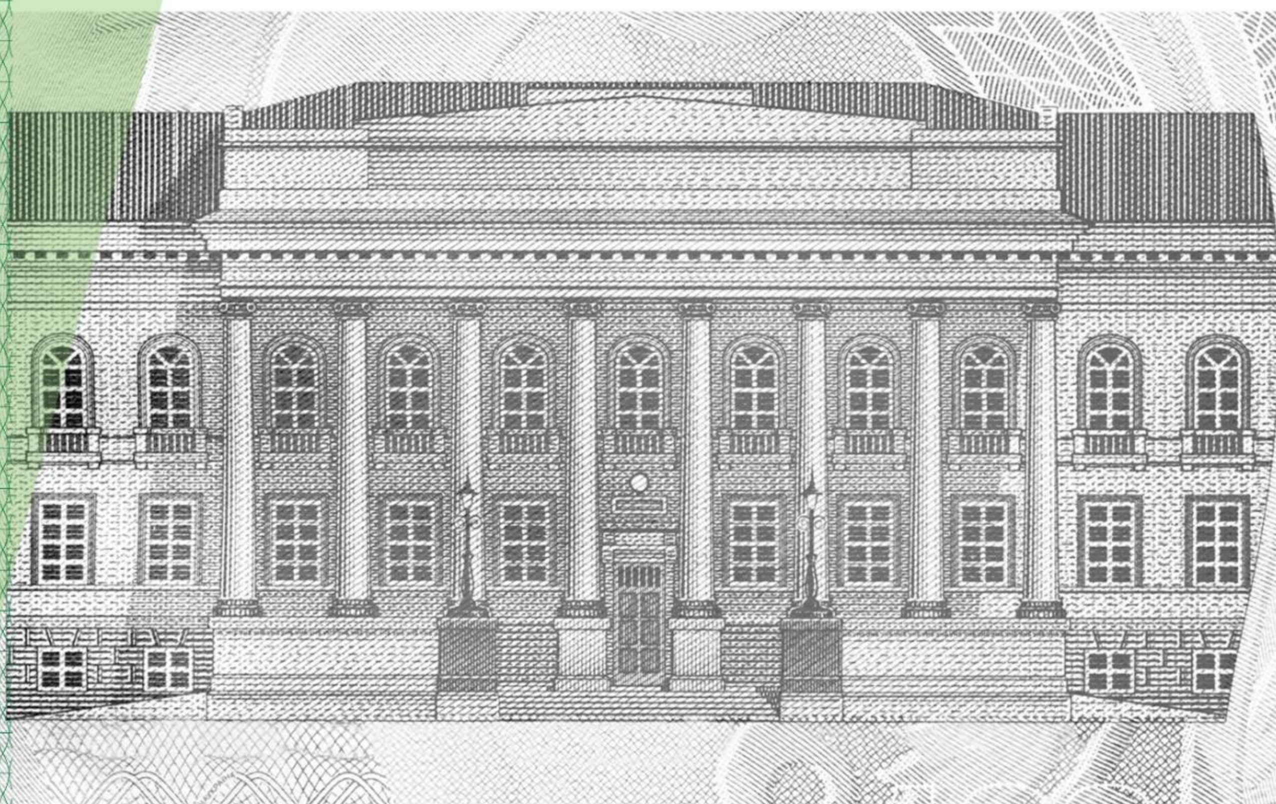
National Bank of Ukraine

Financial Stability Report

December 2022



The Financial Stability Report (hereinafter the report) is a key publication of the National Bank of Ukraine (the NBU). It aims to inform about existing and potential risks that can undermine stability of Ukraine's financial system. This report focuses on risks that Ukrainian financial sector and economy face under protracted full-scale war. The report also offers authorities and financial institutions recommendations that aim to mitigate wartime risks and enhancing financial system's resilience to these risks.

The report is primarily aimed at financial market participants, and all those interested in financial stability issues. Publication of the report promotes higher transparency and certainty of macroprudential policy, helps to boost public confidence in the policy, and thus facilitates National Bank's management of systemic risks.

The Financial Stability Committee of the NBU approved this report on 23 December 2022.

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Summary

Operating conditions remain challenging for financial institutions: the war is becoming protracted, and russia is continuing to use the tactics of terror. Massive air strikes on cities and towns and the destruction of infrastructure are increasing risks to the economy and to financial stability. Nevertheless, the financial sector continues to operate without interruption: payments are made on time, and clients have full access to their funds.

In H2, the economy of Ukraine started to recover gradually from a steep fall caused by the start of the full-scale war, but the destruction of energy infrastructure has disrupted this tendency. Ukraine's GDP will fall by around a third this year. Next year, it will grow at a slower pace than was forecast before the start of russia's mass missile attacks. This will slow the recovery in demand for financial services and cause additional credit losses for the banks.

International assistance for Ukraine is only growing and becoming more comprehensive and increasingly regular. Partners' assistance helped finance over a half of the state budget's needs in 2022, and the situation is expected to last next year. External grants and loans also supported the balance of payments and international reserves, enabling the NBU to continue playing an active role on the FX market. In H2, FX market pressures declined substantially thanks to the exchange rate adjustment in summer as well as modifications of a number of FX restrictions. Substantial government spending on payments to people serving in the military and to those affected by the war supported household income, offsetting the sizeable decline of incomes in the private sector.

