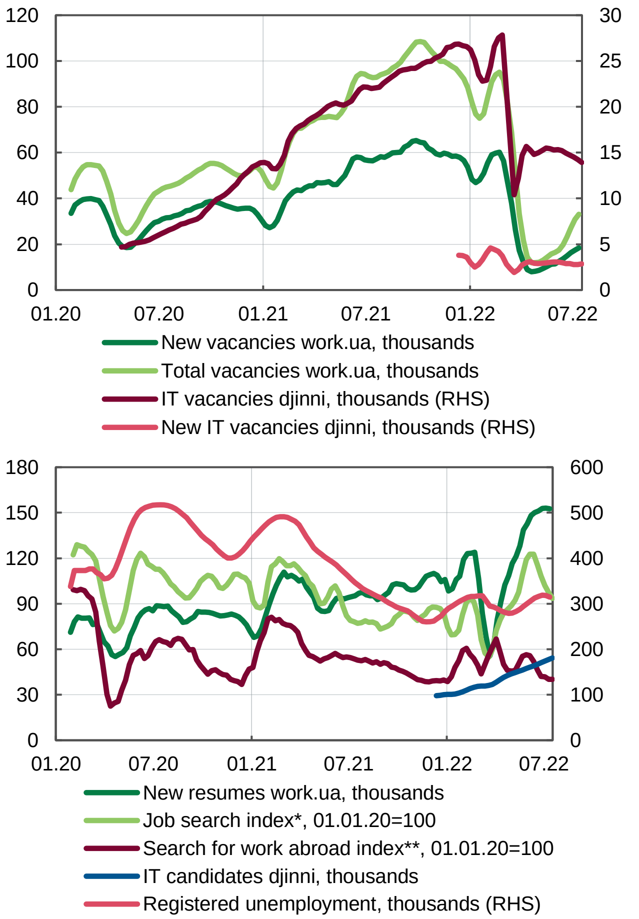
The war has led to a humanitarian crisis in Ukraine and significantly altered its demographic landscape. The deaths of relatives, physical and psychological injuries, forced migration, and the loss of housing, work, and property have affected the lives of the vast majority of the Ukrainian people. Problems with the educational process and access to health care and even basic human needs (water, food, etc.), especially in the occupied territories, will have a strong adverse impact on the main demographic indicators and labor supply even in the years to come.

Military and civilian casualties due to the hostilities have yet to be assessed. At the same time, one obvious long-term outcome of the war is a plunge in the birth rate, which was relatively low even before the war. Demographic indicators and labor market conditions are also being affected by the active migration of the population, including away from Ukraine. According to the UN, as of 21 June, the number of refugees from Ukraine exceeded eight million. A large part of them have received temporary protected status and government assistance in their host countries.[13] According to surveys,[14] most of the migrants plan to return to Ukraine. As of late June, about 3 million citizens had already returned. Another wave of migrants with children is expected to return after the summer holidays, and the next one after the stabilization of the security situation at the end of the year. As a result, the net decrease in the population owing to migration in 2022 will be approximately 3.2 million. In 2023, it will decrease to 2.5 million people and will settle slightly below this level in 2024. However, the continuation of hostilities and security risks may prevent this.

Among the refugees abroad, the majority are women with children.[15] Most of these women have higher education. Some of them will most likely stay in the host countries even after the active phase of the war is over, because, surveys have shown, they are adapting to the new life abroad, learning local languages, and actively looking for work, or

[13] According to a survey by Ukraine's National Academy of Sciences, 49% of the displaced persons are getting help from the governments of their host countries.
[14] According to a June survey by Rating, 87% of respondents said they planned to return home: 15% in the near future, 24% later on, and 48% after the end of the war. Some 8% said they would not return. Compared to April, however, the number of those planning to return immediately has declined, while the numbers of those expecting to return after the war, or never, have grown. A Gradus survey has yielded similar estimates: the number of those undecided about when or whether to come back increased in June compared to May (to 25% from 11%), while the number of those wanting to return as soon as possible declined (to 65% from 73%).
[15] A March survey by Razumkov Center has shown that an absolute majority of the displaced persons are women (83%), that more than half of migrants are aged between 30 to 49, and that three quarters of them have a higher education or have taken some higher education courses. About 63% of the displaced people went abroad with their children.

Figure 2.3.3. Labor force supply and demand (4-week moving average)

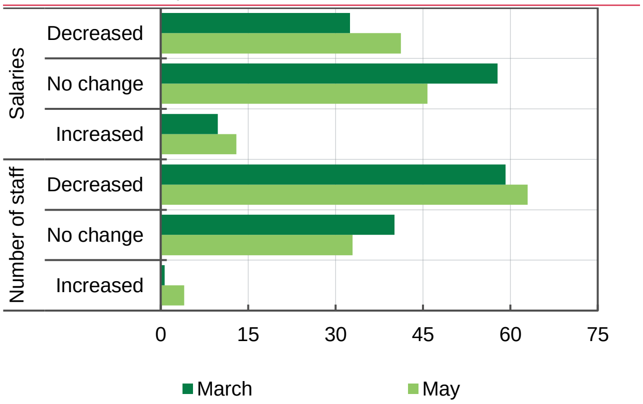


* Includes job search queries in Ukrainian and russian.

** 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 estimates.

Figure 2.3.4. Change in staff number and salaries at firms that continued to work, % of answers



Source: flash NBU's surveys.

already working.[16] Meanwhile, some of these migrants continue to work remotely for their Ukrainian employers. This maintains their ties to Ukraine, but the longer the war drags on, the less likely it is that they will return.

Mass migration will have a significant adverse impact on Ukrainian demographics and economic development. Specifically, it will reduce domestic consumption and decrease the labor supply, in both the short and long runs, putting pressure on Ukraine's labor market, potential GDP, and pension system.

Additional pressure on the labor market is exerted by internally displaced people, as in the eastern regions the structure of employment was significantly more industry-oriented than in the west of Ukraine.[17] This will likely widen existing disparities between labor supply and demand, despite the relocation of businesses.

When the war broke out, labor market activity almost halted. It has gradually recovered in recent months, but labor supply will continue to significantly exceed demand

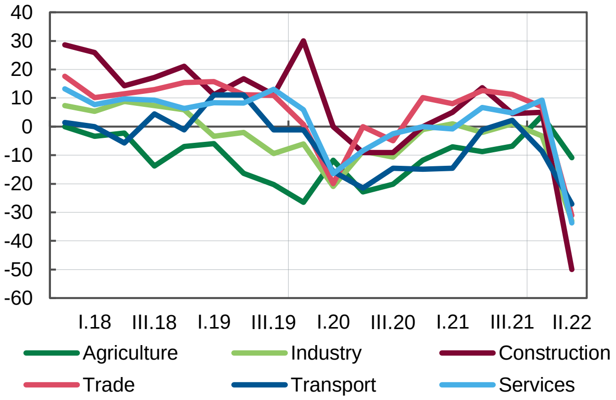
In the earliest weeks of full-scale war, both the number of vacancies and resumes being posted dropped sharply. In April, however, the number of job seekers began to surge,[18] including due to the return of some migrants and the relatively poor financial standing of households after the COVID-19 crisis. In contrast, the number of vacancies is rising extremely slowly, even in IT. This is attributable to the deep decline in economic activity, uncertainty, and a reduction in the financial resources of businesses.

At the onset of the war, most businesses kept wages and staff numbers practically unchanged, according to a flash survey of businesses the NBU conducted in March–May. However, realizing that the war would not end in the coming weeks and that the financial and economic situation had deteriorated, companies began to optimize costs.

Going forward, the recovery of economic activity will help revitalize the demand for labor. At the same time, it is likely that the structure of demand will change significantly. In particular, there will be strong demand for workers to restore infrastructure and production facilities, and for those in logistics. In contrast, labor demand in industry will stay relatively weak, as it will take a long time to restore the destroyed production facilities. On the other hand, the reduction in the labor force, in particular due to the departure of the working population abroad, could lead to an acute shortage of workers in certain sectors. All of this will deepen existing mismatches in the labor market. In addition, underinvestment in the economy in the immediate post-war

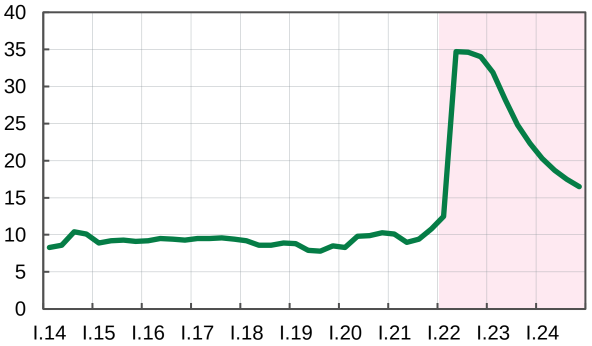
[16] A work.ua survey shows 59% of the Ukrainian refugees as having already sought work in the country where that are temporarily living. According to a survey conducted in Poland, 18% of them have work there and 71% intend to start working in the near future, while most (81%) are also actively learning Polish. About 28% continue to do paid remote work for Ukrainian-based companies.
[17] According to SSSU data, the share of people employed in industry in the Donetsk, Luhansk, Zaporizhzhia, and Kharkiv regions, on average, reached almost 21% in 2021, up from about 12.5% in the west of Ukraine.
[18] According to the job search site grc.ua, the number of searchers visiting the site in June 2022 has already reached the level of June 2021. The number of responses per vacancy increased by four times (to 12). Similar trends are reported by other job search sites.

Figure 2.3.5. Expectations regarding the change in the number of workers in the next 12 months, by sector (balance of responses), %



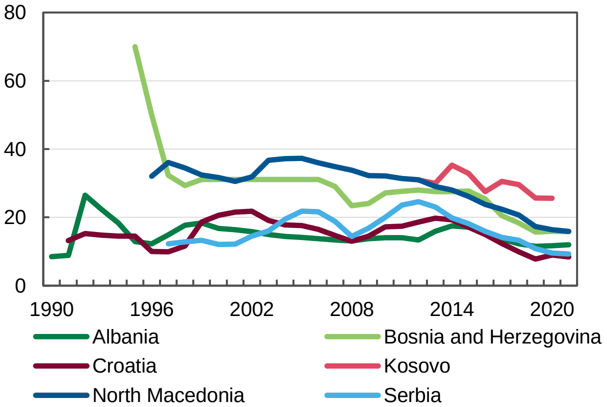
Source: NBU.

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



Source: SSSU, NBU staff estimates.

Figure 2.3.7. Unemployment rate according to the ILO methodology in the Balkan countries, %



Source: IMF.

years and the weak financial standing of business will hold back the overall recovery in labor demand.

After record growth, the unemployment rate will gradually decline, but will remain above its natural level

By NBU estimates, despite businesses' efforts to retain employees, the war caused an unprecedented spike in the unemployment rate (to about 35%). Because of a plunge in economic activity and migration due to security risks in the frontline regions, a large part of the population lost their jobs. On the other hand, a small financial safety margin forced households to actively look for work. In addition, the level of unemployment has increased significantly as some of the people have dropped out of the labor force. The primary reason is that displaced persons, both within the country and abroad, often have not prioritized their job search efforts.[19] However, if migrants had remained in Ukraine and actively sought work, the unemployment rate would have increased even more. Mobilization to the ranks of the Ukrainian defenders also restrained the increase in unemployment.

By the end of the year, the unemployment rate will decrease from its peak in Q2 2022 as the economy recovers and demand for labor increases. However, as with other countries (such as the former Yugoslavia), even after the end of active hostilities, unemployment will decline slowly and remain at higher levels than before as the long-term effects of the war persist.

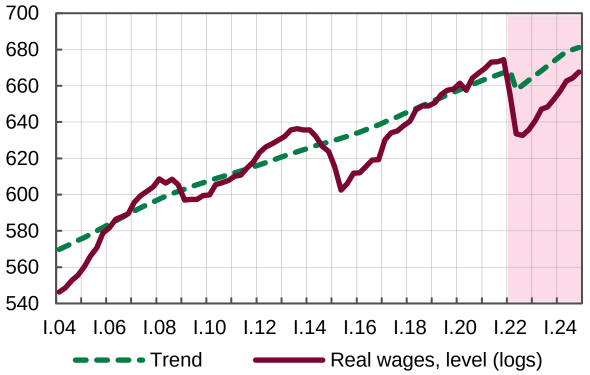
Household incomes fell sharply. Over the forecast horizon, real wages are expected to make a moderate recovery

According to the NBU's flash surveys, companies tried to pay full salaries, and some made supplemental payments or provided support even after their operations were halted. As hostilities wear on, however, companies often lay off staff and are largely unable to pay pre-war wages. Most large companies, especially multinational ones, have been paying salaries in full. But even some of these businesses have had to optimize their personnel expenses. SMEs are less sustainable, so they lay off more workers and make more salary cuts.[20] A significant excess of supply over demand in the labor market is driving a decrease in expected wages even as inflation accelerates.[21]

According to various surveys, the drop in salaries in the private sector in May was between 25% and 50% relative to the pre-war period. For those employed in the public sector, the situation is somewhat better, according to estimates based on state budget expenditures. In addition, the loss of the household income from work was partially compensated

[19] The unemployment rate is calculated as the ratio of the number of unemployed people to the labor force. The number of unemployed in Q1 2022 did not change from Q4 2021, but the labor force fell by 3 million people, and so the unemployment rate increased from 10.6% to 12.8%.
[20] According to an EBA survey, large companies laid off 8% of staff in May compared to 1% in March, and cut salaries by 13% relative to 3% in March. Some 63% of them paid salaries in full. As for SMEs, 12% of them fired their workers, up from 8% in March, while 32% of SMEs cut wages, up from 19% in March. Only 23% of SMEs paid full salaries.
[21] According to data from work.ua, the average offered salaries for both vacancies and resumes in April–June were lower than at the beginning of March. Although the average decrease in nominal wages is not very significant, for certain professions, such as the hotel and restaurant business, tourism, and real estate, it is measured in double-digit percentages.

Figure 2.3.8. Real wages, level (logs)



Source: SSSU, NBU staff estimates.

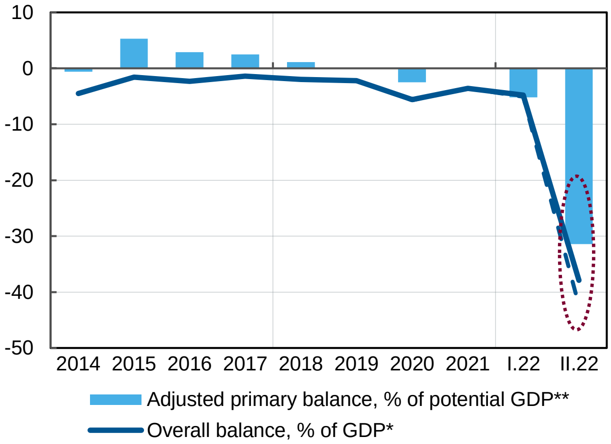
for by social benefits, higher pensions, and a significant increase in military allowances.