The banking system's liquidity has generally remained high since the start of the full-scale war, and according to some indicators even broke records. On top of maintained depositors' trust in the banks, this was facilitated by regular large inflows of government payments to individuals' bank accounts. However, the inflows of new funds to the sector are uneven: the largest share of them are accumulating on current accounts with state-owned banks. In H2, the share of bank term deposits of retail clients continued to decrease, which is worsening the funding structure. This does not pose any immediate risks to the banking system, but weakens the resilience of some banks to potential shifts in consumer sentiment. Therefore, financial institutions should put effort into improving the term structure of their funding and into attracting households' funds, in particular by raising their deposit rates. The high key policy rate is also prompting the banks to raise their interest rates on hryvnia deposits. Moreover, effective next year the NBU has increased required reserve ratios for current accounts in order to encourage the banks to opt for longer-term funding. As FX restrictions were eased in July, retail clients were allowed to buy foreign currency to place on term deposits with the banks. As a result, FX term deposits started to grow for the first time since the onset of the coronavirus crisis. The banks hold foreign currency attracted from households in high-quality liquid assets.

The uninterrupted processing of payments and operation of bank branch networks also contributed to maintaining the public's trust in the banks. Despite the war and mass-scale missile attacks, payments of retail and corporate clients are being performed without delay. The number of payments is growing. The banks have already developed and started to implement measures to overcome the consequences of power outages. They have equipped some branches so that they can continue to operate even if there are long breaks in electricity supplies and communications. Through improving their own resilience to operational risks, the banks are incurring significant expenses, in particular on additional equipment for their branches. However, the largest component of losses from operational risk events is the loss of income.

The net hryvnia corporate loan portfolio of the banks started to decrease gradually in H2. This trend is more pronounced for the retail portfolio and has lasted since the start of the full-scale war. The main reason for the decrease is loan loss provisioning, as well as the repayment of outstanding loans not being offset by newly issued loans. The decline in economic activity caused by security risks and electricity supply disruptions is also pushing down demand for loans. During the war, state programs play a key role in supporting lending.

Credit risk remains the largest threat to the financial sector. The banks have already recognized large credit losses: since the start of the full scale war, the provisioning rate has reached around 11% of the performing loan portfolio the banks had at the end of February. Past due retail loans and loans to companies that incurred large losses of production facilities and lost their markets carry the highest risks. The combined actual and potential loan portfolio losses are in line with the estimate made by the NBU in June, at around 20%. At the same time, electricity supply problems will affect the performance even of active businesses, which have been servicing their loans on time. The incomes of employees and operating cash flows of businesses will often be insufficient for them to fully service their loans. Therefore, there are grounds to worsen the assessment of loan portfolio losses: if problems in the energy sector persist at the current scale, these losses might reach 30%.

The banking sector is maintaining its operating profitability, providing financial institutions with a first line of defense to absorb credit losses. Interest income rose markedly on the back of an increase in interest-bearing assets and higher rates on investment instruments. At the same time, the rise in the share of current accounts restrained growth in the cost of funding. Having fallen sharply in spring, fee and commission income grew on stable demand for banking services and a gradual recovery in tariffs – in September, fee and commission income had already returned to pre-war levels. In 2022, the majority of the banks have managed to optimize their administrative costs. Thus, despite significant credit losses, the sector has generally remained profitable, with its return on equity exceeding 9% in the first eleven months of the year.

Most of the banks continue to have substantial capital cushions that exceed the minimum requirements. However, this excess is likely to be worn away. Some financial institutions are already in breach of the minimal capital adequacy requirements. The NBU is not applying corrective measures for violations of capital requirements caused by the war. This regulatory forbearance will remain in place for a long time. Therefore, financial institutions with viable business models that are capable of generating operating income will have enough time to restore their capital, if they need to do so. On the other hand, the regulator will continue to closely monitor the banks that generate operating losses. Restrictions could be imposed on such banks to protect the interests of their depositors.

The NBU affirms its intention to conduct a bank resilience assessment in 2023 in order to verify the correctness of reported loan portfolio quality and adequacy of provisions, and to assess the actual size of the banks' regulatory capital. Based on the results of the assessment, the NBU will determine the transition period needed to rebuild capital to the minimum required level. The majority of the banks will be able to restore their capital using their future profits, but some banks will probably need support from their shareholders.

In the coming years, as current war-inflicted problems are solved, the NBU will focus on the long-term priority of further harmonizing the operation of the Ukrainian financial sector with EU regulations.

Financial Stress Index

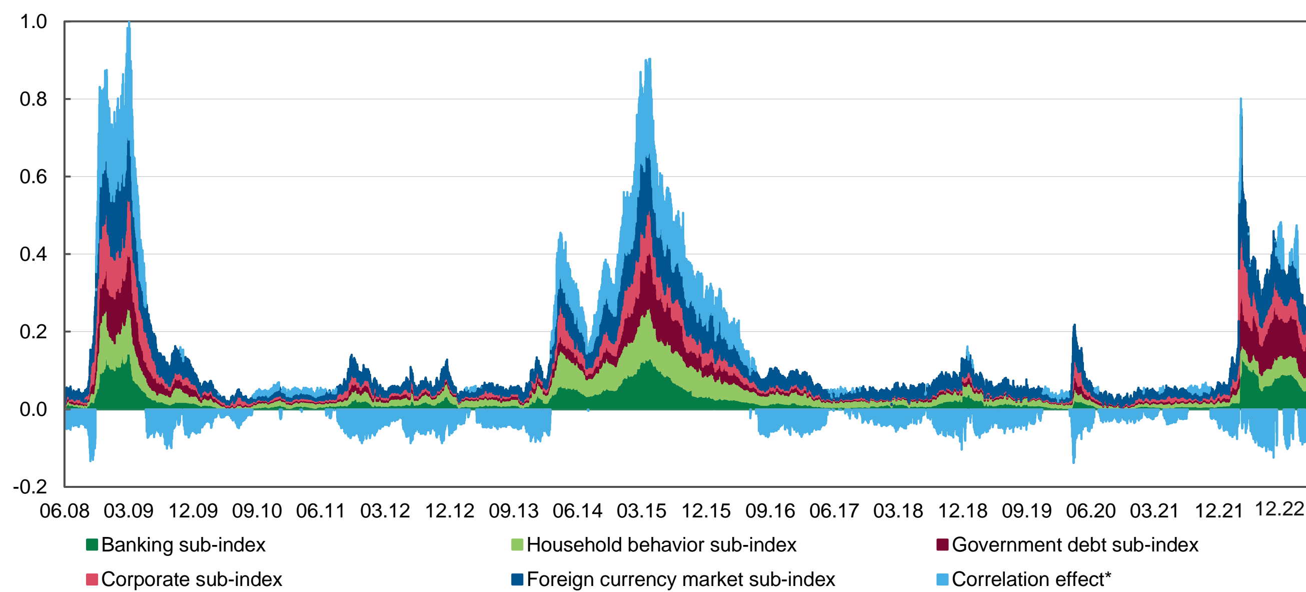
The Financial Stress Index (FSI) has been very volatile over the past six months and has remained at a persistently high level. In summer this was driven by the high sub-indices of both government debt on the eve of Eurobond restructuring, and the banking sector due to an increase in interest rates. The latest surge in the FSI occurred in October as a result of attacks on energy infrastructure. During this period, the sub-indices of government debt and the banking sector remained high. The foreign currency market sub-index also reacted to the attacks, as the cash exchange rate became more volatile and the NBU temporarily increased its FX interventions. Several sub-indices rising high at the same time caused the level of stress in the system to rise. However, from the start of November, the financial system's sensitivity to new attacks has declined significantly, and almost all of the sub-indices have decreased. This drove the index down to the lowest values seen since the start of the full-scale war.

The FSI reflects only the current condition of the financial sector and does not signal future risks that may arise over the short or long term.

Figure FSI1. **Financial Stress Index**

Source: NBU.

Figure FSI2. **Financial Stress Index decomposition**



* The correlation effect is the contribution of the current correlation between sub-indexes compared to the average over the entire observation period.

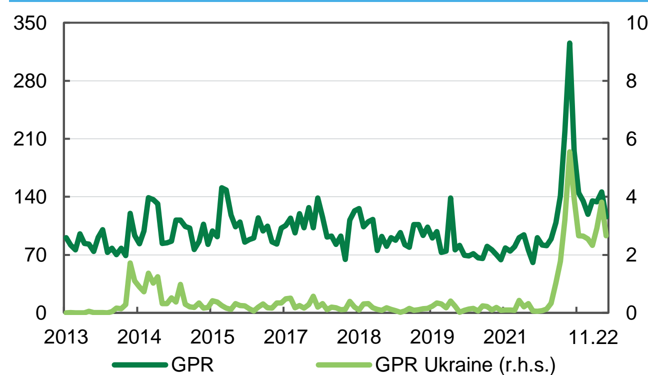
Source: NBU.

Part 1. External Conditions and Risks

1.1. External Developments

The scale and protracted nature of the war continue to raise risks to the global economy higher. Global inflation, exacerbated by the war, and the corresponding tightening of monetary policy are slowing down economies and threatening Ukraine's major partners with recession. However, financial, military, and humanitarian aid to Ukraine is only increasing, as is the sanctions pressure on russia. Prices in the global commodity markets have edged down from their peaks in H1 2022.

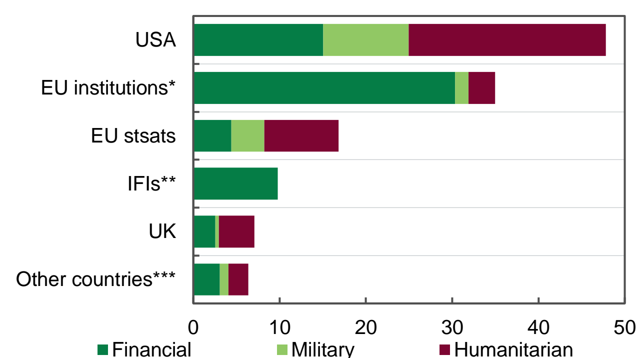
Figure 1.1.1. Geopolitical Risk Index (GPR)*



* Based on the methodology that was updated in late 2021. The figures for Ukraine in this report differ from those in the June 2021 report. https://www.matteoiacoviello.com/gpr.htm

Source: Dario Caldara and Matteo Iacoviello.

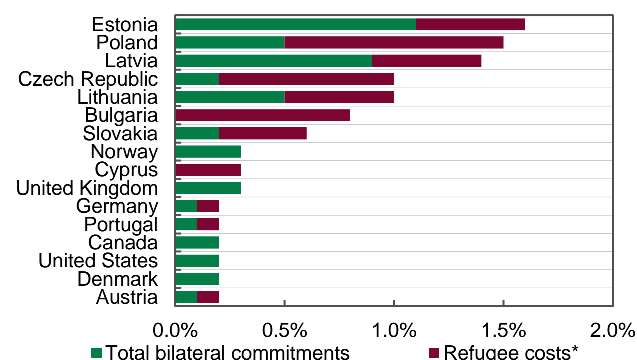
Figure 1.1.2. Committed official assistance for Ukraine, from end-January to end-November 2022, EUR billions



* Funds from European Commission, EU Council, and European Peace Facility, including announced 18 billion euro package. ** IMF, World Bank, EBRD, UN. Assistance under multidonor programs is counted as assistance from individual countries. *** Australia, Canada, New Zealand, Norway, South Korea, Taibei, Turkiye, Switzerland, and Japan.

Source: Kiel Institute for the World Economy (Germany).

Figure 1.1.3. Leading countries in terms of resources committed for support of Ukraine, as of end-November 2022, % of the GDP of the country



* Baseline estimates.

Source: Kiel Institute for the World Economy (Germany).