Overall, nominal wages will decrease by 12% in 2022. Real wages will fall by 27%. Going forward, as the economy recovers and labor demand revives, nominal wages will grow rapidly and exceed the pre-war level in 2023. In 2024, however, real wages will still be lower than prior to the war, because of inflation.

2.4. Fiscal Sector

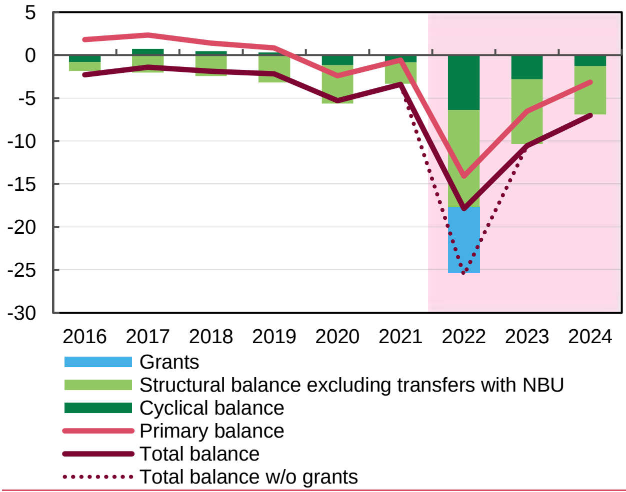
- The fiscal policy became expansionary, which eased the economic shock. Despite the expected narrowing of the budget deficit (from 26% of GDP in 2022, excluding grants, to 11%–7% of GDP in 2023–2024), the fiscal policy will remain loose until the end of the forecast period. This will support the economy in the post-war period on the one hand, but will fuel inflation on the other.
- International funding and the NBU's monetary financing will remain an important source for financing budget needs in 2022. Next year, this role will be played by official borrowing, in particular thanks to the new IMF program, and borrowing from the market, while monetary financing of the budget will be phased out. A large deficit in 2022 will cause a sharp rise in public debt. The debt-to-GDP ratio will remain high over the next two years.

Figure 2.4.1. General government fiscal balance



* Overall balance is the consolidated budget balance, taking into account loans to the Pension Fund from the STA. Dotted line represents the balance excluding grants.
** 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, and a negative value indicates expansionary fiscal policy.
Source: STSU, NBU staff estimates.

Figure 2.4.2. Consolidated budget balance, % of GDP



Source: STSU, NBU staff estimates.

Fiscal policy has become expectedly and justifiably expansionary under wartime conditions. Moderate fiscal consolidation will begin in the next few years, but the policy will remain fairly loose

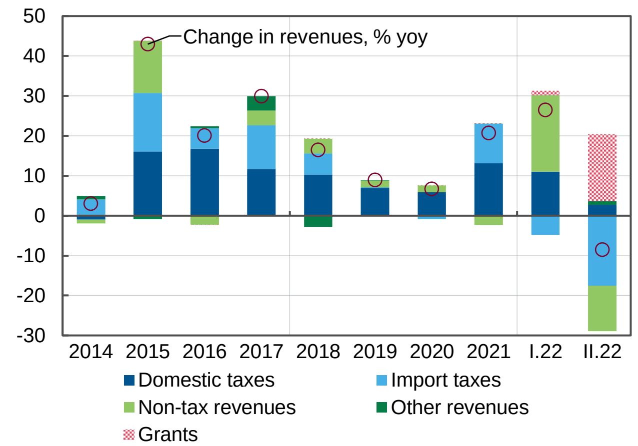
The consolidated budget recorded an unprecedented large deficit in H1 (almost UAH 349 billion). As a percentage of GDP, it exceeded the annual deficits seen in previous crises, including in 2014 and in the pandemic year of 2020. Adjusted for the cyclical position of the economy, the primary balance also turned negative, signaling of an abrupt easing of the policy, especially in Q2. This was due to significant budget expenditures on defense and incentives to support the economy under martial law. Social support programs were launched for households, propping up consumer demand. In addition, the introduction of tax benefits and relief helped revive business activity. A sharp widening of the budget deficit was a justified counter-cyclical move: it mitigated the shock to the economy from the war in 2022 and will underpin the recovery in the coming years. The easing of the fiscal policy was possible thanks to the prudent policy of previous years and significant international support.

Taking into account low revenues and significant spending needs, the deficit in 2022 will reach almost 18% of GDP (around 26% of GDP excluding grants). In 2023–2024, the deficit is expected to narrow thanks to the government's measures to optimize and increase the efficiency of expenditures and to mobilize revenues. However, the consolidation will be moderate, in particular due to large reconstruction needs and further stimulation of the economy in the post-war period. Therefore, the negative balance will remain significant (11%–7% of GDP).

The deep economic downturn and tax benefits are the key reasons for the decline in tax revenues

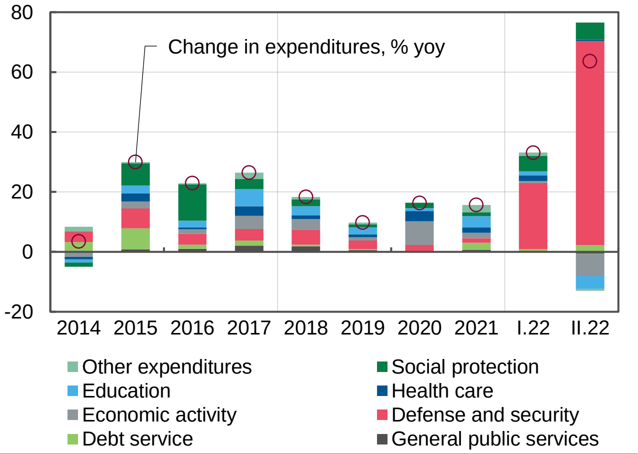
Tax revenues decreased by 6.7% yoy in H1. In addition to the sharp decrease in economic activity after russia started its invasion, tax changes, especially changes to the import tax, were also an important factor behind the reduction of tax revenues. Revenues from taxes on imported goods dropped markedly in H1, by almost 42% yoy, with the largest decline occurring in Q2 (by 65% yoy). The ratio of import tax revenues to imports decreased to 12% in Q2 2022, down from 22% in Q1 and 27% in Q2 2021. Revenues from domestic taxes actually increased slightly. As businesses tried to retain staff and pay wages, they paid corresponding taxes, which were directly or indirectly related to compensation of employees. A certain recovery in economic

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



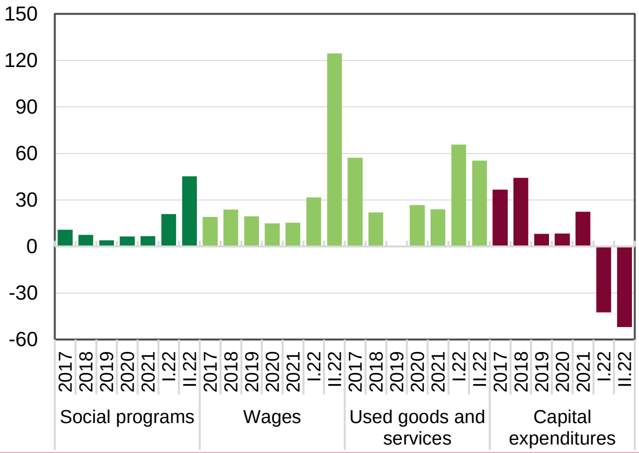
Source: STSU, openbudget.gov.ua, NBU staff calculations.

Figure 2.4.4. Contributions to annual changes in expenditures of the consolidated budget, pp



Source: STSU, openbudget.gov.ua, NBU staff calculations.

Figure 2.4.5. Growth in consolidated budget expenditures by selected areas*, % yoy



Source: STSU, openbudget.gov.ua, NBU staff calculations.

activity since April also supported budget revenues. The temporary suspension of VAT refunds, the acceleration of inflation, and high global prices for raw materials, which affected rent payments, also made a significant contribution.

Since the start of hostilities, grants from international partners have become a significant source of revenues (more than 9% of revenues). Nontax revenues also remained high. Among other things, this can be explained by voluntary transfers to special accounts from Ukrainian and foreign citizens, companies, and organizations to support Ukraine. Combined, nontax revenues and grants offset the decline in tax revenues, resulting in a slight increase in budget revenues in H1. However, not taking into account grants, which are a temporary and non-regular source of revenues, the latter decreased by 3.2% yoy.

In 2022, revenues are expected to decrease by almost 30%, despite the re-imposed import tax and other measures to mobilize budget revenues. In the future, revenues will grow thanks to the recovery of the economy. Inflationary processes, which will increase the tax base, will also make a significant contribution. The return of migrants from abroad will contribute to the growth in consumption taxes.

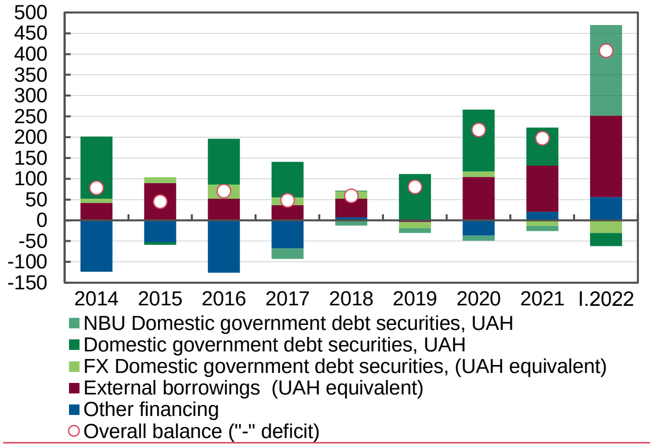
As expected, expenditures were raised sharply in order to ensure defense capabilities and ease the economic shock

Since the beginning of the military aggression, and taking into account the limited budgetary resources, expenditure priorities have changed. Ensuring the defense capability and security of the country became the key need. Also, social spending increased due to both new initiatives implemented during the war (e-Support and aid for internally displaced persons) and existing programs (public utilities benefits and subsidies for households, and various types of social benefits). A significant increase in wages was primarily driven by a significant increase in military allowances. Debt servicing costs also increased year-on-year due to the weaker hryvnia exchange rate compared to the previous year and sizeable borrowing in 2021.

The increase in military allowances and spending on social programs became a significant source of household income, supporting consumer demand and easing the economic shock. Instead, other expenditures (environment, culture, public administration, etc.) slowed down or even decreased, as they were allocated on a non-regular basis depending on their needs and the available funds. Capital expenditures declined considerably, which, together with a reduction in private investment, led to a drop in investment as a percentage of GDP.

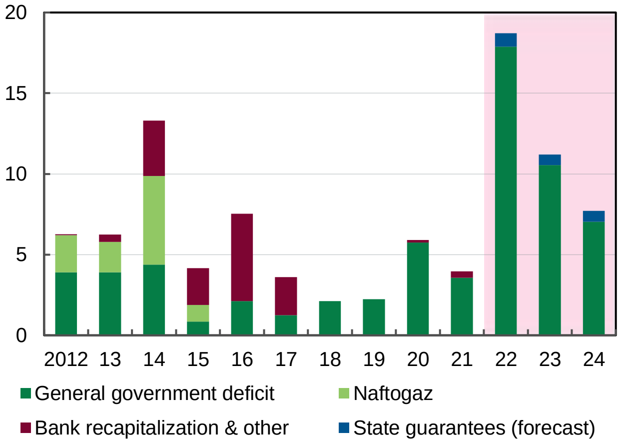
In 2022, overall consolidated budget expenditures will increase by more than 42% yoy. The need to stabilize public finances and reduce debt risks will lead to a return to fiscal consolidation measures. In 2023, general government expenditures will remain at the level of 2022 and will grow at a moderate pace from 2024 onward. After falling sharply in

Figure 2.4.6. State budget balance financing*, UAH bn



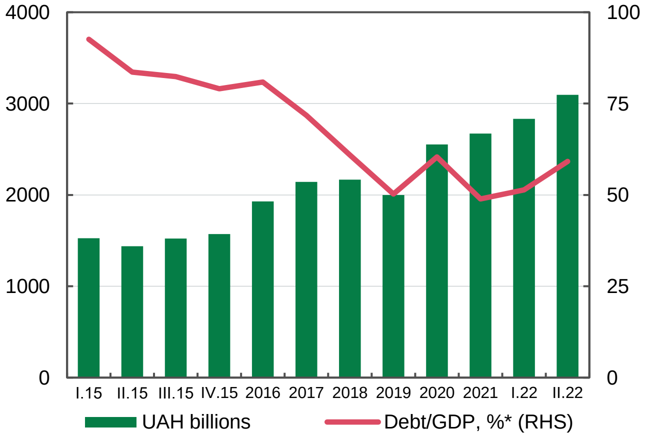
* Borrowings in UAH include government bonds issued to increase the authorized capital of banks, Deposit guarantee fund (DGF), and other state-owned enterprises
Source: STSU, MFU, openbudget.gov.ua, NBU staff calculations.

Figure 2.4.7. Broad public sector deficit, % of GDP



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

Figure 2.4.8. Public and publicly guaranteed debt (end of period)*



* Debt in Q2 2022 – NBU estimates.
GDP in 2022 – NBU estimates based on quarterly data.
Source: MFU, SSSU, NBU staff estimates.

2022, capital expenditures will continue to grow, driven in particular by post-war reconstruction needs.

The deficit has been financed primarily from international funding and the NBU's monetary financing. Going forward, monetary financing is expected to be gradually replaced by borrowing from the market, and will cease altogether in 2024

International financial assistance in the form of loans and grants has become an important source of funding for the government's greatest needs. Total external debt financing amounted to around USD 7.2 billion (and another USD 2.7 billion in the form of grants, which are included in budget revenues). Despite the increase in debt, such loans were received on preferential terms, which will not create pressure on expenses in the coming years.

Given the high risks and low yields, domestic market borrowing was not sufficient to finance expenditures. The NBU started monetary financing of the state budget deficit in March in order to ensure the uninterrupted allocation of critical expenditures during the war. This contributed to the re-arrangement of public finances and the adaptation of businesses and households to new realities. However, monetary financing gradually increased, reaching more than 50% of the deficit in March–June, whereas net domestic market borrowing was negative. This generates risks that inflationary processes will materialize, and inflationary and depreciation expectations will become unbalanced, causing more pressure on the FX market.

Financial assistance from partner countries will remain an important financing source for covering government needs and supporting macroeconomic stability. The forecast assumptions thus include the start of a new IMF program in 2023. Monetary financing will decrease in H2 2022, and will stop completely in 2024, to be replaced by market financing. Also in 2024, foreign investors' interest in domestic debt instruments is expected to recover, facilitated by the tight monetary policy.