The war has shifted into attrition mode, but Ukraine's allies are only ramping up support

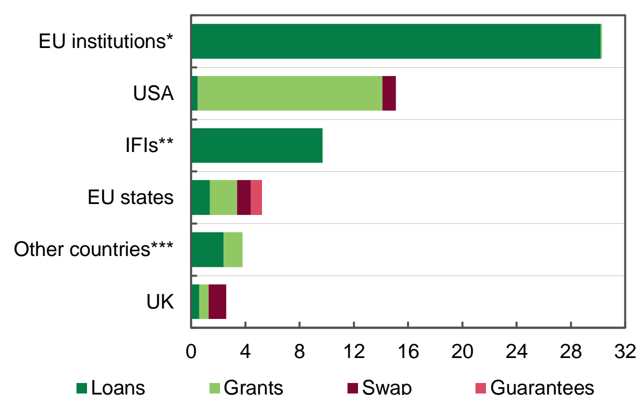
The courageous deeds of Ukrainian forces have led to successes on the front lines. Over six months, Ukraine's defense forces completely liberated Mykolaiv oblast, almost all of Kharkiv oblast, and a large part of Kherson oblast, including the city of Kherson – the only regional capital the invaders had captured since 24 February. Fierce fighting continues in Donetsk and Luhansk oblasts. The enemy had to declare a partial mobilization to slow the Ukrainian army's advances. russia has also stepped up its terrorist attacks on critical infrastructure – the energy sector in particular. In certain global markets, russia continues to try to weaponize shortages of oil, gas, coal, and food products. However, such actions are only cementing the international alliance against the aggressor.

Not only has Ukraine retained the support of the countries that started helping it in the earliest days of the war, but it has actually expanded the circle of its allies thanks to the successes of its forces and diplomacy. The total amount of announced and provided official financial, military, and humanitarian aid from partner countries already exceeds USD 120 billion, the Kiel Institute for the World Economy estimates. In the first 11 months of 2022, donors provided over USD 28 billion for budget financing purposes alone, 42% of it as grants. An aid package for next year is in the works. The EU Council has approved a new EUR 18 billion financial assistance package for Ukraine for 2023. The U.S. Congress has approved around USD 45 billion in emergency assistance for Ukraine in various forms, primarily for defense needs, including support to allies. The funds will be available until September 2023. The power of the weapons supplied to Ukraine is increasing. Several rounds of negotiations on military support for Ukraine have been held in the Ramstein format. The number of participating countries has increased to almost 50. Support from Türkiye and the UN has facilitated the successful operation of the grain corridor, which has eased pressure on Ukraine's balance of payments and improved the food security of some countries, primarily in Africa.

The search for mechanisms to finance Ukraine's post-war recovery continues

Also important for Ukraine is the vote by the UN General Assembly to hold russia accountable for the invasion of Ukraine and to call for russia to pay reparations. This could be a step forward in seizing the aggressor state's frozen assets. Canada has become the first country to pass legislation envisaging the possibility of using frozen russian assets to support Ukraine. The European Commission is

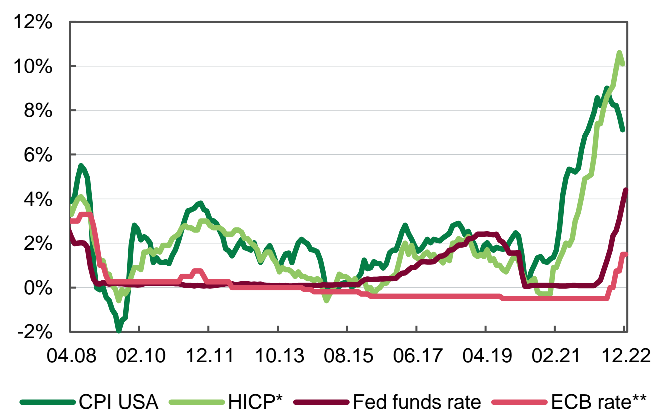
Figure 1.1.4. Committed financial assistance for Ukraine from its largest partners, from end-January to end-November 2022, EUR billions



* European Commission, Council, EIB. 18 billion euro package was counted as loan. ** IMF, World Bank, EBRD. Assistance under multidonor programs is counted as assistance from individual countries. *** Canada, Japan, Norway, and Taiwan.

Source: Kiel Institute for the World Economy (Germany).

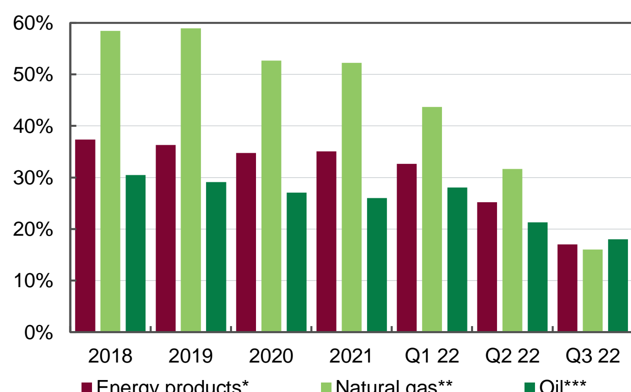
Figure 1.1.5. Inflation rates and central bank rates in USA and Euroarea



* Harmonized index of consumer prices. ** ECB deposit facility rate.

Source: ECB, the Federal Reserve, Fred.

Figure 1.1.6. russia's share in extra-EU energy products imports, in net mass



* Including petroleum oils, natural gas, coal. ** Excluding liquified. *** Petroleum oils, crude.

Source: Eurostat.

currently working on mechanisms to seize russia's frozen assets and use the proceeds to support Ukraine. Ukraine's allies have frozen over USD 300 billion in russian assets.