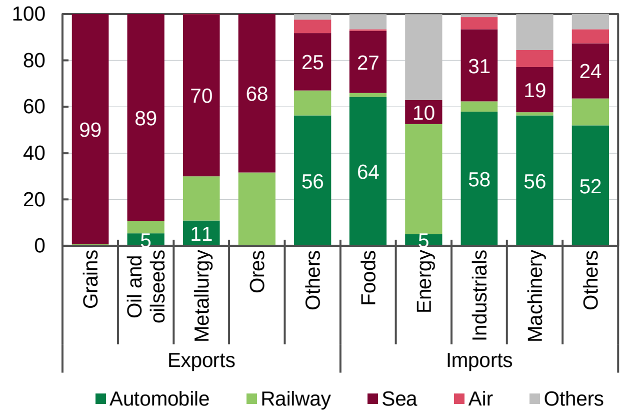
Public and publicly guaranteed debt will grow sharply in 2022 and decrease gradually in the coming years

Public and publicly guaranteed debt increased sharply in H1, both in absolute terms and as a GDP ratio (up to around 60%, according to the NBU's estimates). This was due, in addition to significant borrowing, to the provision of state guarantees on a portfolio basis to support SMEs. By the end of the year, the public and publicly guaranteed debt is expected to increase, as the deficit in 2022 will be wide and financed by debt. However, further on, the need for debt stabilization to ensure fiscal sustainability will lead to fiscal consolidation and a reduction in quasi-fiscal imbalances. A decrease in the deficit and economic recovery will slow debt growth. Debt-to-GDP ratio will slowly decline, albeit remaining high.

2.5. Balance of Payments

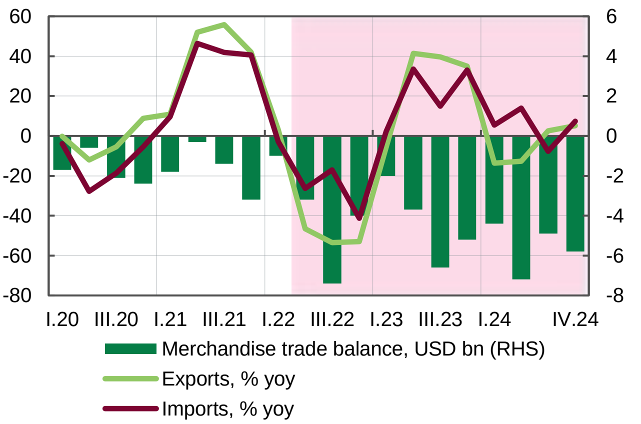
- After a sharp halt at the start of the full-scale war, FX inflows have been gradually rising thanks to strengthening logistics across the western borders and significant disbursements of international financial aid. In future, FX inflows will grow, primarily due to the unblocking of Ukraine's Black Sea ports. However, limited production capacities, lower harvests, and falling prices for export products will restrain that growth.
- Imports of goods recovered much faster than exports amid stronger domestic demand, while significant migration led to an increase in FX outflows under other items. Looking ahead, imports will continue to grow primarily as part of the postwar rebuilding of the country.
- The FX shortage in H1 2022 was offset by NBU interventions, which decreased Ukraine's international reserves. By the end of the year, external financial aid will increase, which will help maintain reserves at the current level. A new program of cooperation with the IMF in 2023, coupled with other official financing, will make it possible to boost reserves to USD 29 billion by the end of 2024.

Figure 2.5.1. International trade by mode of transport in 2021, %



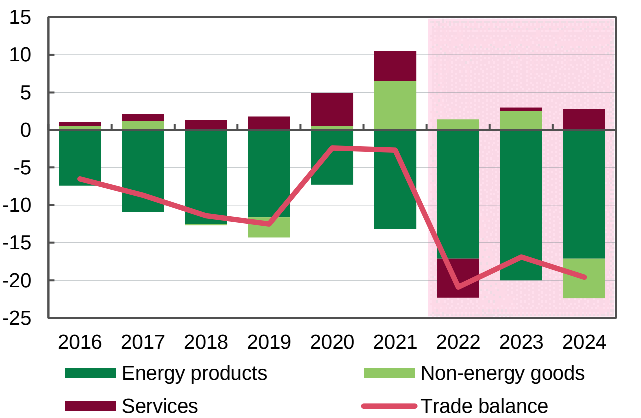
Source: SCSU.

Figure 2.5.2. Merchandise trade



Source: NBU staff estimates.

Figure 2.5.3. Trade balance, USD bn



Source: NBU staff estimates.

Ukraine's foreign trade position has significantly deteriorated because of the full-scale war

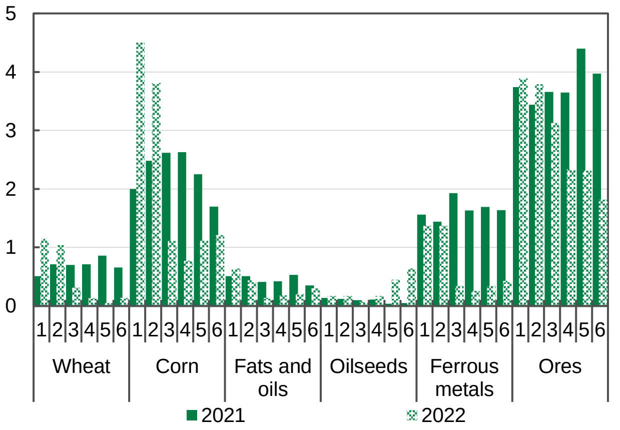
The war widened the usual deficit in the trade in goods, and it is expected to continue widening even after the Black Sea ports are unblocked. Agricultural exports were affected the most, as sea transport accounted for the largest share of their logistics. Despite switching to transportation by land and to the use of Danube ports, the capacity of existing logistics corridors is still only about 25%-30% of prewar levels. The gradual expansion of export routes and unplugging of infrastructure bottlenecks both by Ukraine and its European partners will help increase supplies of principal food products. The unblocking of seaports will instantly boost supplies of grains, sunflower oil and seeds, but exports will still remain lower than in previous years due to a number of problems in the agricultural sector (for more details, see page 20 in *Demand and Output*).

After adapting to the first shock of the war, Ukraine is currently stepping up exports of foods that do not require large-capacity transport. Thus, exports of meat and dairy products in May-June almost reached last year's levels. Additional factors for the increase in the exports of these products were a decrease in domestic demand, low prices of animal feed, the opening of green transport corridors, and higher global food prices. Difficulties with selling sunflower oil and the bumper sunflower harvest last year enabled Ukraine to significantly boost sunflower seeds exports.

Exports of iron ores and metals were also greatly affected by the maritime blockade. The metallurgical sector not only reduced output due to its proximity to the hostilities, but also suffered significant destruction of its production facilities. Therefore, even after full access to sea routes is restored, exports of iron ores and metals will remain much lower than in previous years.

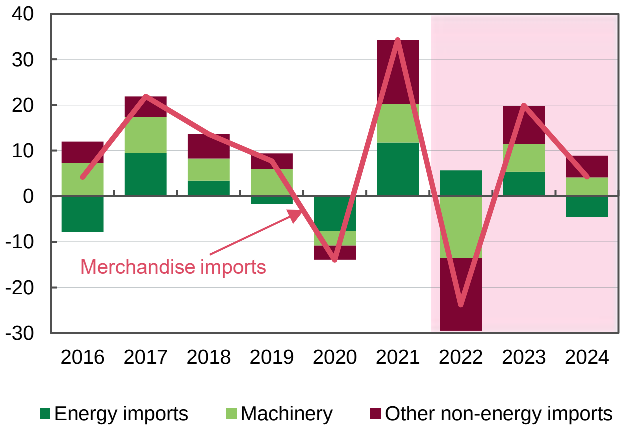
In Q2, exports of goods almost halved. They will remain sluggish until the end of 2022 due to logistical problems, forced cuts in production, and a substantial rise in the cost of goods. As soon as the seaports are unblocked (this is expected to happen early in 2023), there will be a short-term surge in exports of goods due to deferred sales of previously accumulated stocks, primarily grains. However, the recovery of exports of goods will be moderate in future due to problems in the industrial and agricultural sectors and because of an expected fall in global commodity prices.

Figure 2.5.4. **Exports of goods, mn t**



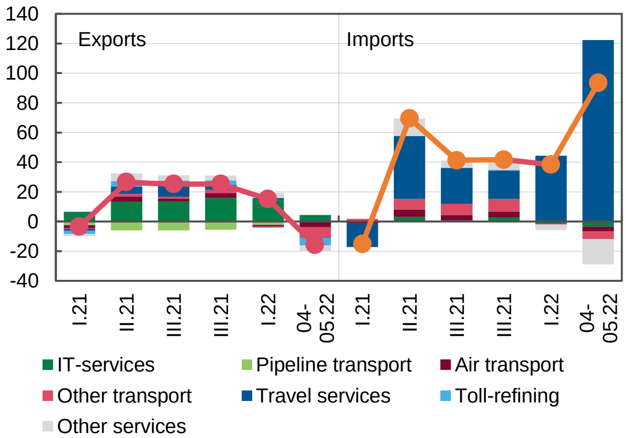
Source: SCSU.

Figure 2.5.5. **Contributions to annual change in merchandise imports, pp**



Source: NBU staff estimates.

Figure 2.5.6. **Contributions to annual change in trade in services, pp**



Source: NBU staff calculations.

In contrast to exports, imports of goods in Q2 did not fall so drastically (26.4% yoy) due to their being less dependent on transportation through seaports and because of a rapid recovery in demand after the first shock. A revival in domestic demand on the back of businesses' gradual adaptation, tax incentives, and an expansion of the list of critical imports contributed to the recovery of imports. The greater need to ensure the country's defense capability and functioning increased imports of certain types of machinery, foods and industrials. Imports of motorcars in May-June were at a record high, and in general their figure in Q2 exceeded last year's level due to preferential taxation, as was the case with imports of mobile phones in June. Imports of oil products also increased significantly due to the destruction of local refineries and a rise in oil prices.

The restoration of taxes on imports to their prewar level and the imposition of an additional import surcharge will somewhat slow the growth in imports by the end of 2022. However, energy imports will soar due to the need to replenish stocks before the heating season, despite high energy prices. The postwar rebuilding of the country will increase the need for imports. In particular, imports of the machinery and chemicals that are needed to rebuild infrastructure, restore production capacities, and boost crop yields will rise significantly. Extremely high energy prices, in particular those for gas, will be an additional factor, despite the fact that their expected fall in 2024 will decelerate import growth.

Over the entire forecast horizon, imports will grow faster than exports, as a result of which the deficit in the trade in goods will remain significant – USD 16 billion to USD 22 billion in 2022–2024.

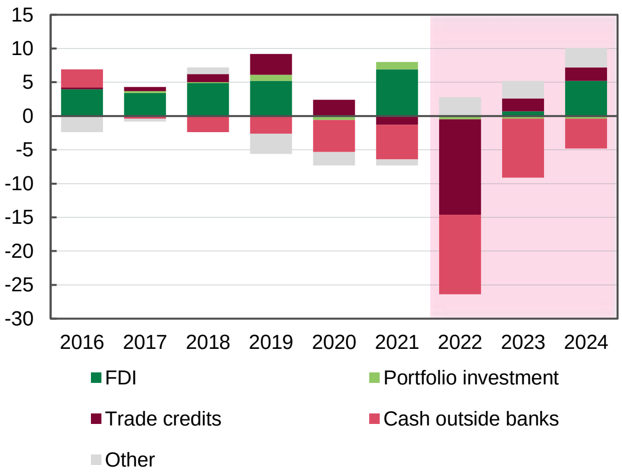
An increase in the number of Ukrainian migrants abroad has led to significant FX outflows. However, remittances from labor migrants to Ukraine remain stable

With the start of the war, the structure of the trade in services also changed fundamentally. Almost all types of exports saw a decrease. More specifically, exports of transport services shrank because of the blocked port infrastructure, closed airspace, as well as russia's unjustified reduction in payments for the transit of natural gas. Exports of toll-refining services also plunged as a result of the temporary shutdown of certain plants at the beginning of the war and the relocation of some production facilities abroad. IT services decreased the least, as expected. They were among the first to start recovering – since April. Over the forecast horizon, IT services will remain the main driver maintaining service export growth at a consistently high rate (10%–14%).

Large-scale migration abroad boosted imports of travel services. As a result, imports of services increased by 1.9 times in Q2, while the trade in services recorded a deficit for the first time since 2016.

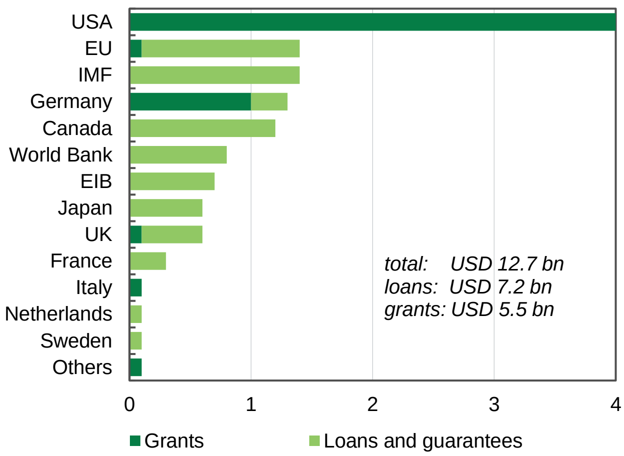
In addition, a rise in cash withdrawals with Ukrainian bank cards abroad was among the main reasons for a significant outflow under FX cash outside the banks item. The return of Ukrainian refugees from abroad is expected to reduce imports of services (by 17.5% yoy and by 3% yoy in 2023–2024 respectively) and slow the growth of FX cash

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



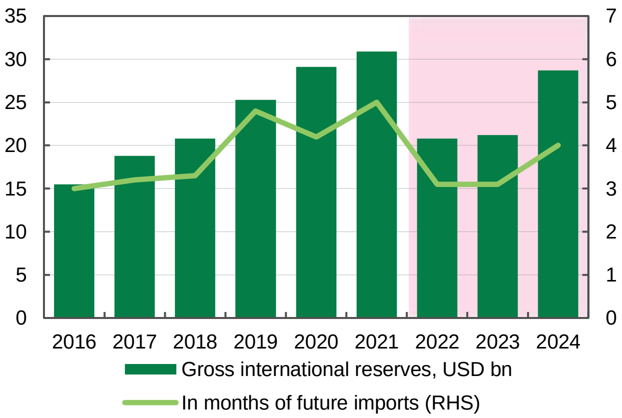
Source: NBU staff estimates.

Figure 2.5.8. International financial assistance since the beginning of the full-scale war, USD bn



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

Figure 2.5.9. Gross international reserves



Source: NBU staff estimates.

outside the banks. This will help return the trade in services to surplus in late 2023, and gradually reduce capital outflows from the private sector.

A large number of labor migrant workers helped maintain remittances stable. Remittances will grow over the forecast period, but the growth will be moderate due to the cooling economies, rising inflation in the countries hosting Ukrainian migrants, and the reuniting of families abroad.