At the same time, the cost of Ukraine's reconstruction has increased compared to estimates made in summer. The European Commission president tentatively estimated Ukraine's post-war recovery needs at USD 600 billion. Donors are currently holding conferences to discuss financing priorities and programs aimed at rebuilding Ukraine.

russia is sinking deeper into international isolation

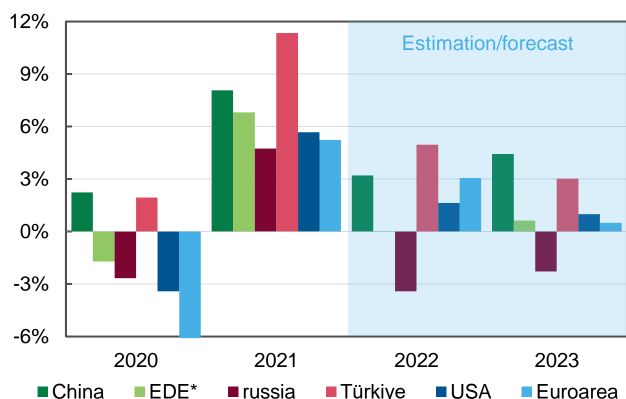
The aggressor's economy is already suffering significant losses due to sanctions. The IMF expects russia's GDP to fall by 3.4% this year and by 2.3% next year. russia's revenues from energy exports are plummeting as a result of its own energy blackmail as it tries to retaliate against EU sanctions. The EU's natural gas imports from russia through pipelines will plunge by almost four-fifths in 2022, the European Commission estimates. To cover the budget deficit, the russian government is forced to use its reserves. The mobilization announced in September has already led to the flight of more than 700,000 working-age people from russia. The country stands to suffer more than USD 250 billion in capital outflows this year, by official estimates alone. russia has not yet depleted the financial and technological resources that sustain its war of aggression, but it is rapidly running out of them.

Meanwhile, the sanctions pressure is only rising. The most effective measures to contain and sanction russia over the past six months:

- The European Parliament, the parliamentary assemblies of NATO and the Council of Europe, and the parliaments of Estonia, Latvia, Lithuania, Poland, and the Czech Republic, have adopted a political decision to recognize russia as a state sponsor of terrorism. The U.S. Congress plans to consider this issue. Such a decision should further complicate the flow of finances and technological goods imports into russia.
- An embargo on russian oil deliveries by sea to the EU took effect on 5 December. Maritime routes account for just under 40% of all russian crude oil exports. G7 countries and Australia have agreed to set a price ceiling of USD 60 per barrel on russian oil.
- The U.S. is imposing sanctions against third-country entities that have been helping russia circumvent restrictions. More sanctions are being put on belarusian and iranian companies that resupply russia with weapons. The circumvention of sanctions will be treated as a crime in the EU, pursuant to an EU Council decision.
- The EU has made it harder for russian citizens to get visas – and thus for russian agents to travel.

The District Court in The Hague has confirmed that the MH17 flight was shot down by the russian military from russian-controlled territory in 2014. This ruling could help the effort to recognize russia internationally as a state that invaded Ukraine in 2014, and to prosecute russia for the crimes it has since perpetrated. Setting up an international tribunal for russia is being discussed. The European Commission and

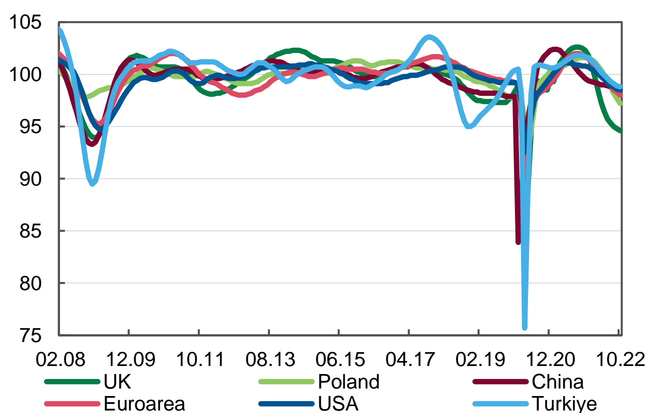
Figure 1.1.7. Change of GDP of Ukraine's major trading partners and russia



* Emerging and developping Europe includes countries of Central and Eastern Europe and Balkans.

Source: IMF, World Economic Outlook, October 2022.

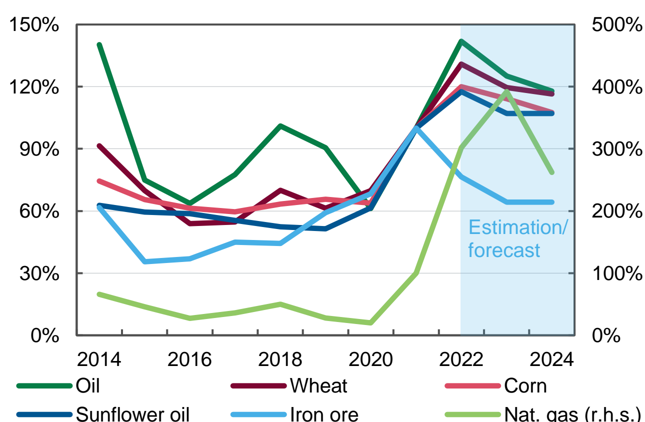
Figure 1.1.8. OECD* composite leading indicators (CLI) for Ukraine's main trading partners



* 100 shows a long-term trend.

Source: OECD.

Figure 1.1.9. Global commodity prices*, 2021 = 100%



* Oil – Brent crude oil; russian natural gas; China import Iron Ore Fines 62% FE; sunflower oil, maize, wheat - international prices.

Source: IMF, World Economic Outlook, October 2022.

the International Criminal Court in the Hague are looking into it. russia's war crimes are being investigated separately in 18 countries.