Gaps in the balance of payments were only partially closed by international financial aid, which led to a decrease in reserves

International financial aid became a significant source of FX inflows in the country. The amount of such aid in Q2 totaled USD 6.5 billion; since the beginning of the full-scale war it has hit almost USD 13 billion (as of 26 July 2022). A large part of this aid comes in the form of grants,[22] which, together with steady remittances, a ban on dividend payments abroad and a reduction in reinvested earnings, enabled the current account to post a significant surplus. However, the total amount of international aid was not enough to compensate for FX outflows from the country, which resulted primarily from an increase in FX cash outside the banks and a rise in nonresidents' liabilities under trade credit (in particular, due to logistical difficulties and the reluctance of exporters to bring FX earnings to the country). In this light, the NBU had to balance the foreign exchange market with interventions, as a result of which reserves in Q2 shrank by USD 5.3 billion, to USD 22.8 billion.

International support will remain an important source of FX inflows by the end of the forecast period, enabling the government to finance considerable fiscal deficits. In particular, scheduled disbursements of announced official financing are expected by the end of the current year, and a new program of cooperation with the IMF is to be signed next year. Other debt and investment inflows will gradually recover starting in 2023, but their amounts will be insignificant due to high risks. As a result, reserves will expand to USD 29 billion by the end of 2024.

[22] Recorded as a credit in the secondary income account of the current account. Loans are shown as portfolio investments and other investments of the general government in the financial account.

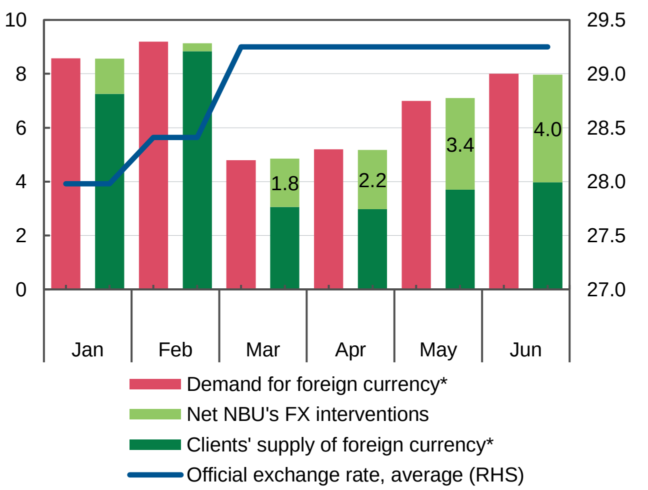
2.6. Monetary Conditions and Financial Markets

- FX interventions, combined with capital restrictions, have been the most effective instruments for maintaining macrofinancial stability since the onset of the war. Keeping the key policy rate at 25% per annum will make hryvnia assets more attractive and – coupled with fixing the exchange rate at a new level – will help balance the FX market, thus improving the resilience of the economy.
- Thanks to measures taken to improve monetary transmission, the role of the key policy rate will become more important as the economy recovers. Due to the NBU's interest rate policy, FX interventions, and FX restrictions, the resulting tight monetary conditions will restrain inflationary processes.
- The policies of the NBU and the government will gradually normalize over the forecast horizon. The NBU will return to the traditional principles of inflation targeting, with a floating exchange rate. The monetary financing of budget will also have to be phased out.

Table 1. **Monetary policy principles during wartime**

Fixing the exchange rate provides a nominal anchor for expectations	FX stability is a nominal anchor for expectations, and the main factor in curbing inflationary pressures and maintaining macrofinancial stability.
FX interventions are the main monetary policy instrument. Restrictions are imposed on some FX transactions and capital movement	Fixing the exchange rate is supported by the NBU's interventions to sell foreign currency and restrictions aimed at reducing nonproductive capital outflows, thus limiting demand for foreign currency
Key policy rate decisions are a complementary tool	Given the strong psychological shock, market-based monetary instruments, such as the key policy rate, no longer played a significant role in the functioning of the money and FX markets in the first months of the war. However, the gradual adaptation of the economy, and the psychological shock giving way to the businesses' and households' decision-making based on economic logic prompted the NBU to return to an active monetary policy
Operational design of monetary policy	At the start of the war, the NBU mostly focused on ensuring the uninterrupted functioning of the banking and payment systems, in particular by providing banks with more access to refinancing loans, including blank loans. As the banking system goes back to market-based principles, the NBU is gradually returning to its traditional operational design and to its role of the lender of last resort
Monetary financing of the budget	The NBU is providing direct financing of the government's critical expenditures, in particular on military and social needs.

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



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

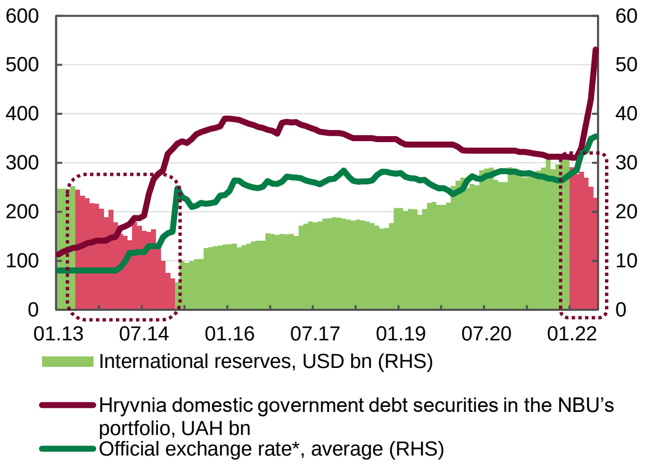
Fixing the exchange rate of the hryvnia is necessary to maintain macrofinancial stability during the war, but the NBU will return to a floating exchange rate over the forecast horizon

As full-scale war started, supporting the reliable and stable functioning of the banking and financial systems has become a priority in view of the need to ensure the maximum defense capability of Ukraine. To this end, the NBU fixed the UAH/USD exchange rate and imposed a number of administrative restrictions on FX transactions and capital movement.

Due to the lower effectiveness of market instruments and the uncertainty caused by hostilities, the exchange rate became the nominal anchor for stabilizing expectations, containing the panic, controlling inflationary processes, and supporting the stable operation of banks.

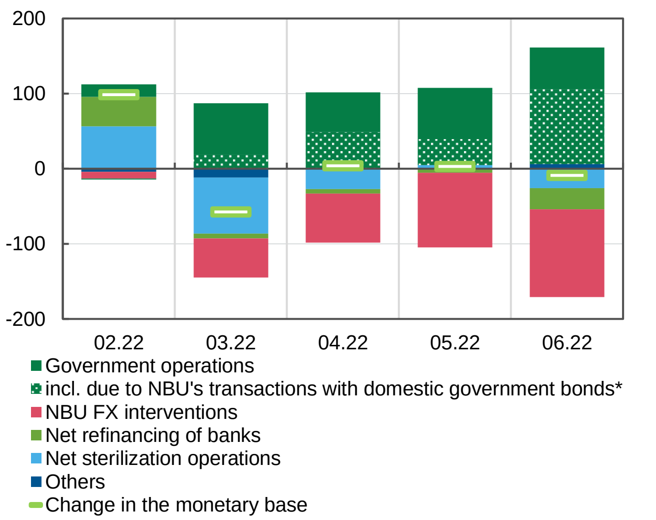
Balancing the FX market requires the presence of the NBU. As export potential has been drained by the war, the country is facing large defense needs, imports are recovering rapidly, and migrants' expenses abroad have increased considerably, demand for foreign currency has much exceeded supply (read more in *Balance of Payments* on page 33). Therefore, the NBU is continuously intervening in the market, with volumes of interventions increasing every month in March–June. Since the outbreak of the war, the negative balance of

Figure 2.6.2. Gross international reserves, monetary financing volumes, and UAH/USD exchange rate



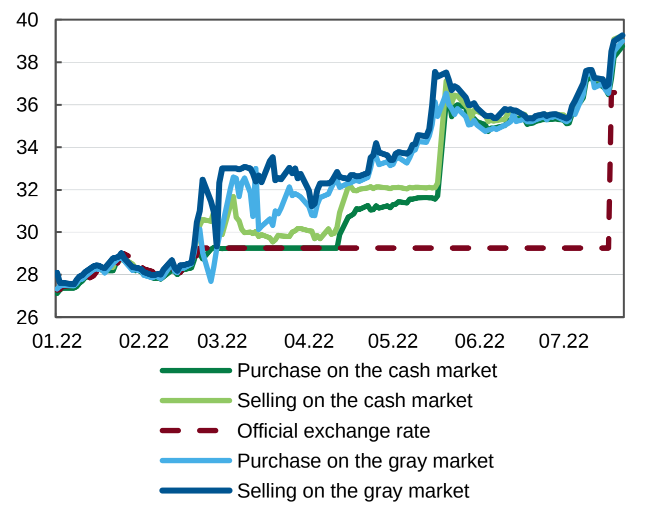
* From March 2022, the exchange rate on the gray FX cash market.
Source: NBU.

Figure 2.6.3. Change in the monetary base and its main determinants, UAH bn



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

Figure 2.6.4. Exchange rate UAH/USD *



* As of 25.07.2022.
Source: NBU, open data sources.

the NBU's interventions has reached USD 12 billion (as of 26 July 2022).

FX market pressures were, in part, caused by the monetary financing of the budget deficit. To ensure the uninterrupted financing of the budget – primarily financing of expenditures on reinforcing the country's defense capability, as external financing is insufficient and non-rhythmic – the decision was taken to start monetary financing. However, in June, issuing money became the main source of deficit financing and the government's transactions were the main channel for replenishing the monetary base. A portion of these funds were issued as a result of converting foreign currency received by the government into hryvnia. As such money issues are backed by foreign currency, this does not worsen expectations and does not put additional pressure on prices.

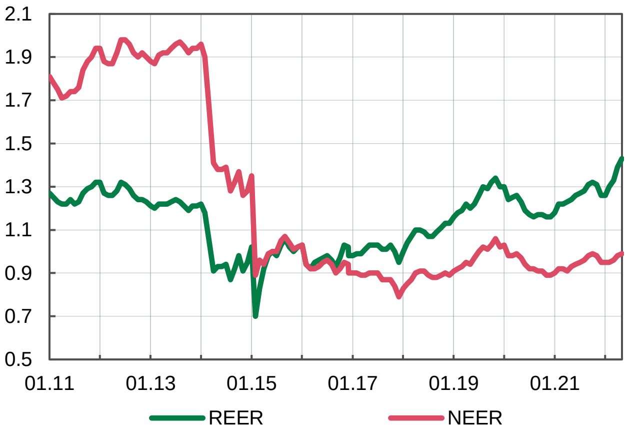
Monetary financing of the budget eventually flows into the FX market. The NBU estimates that around 90% of newly-issued hryvnias ended up in the FX market in March–June, which made the NBU increase its interventions. Whereas the ratio between interventions and monetary financing was 2:3 in April, it reached almost 1:1 in May–June. As the size of reserves is limited and they have shrank significantly from the start of the year, monetary financing of the budget is affecting inflation and depreciation expectations. This leads to high demand for foreign currency and durable goods, which is reflected in rapid growth in imports.

Taking into account the need to reduce the risks of destabilization of expectations and the macrofinancial environment, the NBU is expected to cut its budget financing starting in H2 2022, and to cease it altogether in 2024.

In addition, in June the NBU adjusted the hryvnia official exchange rate by 25% and fixed it at a new level. Taking into account the change in the fundamental characteristics of the Ukrainian economy during the war and the strengthening of the U.S. dollar against other currencies, which led to the strengthening of the nominal effective exchange rate (NEER) of the hryvnia, this step was necessary to raise the competitiveness of Ukrainian producers, harmonize exchange rate conditions for various groups of businesses and households, and support the resilience of the economy during the war. The fixed hryvnia exchange rate will remain the main anchor for stabilizing expectations and the key tool for attaining the NBU's priority goals. However, as economic processes recover and monetary transmission improves, the NBU will return to the traditional principles of inflation targeting, with a floating exchange rate.

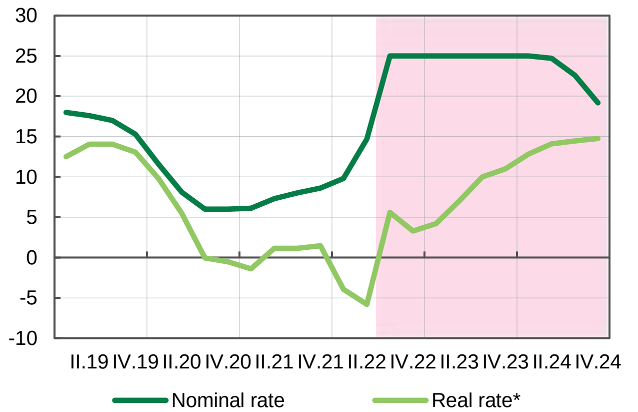
Presently, the tight monetary conditions are driven first of all by the strengthening of the hryvnia real effective exchange rate (REER). Following a weakening in early 2022, the REER considerably exceeded its equilibrium level. This was also due to a sizeable decrease in the equilibrium REER itself. Damage to infrastructure, high risks, and lower investment attractiveness affected production potential and weakened the competitiveness of Ukrainian goods compared to imports. Moreover, logistical difficulties worsened the relative competitiveness of Ukrainian exports.

Figure 2.6.5. **REER and NEER indices, 06.2015 = 1**



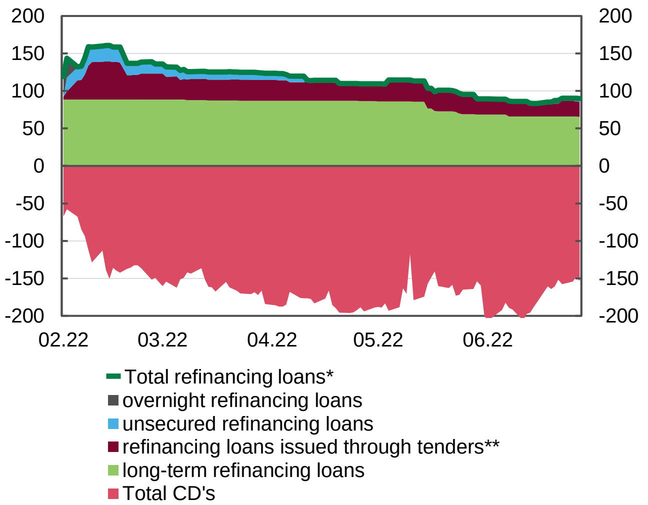
Source: IFS, NBU staff estimates.

Figure 2.6.6. **Key policy rate, period average, %**



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

Figure 2.6.7. **Balance of operations of the NBU, UAH bn**



* Excluding insolvent banks and banks undergoing liquidation.
** Including secured loans at extraordinary tenders of up to 1 year, introduced on 24.02.2022. As of 20.07.2022.
Source: NBU.

The equilibrium REER of the hryvnia will strengthen in 2023–2024, as the productivity of the economy recovers, logistical problems are solved, a part of the labor force returns, capital flows into the country, and the sovereign risk premium decreases. Over the forecast horizon, the hryvnia's REER will remain stronger than its equilibrium level due to both the NBU's FX sale interventions and a gradual increase in real interest rates. This will restrain core inflation but will raise the relative weight of imports in consumption.

After a pause in the first months of the war, the NBU has returned to pursuing an active interest rate policy. Over the forecast horizon, the central bank's rates will remain high to support the attractiveness of hryvnia assets, ease FX market pressures, and restrain inflation

At the start of the war, the NBU temporarily postponed its key policy rate decisions. As the economy adapted to the war and households and businesses regained the ability to make decisions based on the economic logic, and as higher dollarization risks and imbalanced expectations persisted, the NBU in June returned to active monetary policy and hiked its key policy rate by 15 pp, to 25%. Moreover, the NBU also widened the interest rate corridor for monetary transactions with banks to revive the interbank market. From June, the interest rate on refinancing loans equals the key policy rate plus 2 pp, while that on certificates of deposit is the key policy rate less 2 pp.

The key policy rate is expected to remain at 25% at least until Q2 2024. It will still be higher than inflation expectations so as to maintain the attractiveness of hryvnia financial instruments and restrain depreciation expectations, thus preventing dollarization and easing the pressure on international reserves.

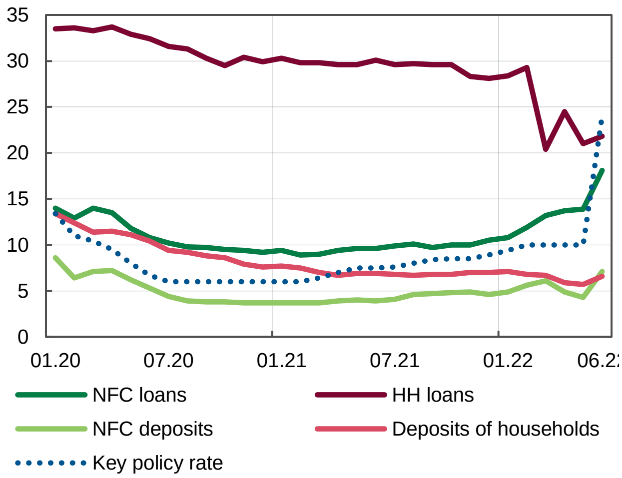
Despite the war, the banking system has been stable and has had a liquidity surplus

The NBU's timely preventive measures ensured the stable functioning of the banking system and the uninterrupted conduct of settlements. As early as 24 February, the NBU introduced extraordinary tenders to support the banks' liquidity, including the opportunity to receive blank refinancing. In the early days of the war, the banks generated strong demand for liquidity support. In contrast, they had already started repaying their loans before maturity in late April.

The banking system's liquidity has been high during the war: the average daily balances of correspondent accounts and certificates of deposit grew from UAH 191 billion in February to UAH 227 billion in June, exceeding last year's level. The main driver of liquidity growth was the significant increase in government spending, mainly on account of selling foreign currency and monetary financing. In addition, thanks to the stable operations of the banks and uninterrupted cashless transactions, the amount of funds attracted by the banks from households continued to grow, despite the war.

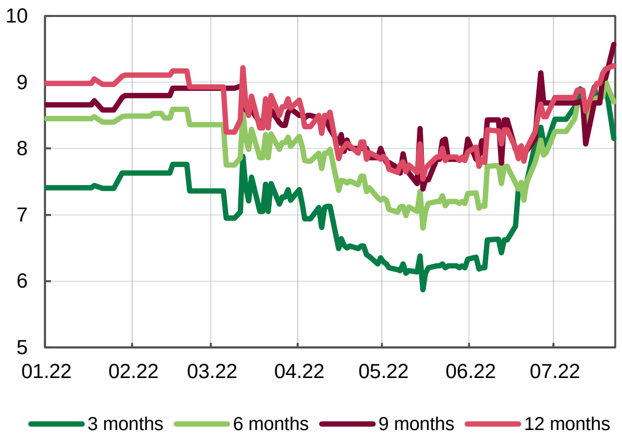
Taking into account the banking system's ample liquidity and the stabilization of the financial market, from May 2022,

Figure 2.6.8. Weighted average interest rates on new hryvnia loans and deposits, %



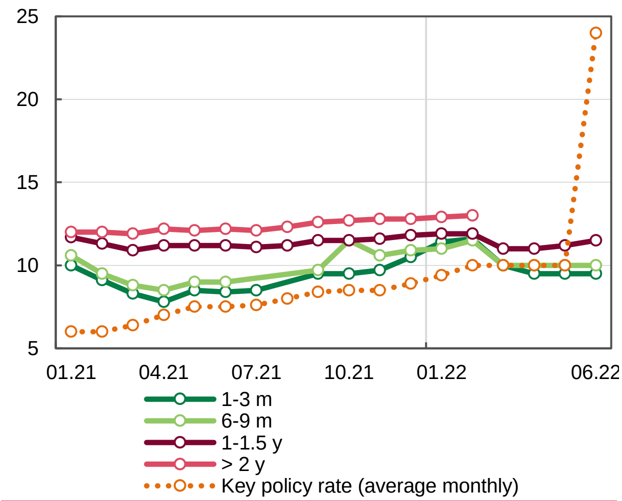
Source: NBU.

Figure 2.6.9. Ukrainian index of retail deposit rates*, %



* As of 25.07.2022.
Source: Thomson Reuters.

Figure 2.6.10. The yield on hryvnia government bonds on the primary market, % per annum



Source: NBU.

secured refinancing loans have become a priority tool for bolstering bank liquidity, which is one of the roles they played before the full-scale invasion. The access to unsecured refinancing has been open for those banks that have drawn down their secured refinancing and are facing large outflows of retail deposits.

Given the very high liquidity, the banks first significantly reduced their rates on households' demand deposits, and then later on term deposits. Low deposit rates, coupled with the need for liquid savings during the war, caused funds to move to current accounts. The cost of nonfinancial corporations' deposits decreased less, as the banks wanted to retain their clients.

The transmission from the change in the key policy rate is expected to increase over the forecast horizon, in particular thanks to measures taken by the NBU, and due to the government's prudent policies

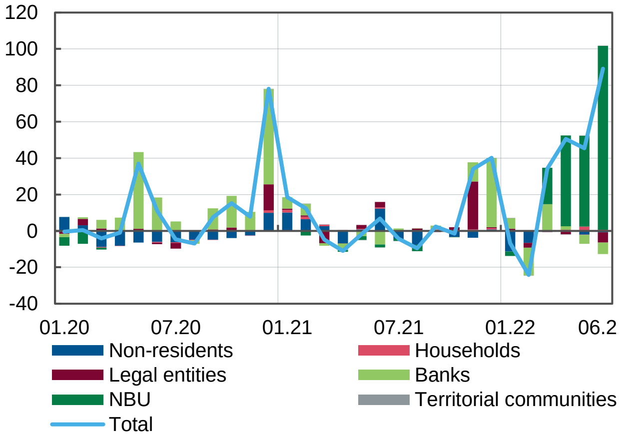
Higher inflation creates risks that hryvnia funds will outflow to foreign currency. Nevertheless, the banks have been responding, albeit slowly, to the key policy rate hike in June (read more in the box The Impact of a Higher Key Policy Rate on the Banks' Finances in the June 2022 Financial Stability Report). First, only small banks decided to raise their rates on hryvnia retail deposits. However, stronger competition for clients' funds and the higher cost of other funding sources is encouraging more banks to raise their deposit rates. An appropriate response of market interest rates to the key policy rate hike will make hryvnia assets more attractive and limit outflows to the FX market.

The government has also increased interest rates on domestic government debt securities, although the increases have been moderate so as to test market sentiment. Before the war, demand for these securities was fueled by the attractive terms attached to these instruments. In the first months of the war, the yields actually decreased, despite higher risks and inflation. Nevertheless, households, banks, and businesses tried to support the country in difficult times. The potential for such (mostly charitable) support, however, is gradually waning. Having returned to the economic logic of decision-making, economic agents are drawing a clear line between charity (making charitable contributions) and investment (investing in financial instruments). In May, the government's payments on hryvnia domestic debt instruments had already exceeded the volume of new borrowing.

Expected further growth in rates on domestic government debt securities, along with borrowing from the market replacing monetary financing, will help rekindle interest in hryvnia securities as an investment instrument. In turn, this will reduce the volume of monetary financing by the NBU and ease pressure on the FX market, which will lower risks to macrofinancial stability.

Under current conditions, the higher key policy rate has a limited effect on lending. First, most new loans are issued under state programs, and so such borrowers will continue

Figure 2.6.11. Change in the volume of outstanding hryvnia domestic government debt securities in circulation by holder, UAH bn



Source: NBU.

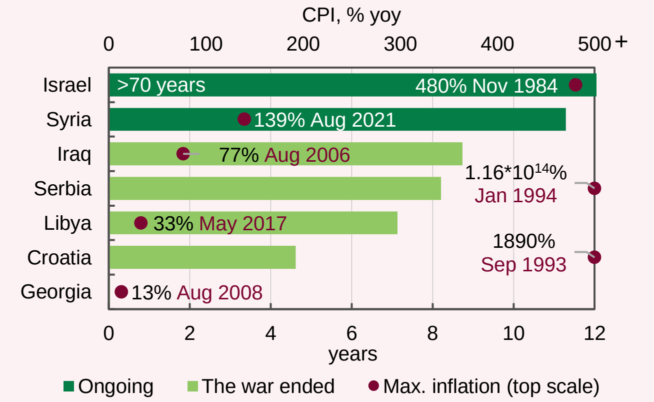
enjoy preferential terms. Second, the cost of loans depends primarily on the actual cost of bank funding, which remains low. Third, since the war broke out, banks have raised interest rates on loans due to higher risks of loan delinquency. The banks will therefore increase their loan rates, but the increase will be moderate.

Box 4. Wartime Monetary Policy Lessons

Countries that have gone through armed conflicts at some stage of their development have used various combinations of monetary and fiscal policy regimes to ensure price and financial stability and economic recovery. Such experiences have not always been successful, and depended greatly on unique internal and external conditions, the scale of losses, and international assistance. This makes it impossible to develop universal anti-crisis policies. However, there are some common patterns. For example, fixing the exchange rate is a common and effective measure to stabilize the macrofinancial situation at the start of military activities, but it becomes harmful when this regime is used for too long. Large-scale monetary financing of the budget deficit by central banks (CB) has usually led to hyperinflation, high dollarization of the economy, and sometimes the loss of monetary sovereignty. To overcome a wartime crisis, the majority of countries were forced to give up monetization and return to an independent and tighter monetary policy (MP), fiscal consolidation, and the use of market instruments to finance the budget.

Countries that have gone through war gained a unique experience of giving the monetary and fiscal responses needed to overcome the crisis and rebuild after the war. Such uniqueness is due to the varied durations and scales of military activities, and the differing amounts of damage they inflicted. The MP space also largely depends on the pre-war state and structure of the economy, the level of development of financial regulators and institutions, trust in them and the national currency, the size of international reserves and public debt, the previous inflation dynamics, and the anchoring of expectations.

Figure 1. War duration and peak values of CPI growth (% yoy) in selected countries



* Israel – since 1947; Iraq – the overthrow of the Hussein regime.
Source: NBU staff estimates based on open sources data, IFS, official web pages of central banks, Trading Economics.

The uniqueness of the MP experience is also determined by external environmental conditions. In particular, these determine the degree of tightening of the MP and the speed of the transition to easing to support the economy. For example, the unfolding of the global financial crisis and the decrease in global commodity prices contributed to a slowdown of inflation in Georgia from 12.8% yoy in August 2008 to 5.5% yoy at the end of the year. This allowed the Georgian central bank to reduce the key rate from 11% to 8% in September–December 2008, despite the devaluation of the lari and other negative consequences of the war. Global disinflation caused by COVID-19 enabled the Central Bank of Armenia to maintain an expansionary MP, despite the Second Karabakh War unfolding. Iraq benefited from the rise in global crude oil prices, which contributed to a rapid appreciation of the new Iraqi dinar (by 20%) and a decline in inflation (from 76.5% to 3.3% yoy[23]) in 2006–2010. The Central Bank of Iraq was also able to complete the cycle of MP tightening in January 2008, gradually reduce the rate from 20% to 6% in August 2010, and fix it at this level until 2016. In contrast, in addition to military challenges, Ukraine is affected by record-high global inflation, the tightening of global financial conditions, and a drop in investors' risk appetite.

International military, political, and financial support is also an important factor in retaining control at the stage of active military operations and post-war reconstruction. Thus, loans and grants from partner countries and international organizations, in particular the IMF, helped to quickly stabilize the exchange rate, restore and even increase international reserves, and also contributed to the post-war recovery of the economy in Georgia (a total of USD 5.4 billion[24]), Iraq (about USD 220 billion), and Israel (about USD 36.5 billion[25]). Ukraine is receiving significant financial assistance from partner countries and IFIs as well.

Although the experiences of countries vary significantly, there are some patterns in how they used monetary instruments to overcome the crisis.

Fixing the exchange rate temporarily is a common and effective measure to stabilize the macrofinancial situation and rein in inflation. In particular, Israel, Iraq, Georgia, and Serbia have resorted to this measure during armed conflicts. FX interventions remained the key MP tool of the central bank of Israel for as long as until 1994, although it announced in 1992 that the monetary policy goal was to achieve price stability and set quantitative inflation targets. In 2004–2014, the Central Bank of Iraq also focused on stabilizing the exchange rate by holding auctions to sell foreign currency.

The duration, the type of fixed exchange rate regime, and the approach taken to returning to a market-driven

[23] Key Financial Indicators, Central Bank of Iraq.
[24] Of which, USD 0.93 billion was received from the IMF under the Stand-By Arrangement, while USD 4.5 billion came from partner countries and other IFIs.
[25] In 1990–2000, including USD 20.1 billion in military aid and USD 13.5 billion in economic support.

exchange rate differed significantly. In August–October 2008, the central bank of Georgia managed to stabilize the situation on the FX market by pegging the exchange rate of the lari to the US dollar. Having devalued the domestic currency by 16% and stabilized the exchange rate at a new level by intervening in the FX market, the National Bank of Georgia returned to a floating exchange rate regime. In Israel, various forms of pegging the shekel had been used with varying degrees of success since 1985, and the transition to a floating exchange rate took place only in June 2005.

At the same time, fixing the exchange rate for too long might be unsustainable and lead to the accumulation of macroeconomic imbalances. This is evidenced by the negative experience of Libya (in 2016–2020) and Lebanon (in 2020). Even in peacetime, excessively prolonged fixing of the exchange rate increases the risk of a sharp depreciation and the development of a FX crisis (Chile, Mexico, and Thailand).