The war is hitting Ukraine's partners

In 2022, the economies of partner countries in North America and Europe, primarily Central and Eastern Europe, slowed sharply, in part due to the war and the increase in inflation it spurred. China's economy has also decelerated, partially due to its approach to fighting the spread of COVID-19. The growth rate of global trade in 2022–2023 will decline to 2.5% next year from last year's post-COVID-19 level of more than 10%. In 2023, the world's largest economies – the United States, the euro area, and China – are expected to slow further. Some euro-area countries, such as Germany and Italy, are likely to go into recession. The risk of a global recession is therefore increasing, potentially reducing the world's capacity to support the Ukrainian economy.

Global inflation has reached multiple-decade highs. This has been forcing central banks to further tighten their monetary policy stances and to roll back economic stimulus measures. As a result, the cost of private and sovereign borrowing has surged. Capital outflows from risky assets continue. The impact on Ukraine of the increase in the cost of financial resources is currently minimal. Global capital markets have remained shut to Ukraine due to the war, and so the country has been raising concessional financing from its partners.

Prices in commodity markets have declined, but remain historically high

The global economic slowdown, the grain corridor, and the actual and expected supplies of natural gas and oil from alternative sources have pushed global commodity prices down from their record levels of H1 2022. In particular, prices for grain, including wheat and corn, have retreated from their H1 2022 peaks, thanks in part to the recovery of Ukrainian exports. However, prices are staying at fairly high levels, propped up by problems with adverse weather conditions and the harvesting of new crops in some of the world's leading producers (the United States, Australia, and France). Thanks to the uninterrupted operation of the grain corridor and the expansion of areas under crops in the Southern Hemisphere, wheat prices are expected to continue to decline. Steel and iron ore prices fell on sluggish demand subdued by the slowdown in the global economy, including in China. Given the pessimistic global outlook, this trend may continue. However, it is hard for Ukraine to take advantage of the current high prices as it has lost its production and logistical capacities, primarily in the metals-and-mining sector.

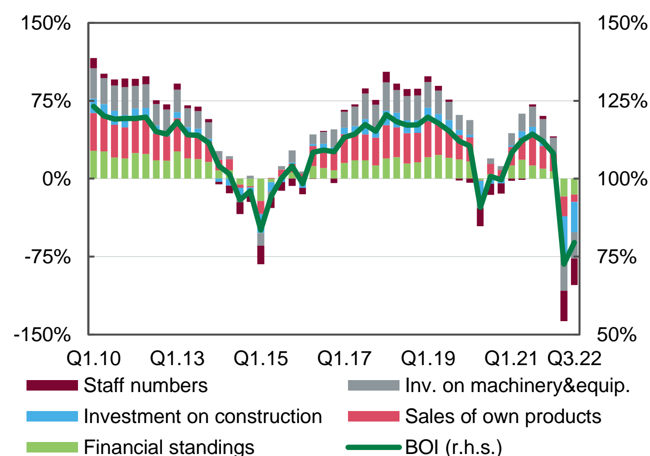
Oil prices have been trending down, primarily due to the global economic slowdown. Despite russia's blackmail, natural gas prices in Europe have fallen significantly, thanks to mild autumn weather, the refilling of gas storage facilities, increased supplies to Europe from Norway, and inflows of liquefied gas (mainly from the United States, Qatar, Algeria, and Australia). The reduction in energy prices is also a positive factor for Ukraine. However, since the onset of the cold season, prices have remained high and volatile.

Part 2. Domestic Conditions and Risks

2.1. Macroeconomic and Fiscal Risks

Ukraine's economy has been gradually recovering from the steep fall in H1 2022 driven by large-scale russian aggression. The loss of human capital and damage to the infrastructure (in particular energy infrastructure) as a result of continued terrorist attacks by russia and ongoing hostilities will cause a deep economic downturn in 2022 and will restrain economic recovery in 2023. Risks and uncertainty remain high, complicating the functioning of the financial sector, but macrofinancial stability is being supported by large amounts of international financial assistance.

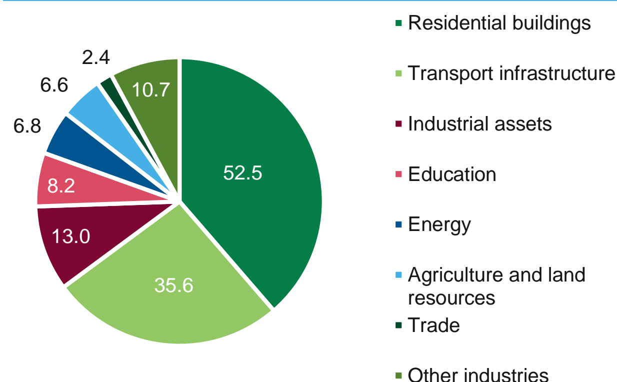
Figure 2.1.1. Business Outlook Index (BOI) of Ukrainian enterprises and its components



The Business Outlook Index (BOI) for the next 12 months is calculated as the arithmetic mean of the balances of responses in percent regarding companies' financial and economic standings, total sales of their own products, investment spending on construction, machinery, equipment and tools, and staff numbers. An index above 100% indicates that positive economic sentiment prevails in society, while an index below 100% shows that negative economic sentiment prevails. The cumulative value of BOI on the graph is not equal to the sum of the effects of individual components.

Source: Quarterly NBU surveys.

Figure 2.1.2. Direct losses of infrastructure destroyed as a result of russia's military aggression, USD billions*



* Direct losses total USD 136 billion (indirect losses exceed USD 165 billion). Estimate as of 25 November 2022.

Source: Kyiv School of Economics, damaged.in.ua.

Destruction of energy infrastructure deepens the losses of the economy

The economy of Ukraine gradually recovered in Q3 2022. The recovery was supported by the stabilization of the frontline at first, and later by the Ukrainian army liberating more than a half of territories occupied in 2022. Therefore, production and supply chains were gradually improved. The grain corridor deal contributed to a significant increase in exports of agricultural products, supported transportation and other services, and created better conditions for storing this year's harvest.

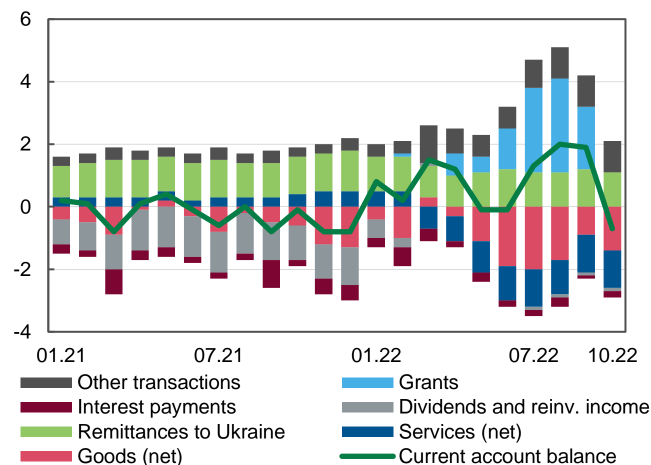
However, a serious risk to the economy materialized starting from October – major disruptions in electricity supply occurred due to regular and massive attacks on energy infrastructure. Electricity shortages lead to businesses standing idle and complicate logistics and sales. Subsequently, production volumes started to decline again in Q4. Energy supply problems will exhaust businesses' resources, reduce their solvency, and raise credit risk. Some companies might shut down. This could result in a new wave of deteriorations in the banks' credit portfolio quality (read more in the section Corporate Lending Risks). As of now, risks of a further decrease in production are higher than the probability of positive developments. According to current estimates, real GDP will drop by around a third this year.

International assistance provided in H2 offsets the trade deficit and covers capital outflows

The trade deficit in goods and services remains significantly above its pre-war level. The launch of the grain corridor increased export volumes of food products. An increase in the capacity of Danube ports and railway and road transportation also contributed to the pickup in exports. The adjustment of the hryvnia official exchange rate and the cancellation of a number of tax benefits put the brakes on the rapid recovery in volumes of goods imports. The atypical trade deficit seen in services is due to spending by displaced persons abroad. However, thanks to international assistance provided in the form of grants, which grew in volume significantly in H2, and remittances to Ukraine, which remained almost unchanged from the previous year, the current account recorded a surplus in January–October.

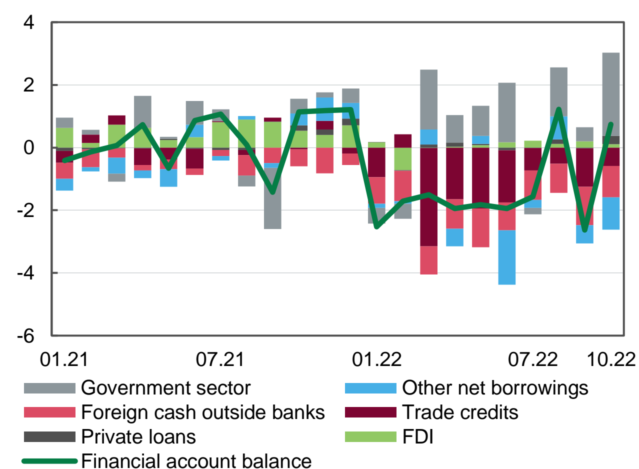
Despite inflows of international financial assistance in the form of loans, which are reflected as capital inflows into the public sector, the financial account remained negative in January–October, as did the overall balance of payments. This was driven by capital outflows from the private sector as

Figure 2.1.3. Monthly current account balance, USD billions



Source: NBU.

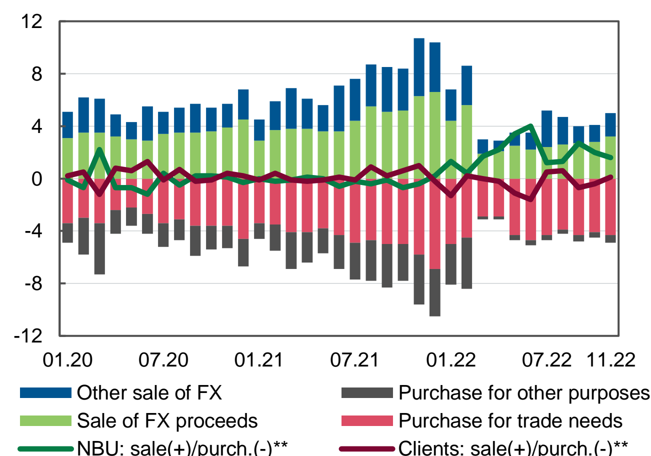
Figure 2.1.4. Monthly financial account balance*, USD billions



* Along with errors and omissions.

Source: NBU.

Figure 2.1.5. Purchase/sale of non-cash foreign currency by bank clients, USD billion equiv.*



* The volume of transactions by bank clients on tod, tom, and spot terms. The data for June and July 2022 reflects purchases/sales excluding Clearstream transactions. ** On a net basis.

Source: NBU.

a result of an increase in nonresidents' debts on trade loans and greater volumes of FX cash outside banks.

FX market pressure eased, but NBU interventions are still needed

Large gaps in the balance of payments and irregular inflows of international assistance in H1 required that the exchange rate be adjusted. The official UAH/USD exchange rate was devaluated by 25% in late July. This decision – coupled with the adjustment of FX restrictions, gradual growth in market rates in response to the June key policy rate hike, and the launch of the grain corridor – eased pressures on the FX market. Volumes of NBU interventions thus declined. However, the FX market still cannot balance itself, and FX demand from businesses and households remains high. Therefore, the NBU will further compensate for the lack of foreign currency on the FX market and will stick to a fixed exchange rate policy. At the same time, thanks to the unprecedented aid from partners, international reserves now exceed the pre-war level. They reached USD 28 billion as of end-November, which covers 3.5 months of future imports. Continued inflows of international assistance will enable the NBU to maintain international reserves at a sufficient level.