Significant risks to financial and price stability are generated by the large-scale monetary financing of the budget deficit. Wars can be financed through raising taxes, borrowing from domestic and foreign markets, receiving international financial support, and monetary financing. Compared to other ways of financing budgetary needs, a large-scale monetary financing significantly increases the risk of galloping non-linear growth of inflation and several other adverse side effects. This is evidenced by the experience of Germany (inflation in October 1923 was 29,500% mom), Austria (129% mom in August 1922), and Poland (275% mom in October 1923) after the First World War, Japan, Germany, Hungary, and Austria after the Second World War, South Korea during the Korean War (213% yoy in 1951), Serbia after the breakup of Yugoslavia (1.16 × 1014% yoy in January 1994), and Israel after the Lebanon War (480% yoy in November 1984).

Successful stabilization plans usually involve conducting a tight and independent monetary policy, fiscal consolidation, and structural reforms, as well as using market instruments to finance the budget. Israel's stabilization program is considered one of the most successful. It helped to reduce annual inflation from 480% to 18% in 1985–1986, after a rise in prices was caused by military activities, the previous government's populist policies, and monetary financing of the state budget deficit. The stabilization program involved making radical changes to fiscal and monetary policies, as well as some gradual structural reforms in many areas (Binyamini and Eckstein, 2008). The fiscal deficit was significantly reduced, in particular by reducing subsidies, introducing new taxes, and decreasing the number of civil servants. The program also gave rise to the CB's independent monetary policy, which later evolved into an inflation targeting regime. The amendments to the central bank law (the Non-Printing Law) prohibited financing the budget deficit (except for bridge loans during the fiscal year) and set price stability as the goal of monetary policy. Subsequently, in the 1990s, a set of measures to control the exchange rate of the shekel, tight monetary policy, and successful peace negotiations contributed to inflows of foreign capital, the strengthening of the shekel, and a decline in inflation to single-digit levels (5.4% at the end of 1998).

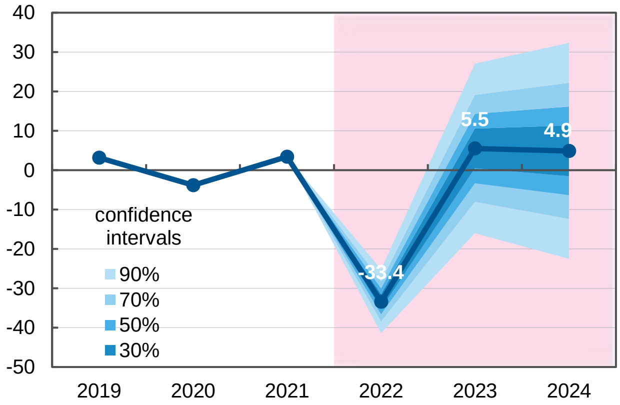
In Croatia, the negative consequences of hostilities (of 1991–1993), large-scale monetary financing of the fiscal deficit, a loose monetary policy, and the CB's refinancing of bank loans for certain priority industries and companies resulted in an uncontrolled outbreak of inflationary processes. In 1993, annual inflation exceeded 1,000% and peaked at 1,890% in September of that year. Along with the deterioration of the economic environment, this led to the need for a stabilization program, which was introduced in October 1993. The program provided for an increase in tax revenues and a reduction in state budget expenditures, MP tightening, currency reform, and a number of other anti-inflationary measures and structural reforms (in particular, speeding up privatization and the demonopolization of the economy). Also, lending to the government by the CB was limited by law (to up to 5% of budget revenues), excluding bridge loans during the fiscal year. This contributed to a reduction in the share of claims on government in the CB's balance sheet (from 37.8% in 1991 to 4.8% in 1994). The joint efforts of the government and the CB made it possible to bring inflation under control (it slowed from 1,839% in October 1993 to 4% yoy in October 1994), and to stabilize inflationary expectations, while helping to achieve economic growth (the average growth in real GDP was 6.3% from 1994 to 1997).

Natural disasters (earthquakes, hurricanes) are similar in their effects to military conflicts, as they also cause a loss of capital and productivity. Macroeconomic modeling shows that MP tightening is the optimal reaction of a CB to a rise in inflation caused by natural disasters. As empirically proven, CBs of developed countries and CBs pursuing inflation or other monetary targets mostly react to natural disasters by raising their interest rates (Klomp, 2020; Cantelmo et al., 2022, Fratzscher et al. (2020)). Scholars provide compelling evidence that inflation targeters are more successful in stabilizing both output and inflation after a disaster than countries with other monetary regimes (Fratzscher et al., 2020), Keen and Pakko (2011).

Part 3. Risks to the Forecast

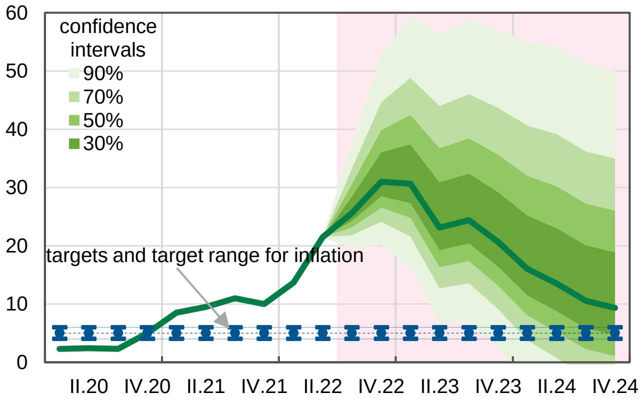
- The main assumption of the macroeconomic forecast is that security risks will decline significantly by the end of the year thanks to the success of the Ukrainian army and the implementation of a number of necessary economic policy measures. Therefore, the highest risks to the forecast are that the active phase of the war against the russian invaders lasts longer, and that these economic policy measures turn out to be insufficient to ensure macrofinancial stabilization.
- The NBU assesses that the balance of risks to its baseline scenario for inflation and the key policy rate has tilted upward.

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.

The full-scale war started by russia has become the main factor determining the state and prospects for the development of the Ukrainian economy. Therefore, one of the biggest risks to this macroeconomic forecast is that the war will last longer than expected. Taking into account the importance of this risk and its high probability of occurrence, the NBU has developed a corresponding macroeconomic forecast scenario, which is detailed in Part 4 *Alternative Scenario: Protracted War and Sea Port Blockade* on page 48.

An effective and prudent economic policy is crucial under the difficult economic conditions of wartime. The economic policy is faced with the clear task of redistributing the economy's resources to meet the priority objectives of a country at war. If it fails to do so, the redistribution will happen chaotically: as a result of inflationary depreciation of money, and the state will not have the resources to meet all of its needs. Taking this into account, determining priority expenditures in advance is an optimal solution, on the one hand. On the other, a prudent approach should be applied to mobilizing additional sources of budget financing, as well as to attracting debt or grants to finance the deficit. Fiscal consolidation will become an important element of a prudent policy, enabling control over state finances to be maintained.

The absence or inadequacy of measures aimed at fiscal consolidation, the neutralization of quasi-fiscal deficits, and the activation of market mechanisms of budget financing will lead to macro-financial destabilization, with devaluation pressures increasing and control over the financial system being lost, which will make the economic recovery of Ukraine significantly more difficult, and damage the prospects for its European integration.

The social significance of utility tariffs – primarily energy tariffs – is expected to influence future decisions on bringing them to economically justified levels in the post-war period. On the one hand, an increase in energy prices for households would eliminate imbalances in the energy sector and improve the financial standing of state-owned energy companies (primarily Naftogaz of Ukraine NJSC). On the other hand, it would create strong price pressure and aggravate social tensions, the easing which would require more subsidies for households. Postponing decisions to raise utility tariffs would lead to a further buildup of quasi-fiscal imbalances in the energy sector, which would have to be covered by the budget. In addition, this would defer and multiply inflationary risks in the future. A lack of willingness to bring the tariffs to market levels would significantly affect Ukraine's prospects for

Probability that a risk will materialize

Degree of impact on the baseline scenario	Low <15%	Medium 15%–25%	High 25%–50%
Weak			
Moderate	Delays in cooperation with the IMF	Recession of the global economy	Increased emigration Unblocking Black Sea ports in 2022
Strong	Rapid implementation of the large-scale reconstruction plan of Ukraine under the "Marshall Plan"		A longer period of war Imbalance of state finances (low rates for debt securities, frozen tariffs for utilities, no fiscal consolidation, and significant volumes of monetary financing)

cooperation under new programs with international financial institutions (IFIs).

Cooperation with IFIs, partner countries, and donors is key to retaining the stability of state finances during the war and the post-war recovery of Ukraine. A new program with the IMF would be seen as proof of Ukraine's prudent macroeconomic policy and structural reforms, which would improve the investment attractiveness of the country after the war. Failure to secure an IMF program would limit access to other external financing sources, increase fiscal crowding out, and raise the need for monetary financing. This would threaten economic recovery and worsen inflation and depreciation expectations. As a result, the NBU would be forced to tighten its monetary policy more than envisaged in the baseline scenario of the macroeconomic forecast.

The full-scale war has forced millions of Ukrainians to leave the country. The risk is high that many of them will not return. This will depend on both the duration and intensity of the hostilities, and on the economic and social conditions in the country after the war. A strategic task of state policy is thus to create conditions and incentives for migrants to return to Ukraine after the war. Considering the number of children that have left Ukraine, the risks of a demographic crisis have soared, which could have long-term effects. Moreover, lifting the ban on male Ukrainians aged 18–60 crossing the border after the martial law ends could spur migration, adding to the risks of labor shortages and of a slow pace of the post-war recovery. On the one hand, inflationary pressures will decrease on the back of weaker consumer demand. On the other hand, businesses' labor costs will rise due to greater mismatches in the labor market. Monetary policy will take into account the cumulative effect of these factors.

The risk of a recession in the global economy is rising. Limited supply and high energy prices have led to rapid growth in global inflation. Central banks' aggressive moves to fight inflation could slow the global economy. An additional factor are the quarantine restrictions that are still in effect in China (although these have been eased in some provinces). As a result, there is a risk that a global recession might start in H2 2022. If this risk materializes, the prices for Ukraine's main export goods (grains, vegetable oils, metals, and iron ore) will decrease, influenced by a rapid decline in global demand. This would raise the depreciation pressure on the hryvnia exchange rate and would impact the real sector of the economy of Ukraine. However, this impact would be moderate compared to other adverse effects connected to the damage to capital and the decrease in the labor force.

A slowdown in global inflation would moderate the tightening of global financial conditions. Thus, it would have a disinflationary effect due to low imported inflation and larger capital inflows to Ukraine. The NBU's monetary policy will take into account the balance of inflationary and disinflationary factors.

Post-war recovery plans for Ukraine envisage close cooperation with international lenders and donors. The investment needed to reconstruct infrastructure and production facilities destroyed during the war amounts to hundreds of billions U.S. dollars, which the country can obtain only if a program similar to the Marshall Plan[26] is launched. Due to uncertainty over the parameters and implementation timelines of such a plan, it has not been included in the baseline scenario of the macroeconomic forecast. Therefore, its potential realization is a positive risk to the macroeconomic forecast. The approval and implementation of such a project in the near future would give significant impetus to economic recovery, and speed up GDP growth to two-digit levels. Large inflows of foreign currency will put appreciation pressure on the exchange rate and will have a strong disinflationary effect. Wages and household income will grow faster than assumed by the baseline scenario, speeding up the closing of the negative GDP gap and raising underlying inflationary pressures. The cumulative effect of these factors will remain disinflationary, allowing the NBU to start the monetary policy easing cycle earlier.

Another positive risk lies in Black Sea ports of Ukraine already resuming full operations this year. If maritime logistics are unblocked under the current agreements on shipping agricultural produce from Ukraine, exports of grains and oilseeds will rise, boosting foreign currency inflows to the country. This would improve expectations and the financial standing of agricultural producers, and reduce uncertainty over prospects for selling future harvests. This would have a positive effect on the winter crop sowing campaign and Ukraine's export potential next year. If this positive risk materializes, the need for the NBU's presence on the FX market will decrease, and international reserves will be higher as of the end of 2022.

[26]The Marshall Plan (formally European Recovery Program, ERP) was an initiative of the United States (proposed by U.S. Secretary of State George C. Marshall) that was implemented in 1948 to provide foreign assistance to Western Europe. The United States transferred more than USD 13 billion (equivalent to around USD 115 billion in 2021) under economic recovery programs for Western Europe after the end of the Second World War. The United States aimed to reconstruct regions destroyed by the war, remove trade barriers, modernize industry, raise the living standards of Europeans, and prevent the spread of communism. The Marshall Plan required the lowering of trade barriers between countries, while encouraging increases in productivity and the implementation of modern business procedures.

Macroeconomic forecast (July 2022)

Indicators	2018	2019	2020	2021 I	2021 II	2021 III	2021 IV	2021 year	2022 I	2022 II	2022 III	2022 IV	2022 current forecast	2023 I	2023 II	2023 III	2023 IV	2023 current forecast	2024 I	2024 II	2024 III	2024 IV	2024 current forecast
REAL ECONOMY, % yoy, unless otherwise stated																							
Nominal GDP, UAH bn	3560	3977	4222	1022	1188	1520	1730	5460	1075	901	1219	1346	4540	1106	1354	1699	1830	5990	1404	1615	1978	2103	7100
Real GDP	3.5	3.2	-3.8	-2.2	6.0	2.8	6.1	3.4	-15.1	-39.3	-37.5	-37.5	-33.4	-19.0	17.5	13.2	12.3	5.5	8.0	4.2	4.1	4.1	4.9
GDP Deflator	15.4	8.2	10.3	21.7	27.3	26.1	24.4	25.1	24.0	25.0	25.5	24.5	24.8	27.0	28.0	25.5	21.1	25.0	17.5	14.4	11.7	10.5	13.0
Consumer prices (period average)	10.9	7.9	2.7	-	-	-	-	9.4	-	-	-	-	21.1	-	-	-	-	26.5	-	-	-	-	12.9
Consumer prices (end of period)	9.8	4.1	5.0	8.5	9.5	11.0	10.0	10.0	13.7	21.5	25.6	31.0	31.0	30.7	23.1	24.4	20.7	20.7	16.1	13.5	10.6	9.4	9.4
Core inflation (end of period)	8.7	3.9	4.5	5.9	7.3	7.4	7.9	7.9	10.5	15.2	19.9	24.5	24.5	25.7	22.2	17.8	12.4	12.4	7.4	4.4	3.3	2.6	2.6
Non-core inflation (end of period)	10.7	4.8	5.9	12.4	12.6	16.6	13.5	13.5	17.6	29.2	32.4	38.7	38.7	36.4	24.1	31.0	28.7	28.7	24.1	21.9	16.5	14.3	14.3
raw foods (end of period)	3.3	3.9	4.1	11.8	5.1	14.2	11.8	11.8	20.7	36.1	41.8	49.0	49.0	43.9	30.1	17.1	12.0	12.0	7.5	4.9	3.2	2.7	2.7
administrative prices (end of period)	18.0	8.6	9.9	13.0	18.0	17.1	13.6	13.6	12.4	14.8	14.9	16.4	16.4	15.2	10.6	47.7	55.0	55.0	54.0	53.0	36.0	31.0	31.0
Producer prices (end of period)	14.2	-7.4	14.5	26.3	39.1	45.1	62.2	62.2	54.1	55.4	49.9	38.0	38.0	34.7	27.9	23.4	14.0	14.0	7.6	5.4	4.5	3.0	3.0
Nominal wages (period average)	24.8	18.4	10.4	16.6	27.1	20.8	19.4	20.9	0.2	-18.3	-16.4	-13.5	-12.3	9.9	45.4	47.6	44.1	36.3	38.1	33.5	29.6	26.1	31.3
Real wages (period average)	12.5	9.8	7.4	8.6	16.5	9.4	8.2	10.5	-9.7	-31.0	-32.7	-33.0	-26.9	-17.4	15.2	16.9	17.8	6.7	17.4	16.8	16.9	15.2	16.6
Unemployment (ILO, period average)	8.8	8.2	9.5	-	-	-	-	9.8	-	-	-	-	28.9	-	-	-	-	27.0	-	-	-	-	18.2
FISCAL SECTOR																							
Consolidated budget balance, UAH bn	-67.8	-87.3	-224	-	-	-	-	-187	-	-	-	-	-811	-	-	-	-	-632	-	-	-	-	-499
% of GDP	-1.9	-2.2	-5.3	-	-	-	-	-3.4	-	-	-	-	-17.9	-	-	-	-	-10.5	-	-	-	-	-7.0
Public sector fiscal balance (IMF methodology), UAH b	-75.4	-89.2	-243	-	-	-	-	-195	-	-	-	-	-812	-	-	-	-	-632	-	-	-	-	-499
% of GDP	-2.1	-2.2	-5.8	-	-	-	-	-3.6	-	-	-	-	-17.9	-	-	-	-	-10.5	-	-	-	-	-7.0
BALANCE OF PAYMENTS (NBU methodology)																							
Current account balance, USD bn	-6.4	-4.1	5.3	-0.5	0.3	-1.4	-1.7	-3.2	2.3	1.4	1.3	1.4	6.4	0.9	-0.6	-3.6	-0.7	-3.9	-1.0	-3.7	-2.3	-1.7	-8.8
Exports of goods and services, USD bn	59.2	63.6	60.7	16.4	19.2	22.0	23.9	81.5	17.3	11.6	11.5	12.7	53.0	16.1	15.5	15.7	16.8	64.0	14.9	14.4	16.4	17.9	63.5
Imports of goods and services, USD bn	70.6	76.1	63.1	17.1	18.6	22.6	25.7	84.2	17.9	17.8	20.6	17.6	73.9	18.4	19.3	22.3	20.8	80.9	18.4	21.0	21.0	22.7	83.1
Remittances in Ukraine, USD bn	11.1	11.9	12.0	3.4	3.5	3.5	3.7	14.0	3.1	3.4	3.0	3.2	12.6	3.3	3.3	3.1	3.4	13.1	3.4	3.4	3.3	3.5	13.6
Financial account, USD bn	-9.3	-10.1	3.3	0.5	-0.9	0.3	-3.5	-3.7	5.6	6.2	0.2	3.2	15.3	0.1	0.8	-1.0	1.4	1.3	-1.7	-3.1	-3.5	-2.4	-10.6
BOP overall balance, USD bn	2.9	6.0	2.0	-1.0	1.3	-1.6	1.8	0.5	-3.3	-4.8	1.0	-1.9	-9.0	0.8	-1.3	-2.6	-2.1	-5.3	0.7	-0.7	1.1	0.7	1.8
Gross reserves, USD bn	20.8	25.3	29.1	27.0	28.4	28.7	30.9	30.9	28.1	22.8	23.0	20.8	20.8	22.9	23.3	21.7	21.2	21.2	23.0	24.1	26.4	28.7	28.7
Months of future imports	3.3	4.8	4.2	3.8	4.0	4.2	5.0	5.0	4.5	3.6	3.5	3.1	3.1	3.4	3.4	3.2	3.1	3.1	3.3	3.4	3.7	4.0	4.0
MONETARY ACCOUNTS (Cumulative since the beginning of the year)																							
Monetary base, %	9.2	9.6	24.8	2.1	8.2	8.1	11.2	11.2	10.6	10.1	10.5	14.1	14.1	0.9	3.5	5.3	8.1	8.1	-1.5	1.3	2.1	5.6	5.6
Broad money, %	5.7	12.6	28.6	0.1	3.4	4.1	12.0	12.0	0.4	3.9	12.8	18.8	18.8	1.2	5.3	8.8	11.1	11.1	-0.1	2.7	5.6	8.6	8.6
Velocity of broad money (end of year)	2.8	2.8	2.3	-	-	-	-	2.6	-	-	-	-	1.8	-	-	-	-	2.2	-	-	-	-	2.4

Forecast assumptions

Indicators		2019*	2020*	2021*	2022	2023	2024
Full access to Black Sea ports					-	+	+
Official financing	USD bln				26.8	13.0	13.0
Tariffs for gas and heating					unchanged	1/2 of parity	at parity
Migration (net)	mln people				-3.3	0.8	0.1
Real GDP of Ukraine's MTP (UAwGDP)	% yoy	2.7	-3.4	6.2	3.6	3.0	3.1
Foreign CPI (UAwCPI)	% yoy	2.9	2.1	6.4	11.3	4.7	3.1
World prices:**							
Steel price, Steel Billet Exp FOB Ukraine	USD/t	410.9	389.4	615.0	657.4	605.4	549.3
	% yoy	-17.2	-5.2	57.9	6.9	-7.9	-9.3
Iron ore price, China import Iron Ore Fines 62% FE	USD/t	93.8	108.9	161.7	135.5	107.9	82.8
	% yoy	34.6	16.1	48.5	-16.2	-20.4	-23.3
Steel price, No.1 Hard Red Winter, ordinary protein, Kansas City	USD/t	164.7	185.5	263.5	393.3	310.3	272.6
	% yoy	-11.5	12.6	42.0	49.3	-21.1	-12.1
Corn price, Yellow #2 Delivery USA Gulf	USD/t	170.1	165.5	259.4	321.1	259.9	229.2
	% yoy	3.5	-2.7	56.7	23.8	-19.1	-11.8
Oil price, Brent	USD/bbl	64	42.3	70.4	104.9	94.3	81.4
	% yoy	-9.9	-33.9	66.4	49.0	-10.1	-13.7
Natural gas price, Netherlands TTF	USD/kcm	161.4	115.0	575.5	1314.5	1283.5	1007.3
	% yoy	-43.5	-28.7	400.4	128.4	-2.4	-21.5
Gas transit	bcm	90.4	55.8	41.6	30.0	40.0	40.0
Grain and leguminous harvest	m t	75.1	64.9	85.7	51.7	58.4	65.1
Minimum wage**	uah	4173	4815	6042	6550	7176	7665

** Actual data.*

*** Annual average.*

Part 4. Alternative Scenario: Protracted War and Sea Port Blockade

- If high security risks persist for a long time, economic activity will remain depressed in 2023 – GDP will grow by only 2%, and full-scale recovery will not begin until 2024. Limited access to Black Sea ports and related negative effects on agricultural production will remain the major restraining factors.
- After rising to over 31% this year, inflation will begin to decline, dragged down by weak consumer demand. Still, it will remain high due to unfavorable effects on exports, the exchange rate, and high inflation expectations.

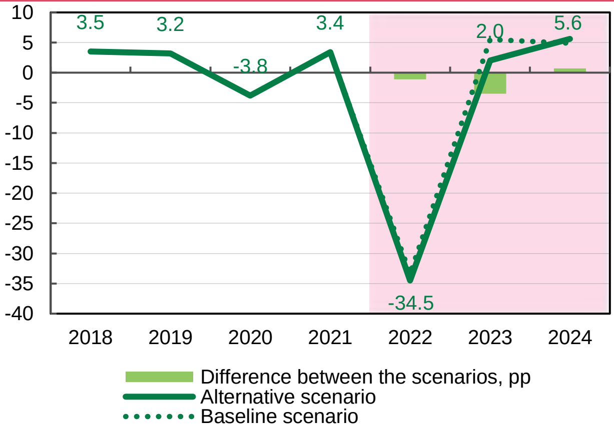
Alternative Scenario Assumptions

The greatest degree of uncertainty now lies in how long high security risks will persist. Each month of russia's full-scale military aggression leads to large human and economic losses. Ukraine's economic prospects, losses of development potential, and inflation and exchange rate expectations directly depend on its success in fighting off russia's military aggression.

The NBU makes no predictions on the battlefield situation but must make various assumptions about the development of the war, as it has a crucial influence on the economy. To this end, the NBU has prepared an alternative scenario for the macroeconomic forecast in order to enhance transparency and improve understanding of consequences for the economy in general, and monetary policy in particular.

The main difference between the alternative and baseline scenarios is a longer duration of high security risks under the former. The risks might persist until Q4 2023, although with their significant decline and the complete unblocking of the country's sea ports from January 2024.

Figure 4.1. Real GDP growth, yoy, %



Source: SSSU, NBU staff estimates.

The economy will start to recover only after security risks weaken considerably, which will not happen until 2024 under this scenario

Under this scenario, economic activity will remain depressed until the end of 2023. Real GDP will remain almost unchanged from the current level (growing by only 2%) thanks to a partial adaptation of businesses to the war and further active use of reserves to support macrofinancial stability.

In addition to direct social and economic expenses, a longer duration of hostilities will considerably worsen consumer confidence and make Ukrainians who fled abroad less willing to return, which will restrain consumer activity next year. Investment activity will also be weak in this period, focusing mainly on reconstructing the infrastructure that is the most critical for both public needs and private businesses.

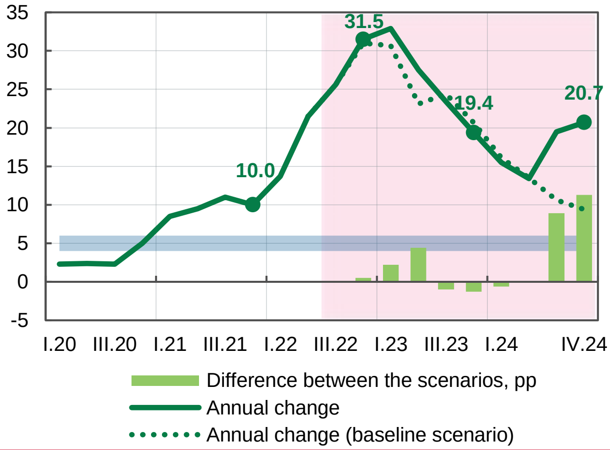
Limited access to Black Sea ports will be an important factor behind the decline in economic activity. In 2023, exports of goods, primarily grains and metal products, will be greatly below the baseline scenario levels. The persistence of security risks and logistical problems will exacerbate the financial difficulties of agricultural producers and make them less motivated to hold the crop sowing campaign in the fall of 2022 and spring of 2023. Therefore, a decrease in sown areas (including during this year's sowing campaign of winter crops) and a drop in harvests is forecast for 2023 and 2024.

With the easing of security risks, the economy will gradually start to recover. Real GDP will grow by 5.6% in 2024 under this scenario thanks to a pickup in consumer demand and the reestablishment of supply chains. Lower risks will encourage a recovery in investment activity. The post-war reconstruction of ruined infrastructure will require a great deal of investment from both private companies and the public sector. In such a way, under this scenario, the recovery of the labor market will also be delayed until 2024, both in terms of a decrease in unemployment and wage growth.

Potential GDP will fall deeper due to severe infrastructure damage and because the majority of Ukrainians who have fled abroad will not return home due to the longer persistence of security risks. At the same time, the negative GDP gap will remain large until the end of the forecast period, restraining underlying inflationary pressures.

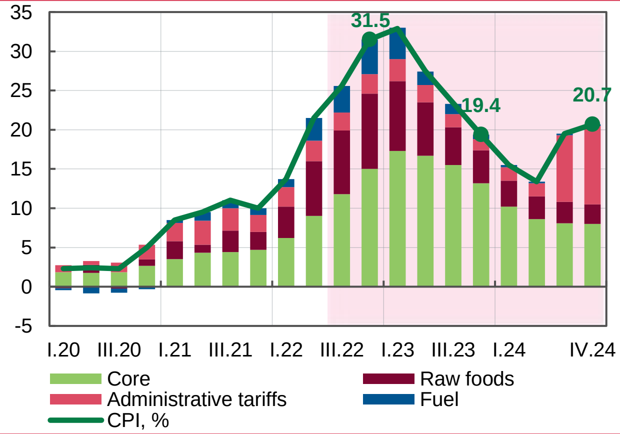
Fiscal policy will have to remain loose. There will be an increased need to continue monetary financing of the budget. Budget funds will be allocated mainly for defense and supporting households during the war. In the post-war period, state support for economic recovery will remain important, as this scenario envisages greater damage to infrastructure compared to the baseline scenario. This will lead to a sizeable increase in public debt and will require a tightening of fiscal policy in the future.

Figure 4.2. CPI, %



Source: SSSU, NBU staff estimates.

Figure 4.3. Contributions to annual CPI growth by main components, pp (end of period)



Source: SSSU, NBU staff estimates.

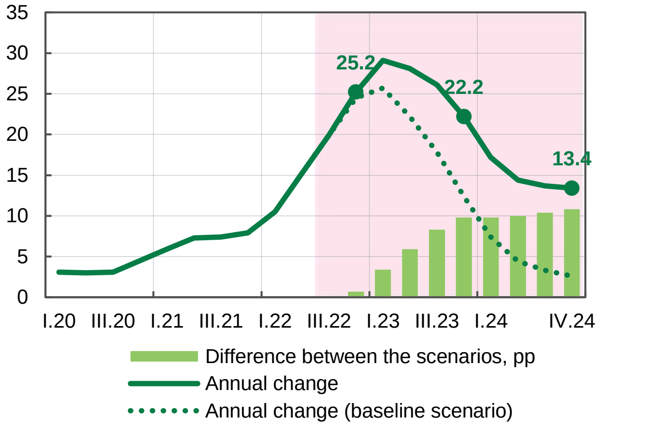
Inflation will start to decline gradually next year, primarily due to muted consumer demand, but will remain high on the back of a weaker exchange rate and high inflation expectations

Like the baseline scenario, this scenario also envisages a short-term impact from the majority of supply shocks, which include higher costs due to the disruption of logistical and technological chains, damage to production facilities and warehouses, and high energy prices. However, most of these shocks will subside later than foreseen under the baseline scenario due to longer-lasting high security risks.

By the end of 2022, inflation will accelerate and reach 31.5%. Inflation will gradually decrease in 2023. A substantial decline in real household income and a high unemployment rate will worsen consumer sentiment and curb demand-pull inflation. An additional factor will be the postponement of decisions on raising utility tariffs until mid-2024. However, inflationary expectations will remain high, fueled by, among other things, the depreciation pressure caused by low FX proceeds from exports and outflows of private capital. This will lead to high core inflation (more than 22% next year). The NBU's tight monetary policy during this period, as well as a decline in global inflation, will restrain inflation growth in Ukraine. Inflation is expected to return to its target after 2024, as efforts to lower inflation faster would require stronger monetary tightening, which could dampen economic recovery.

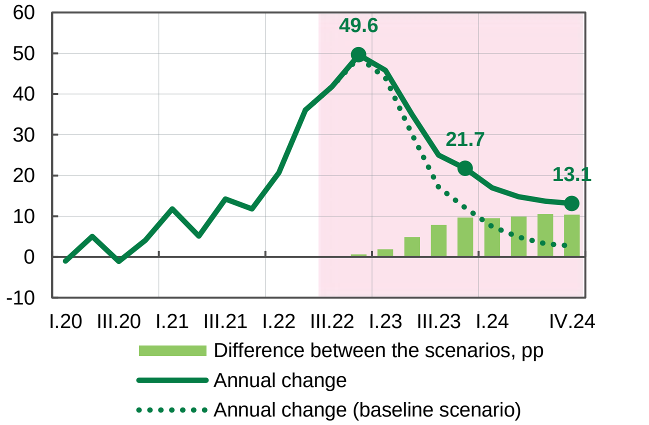
A significant reduction in security risks in 2024 will eliminate the main supply shocks (logistics will improve and business

Figure 4.4. **Core inflation, %**



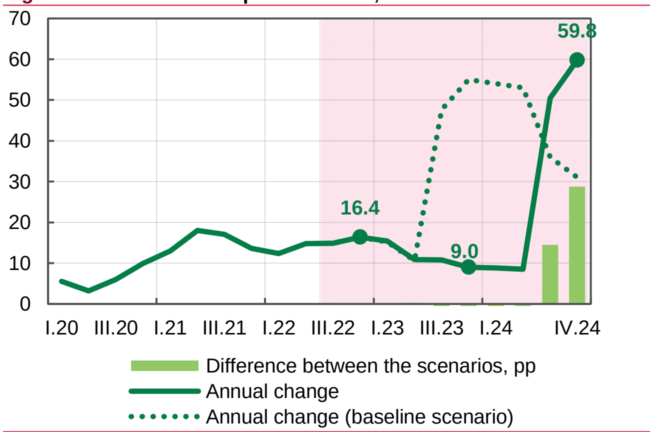
Source: SSSU, NBU staff estimates.

Figure 4.5. **Raw food inflation, %**



Source: SSSU, NBU staff estimates.

Figure 4.6. **Administered price inflation, %**



Source: SSSU, NBU staff estimates.

risks will decrease), while improving inflation expectations. Growth in real household income will resume, but aggregate demand will remain below its potential level, which will be a disinflationary factor for a long time. Core inflation is expected to decline to 13.4% by the end of 2024.

Food price inflation, although decelerating, will remain high due to supply shocks. Many logistical problems are not expected to be fully resolved during the next year. Therefore, businesses will pass on the growth of logistical and production costs to the prices of final products. Low harvests will also be an inflationary factor. In the post-war period, the recovery of logistical chains and the growth in harvests, underpinned by an increase in cultivated areas and the use of fertilizers, will help reduce food price inflation. Therefore, in this scenario, food price inflation will decrease to 13.1% by the end of the forecast period.

Until mid-2024, administered price inflation will be restrained by the moratorium on raising utility tariffs. High global natural gas prices will have no direct impact on consumer inflation. During this period, consumer inflation will primarily be driven by increases in the price of tobacco and alcoholic products due to higher excise taxes. However, imbalances in the energy sector accumulated over several years will make it necessary to bring energy tariffs for households to market levels in the post-war period. As in the base scenario, they are expected to be raised in several stages starting from H2 2024. For this reason, the contribution of the administered component to headline inflation will become the key one, and cause a sharp acceleration of consumer inflation at the end of the forecast period.

Fuel will remain expensive due to continued high global oil prices and depreciation effects. The overall pro-inflationary impact will increase due to second-round effects, which will push up the cost of other CPI components.

The NBU's monetary policy will be tighter in this scenario than in the baseline scenario so as to compensate for the pro-inflationary factors driven by the continuation of the war

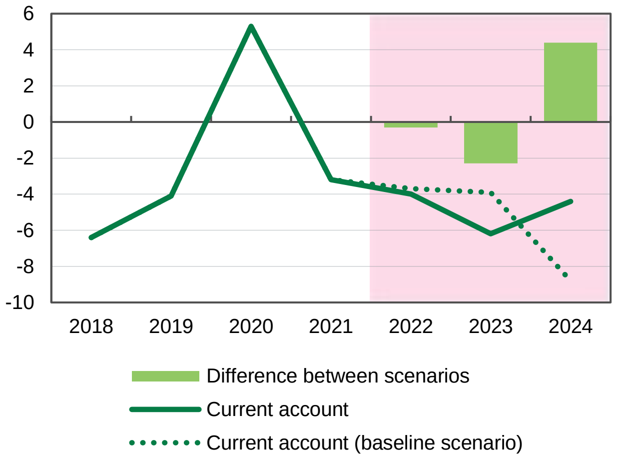
The persistence of high security risks will adversely affect the attractiveness of investments in hryvnia financial instruments. This factor will add to the weakening of the equilibrium REER of the hryvnia. For Ukrainian goods to regain their competitiveness, a greater correction of the REER of the hryvnia will be needed in order to bring it closer to its equilibrium level.

Containing pressures on international reserves will require a larger increase in the key policy rate than in the base scenario. However, FX interventions will remain the main monetary policy instrument in 2023.

A deterioration in the balance of payments due to limited exports and further capital outflows in 2023 will make international reserves fall to low levels

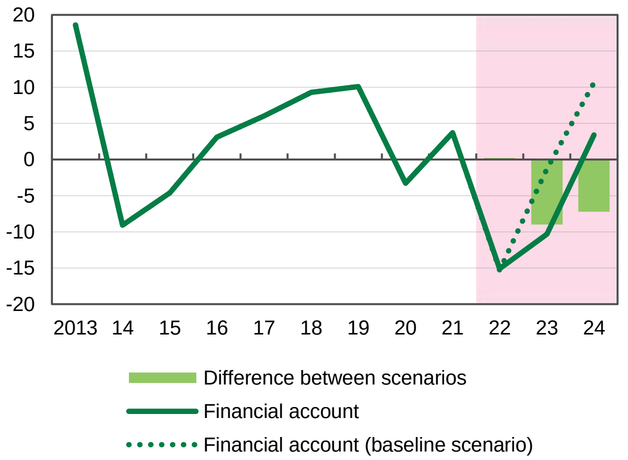
A gradual decrease in international reserves will complicate the conduct of monetary policy and limit the effect of FX interventions as the main policy instrument in 2022–2023. In

Figure 4.7. Current account (excluding grants), USD bn



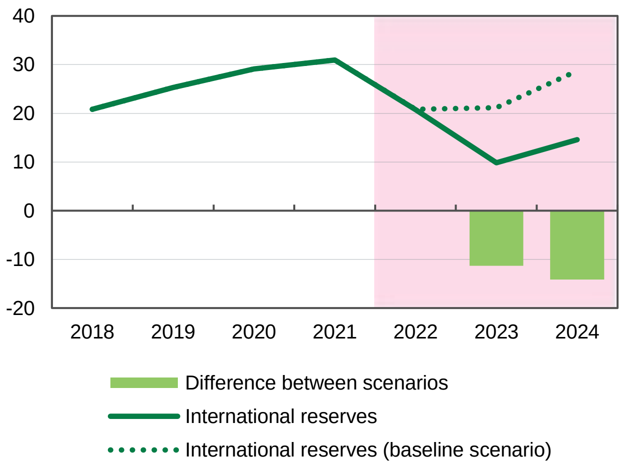
Source: NBU staff estimates.

Figure 4.8. Financial account: net inflows, USD bn



Source: NBU staff estimates.

Figure 4.9. Gross international reserves, USD bn



Source: NBU staff estimates.

2023, due to continued hostilities, FX reserves are expected to decline more than in the baseline scenario and be lower than three months of future imports.

The current account deficit will remain almost unchanged over the entire forecast horizon (excluding grants in 2022). In contrast to the baseline scenario, the deficit will not widen, due to the lower need for imports, depressed demand, and a weaker hryvnia. Due to the persistence of high security risks, exports of goods will remain limited in 2023, which will restrain FX inflows into the country for the second year in a row.

The net outflow of capital on the financial account will continue in 2023 and stop only in 2024. The government sector will continue to attract financing in the same volumes as in the baseline scenario. However, the recovery of inflows of both investment and debt capital to the private sector will be delayed until 2024 due to high uncertainty. In addition, this uncertainty will lead to further increase in FX cash outside the banks.

Under this scenario, the net outflow of FX from Ukraine will continue for two years in a row, putting significant pressures on the hryvnia exchange rate and international reserves, which will decrease in 2023 to a low level. In 2024, reserves will begin to increase gradually: as security risks subside, while net FX outflows from the private sector will slow down markedly and will be fully offset by raising official financing.

The alternative scenario does not differ much from the baseline scenario in terms of its main macroeconomic parameters. This is primarily due to the fact that it envisages the same amounts of foreign assistance, cooperation under the IMF program, higher utilization of accumulated buffers in the form of international reserves, and an appropriate response to economic policy measures. At the same time, the risks of macrofinancial destabilization increase greatly in this scenario, making it even more critical for the government to take stringent economic measures and for there to be sizeable international support.

Alternative forecast (July 2022)

Indicators	2022 baseline	2022 alternative	2023 baseline	2023 alternative	2024 baseline	2024 alternative
REAL ECONOMY, % yoy, unless otherwise stated						
Nominal GDP, UAH bn	**4540**	**4480**	**5990**	**5715**	**7100**	**7400**
Real GDP	**-33.4**	**-34.5**	**5.5**	**2.0**	**4.9**	**5.6**
GDP Deflator	24.8	25.3	25.0	25.1	13.0	22.6
Consumer prices (period average)	21.1	21.1	26.5	26.8	12.9	17.9
Consumer prices (end of period)	**31.0**	**31.5**	**20.7**	**19.4**	**9.4**	**20.7**
Core inflation (end of period)	24.5	25.2	12.4	22.2	2.6	13.4
Non-core inflation (end of period)	38.7	38.9	28.7	16.7	14.3	27.0
raw foods (end of period)	49.0	49.6	12.0	21.7	2.7	13.1
administrative prices (end of period)	16.4	16.4	55.0	9.0	31.0	59.8
Producer prices (end of period)	38.0	38.0	14.0	21.0	3.0	8.5
FISCAL SECTOR						
Consolidated budget balance, UAH bn	**-811**	**-811**	**-632**	**-632**	**-499**	**-553**
% of GDP	-17.9	-18.1	-10.5	-11.1	-7.0	-7.5
BALANCE OF PAYMENTS (NBU methodology)						
Current account balance, USD bn	6.4	6.1	-3.9	-6.2	-8.8	-4.4
Exports of goods and services, USD bn	53.0	52.5	64.0	52.6	63.5	62.4
Imports of goods and services, USD bn	73.9	73.6	80.9	73.2	83.1	80.2
Remittances in Ukraine, USD bn	12.6	12.5	13.1	12.5	13.6	13.2
Financial account, USD bn	15.3	15.1	1.3	10.3	-10.6	-3.4
BOP overall balance, USD bn	**-9.0**	**-9.0**	**-5.3**	**-16.5**	**1.8**	**-1.0**
Gross reserves, USD bn	**20.8**	**20.8**	**21.2**	**9.8**	**28.7**	**14.6**
Months of future imports	3.1	3.4	3.1	1.5	4.0	2.1
MONETARY ACCOUNTS (Cumulative since the beginning of the year)						
Monetary base, %	14.1	**12.2**	8.1	**5.2**	5.6	**5.0**
Broad money, %	18.8	**22.6**	11.1	**12.4**	8.6	**6.8**
Velocity of broad money (end of year)	1.8	**1.8**	2.2	**2.0**	2.4	**2.4**

Alternative forecast assumptions

Indicators		2022 baseline	2022 alternative	2023 baseline	2023 alternative	2024 baseline	2024 alternative
Full access to Black Sea ports		-	-	+	-	+	+
Official financing	USD bln	26.8	26.8	13.0	13.0	13.0	13.0
Tariffs for gas and heating		unchanged	unchanged	1/2 of parity	unchanged	at parity	1/2 of parity
Migration (net)	mln people	-3.3	-3.3	0.8	-1.8	0.1	-1.2
World prices:*							
Steel price, Steel Billet Exp FOB Ukraine	USD/t	657.4	657.4	605.4	605.4	549.3	549.3
	% yoy	6.9	6.9	-7.9	-7.9	-9.3	-9.3
Iron ore price, China import Iron Ore Fines 62% FE	USD/t	135.5	136.2	107.9	119.6	82.8	102.1
	% yoy	-16.2	-15.8	-20.4	-12.2	-23.3	-14.6
Steel price, No.1 Hard Red Winter, ordinary protein, Kansas City	USD/t	393.3	393.3	310.3	335.5	272.6	297.5
	% yoy	49.3	49.3	-21.1	-14.7	-12.1	-11.3
Corn price, Yellow #2 Delivery USA Gulf	USD/t	321.1	321.1	259.9	280.3	229.2	248.8
	% yoy	23.8	23.8	-19.1	-12.7	-11.8	-11.2
Oil price, Brent	USD/bbl	104.9	104.9	94.3	94.3	81.4	81.4
	% yoy	49.0	49.0	-10.1	-10.1	-13.7	-13.7
Natural gas price, Netherlands TTF	USD/kcm	1314.5	1314.5	1283.5	1283.5	1007.3	1007.3
	% yoy	128.4	128.4	-2.4	-2.4	-21.5	-21.5
Gas transit	bcm	30.0	30.0	40.0	30.0	40.0	40.0
Grain and leguminous harvest	m t	51.7	51.7	58.4	42.0	65.1	46.0

** Annual average*

Terms and Abbreviations

GDP	Gross domestic product
GVA	Gross value added
STSU	State Treasury Service of Ukraine
SCSU	State Customs Service of Ukraine
SSSU	State Statistics Service of Ukraine
SES	State Employment Service
STA	Single Treasury Account
EU	European Union
ECB	European Central Bank
IE	Inflation expectations
CPI	Consumer Price Index
MPC	Monetary Policy Committee
QPM	Quarterly Projections Model
IMF	International Monetary Fund
ILO	International Labour Organization
MP	Monetary policy
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
REER	Real effective exchange rate
U.S.	United States of America
Fed	U.S. Federal Reserve System
CB	Central bank
EM	Emerging market
IT	Information technologies
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
RHS	Right-hand scale