Inflation will decline gradually but will remain high

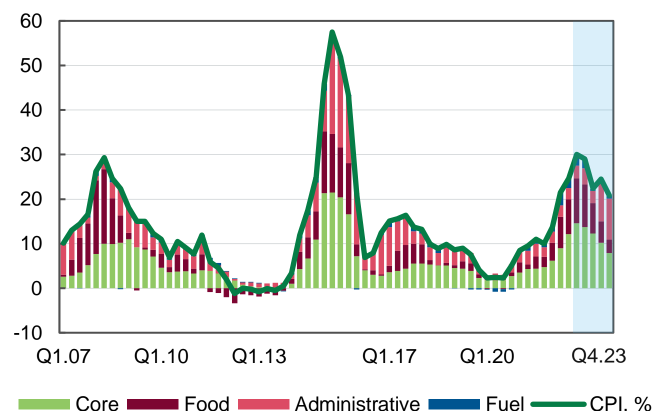
Inflation will not exceed 30% as of the end of 2022. The price growth continues to be mainly driven by supply factors: destruction of production facilities, disruption of supply chains, higher production costs, and limited supplies of some goods. The July adjustment of the UAH/USD exchange rate and rapid growth in global prices also contributed to higher inflation. The price pressure was restrained by the key policy rate hike to 25% per annum in June and its gradual transmission to market rates, subdued demand, and fixed utility tariffs. The majority of these factors will slow inflation in 2023. However, the destruction of energy infrastructure will push up the pressure on prices. The NBU's October forecast envisages maintaining a high key policy rate for a long time, prompting the banks to continue raising deposit rates and keeping them high. This will ease FX market pressure and improve the banks' funding structure.

International support will remain the basis for financing the budget

The parameters of the state budget were revised repeatedly in 2022 due to the war-driven uncertainty around revenues and expenditures. The budget deficit envisaged in the Law is UAH 1.5 trillion (nearly 32% of GDP). From the start of the full-scale war, more than a half of the state budget financing has been provided through international aid (including grants). Another quarter of the budget's need for resources were covered by the NBU. Taking into account the pressure monetary financing of the budget puts on the FX market and prices, as well as its adverse effect on expectations, the government plans to stop raising the NBU's monetary financing next year.

The state budget approved for 2023 envisages expenditures exceeding revenues almost twofold, with the deficit at around 21% of GDP (equivalent to USD 35.5 billion at the current exchange rate). The main expenditures were unchanged –

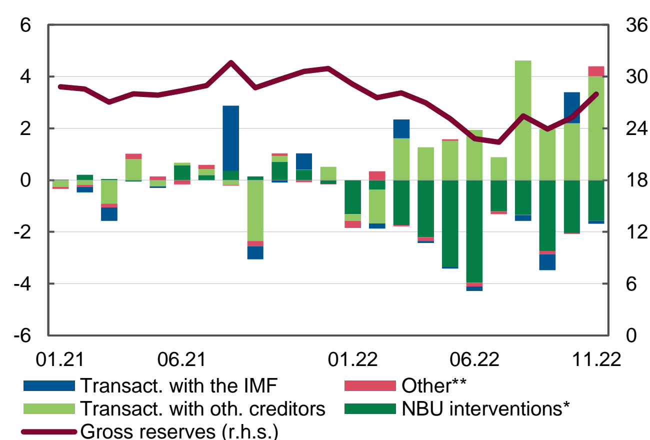
Figure 2.1.6. Contributions to annual change in CPI by component, pp



The data for 4Q 2022–4Q 2023 are the NBU's forecast as of October 2022.

Source: SSSU, NBU estimates.

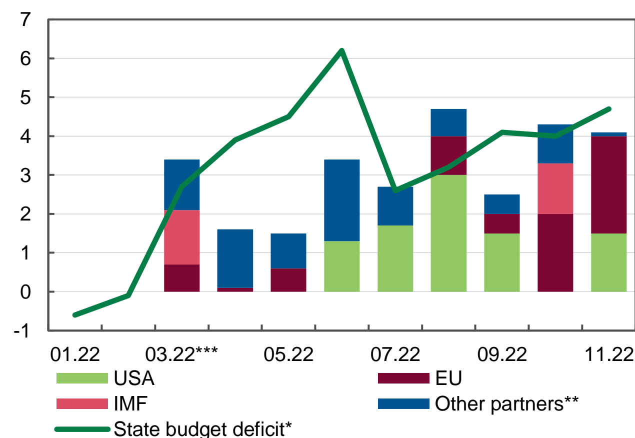
Figure 2.1.7. Change in gross international reserves, USD billions



* The NBU's net interventions: (+) refers to purchasing FX to increase reserves; (-) refers to selling FX from reserves. ** "Other" means the revaluation of financial instruments due to changes in their market value and exchange rate fluctuations, as well as other transactions.

Source: NBU.

Figure 2.1.8. State budget deficit, excluding grants and provided financial support from partners to finance the state budget, USD billion equiv.



* Negative values show a surplus. ** Ukraine received support from Canada, Germany, the United Kingdom, Japan, France, Italy, the Netherlands, Norway, Sweden, Denmark, Latvia, Lithuania, Austria, Belgium, Albania, Iceland, and other countries. Partner financing also came through projects of the World Bank and the European Investment Bank. *** Funds received since 24 February.

Source: STSU, MFU, openbudget.gov.ua, NBU estimates.

security and defense needs and the social protection of households. The large deficit is to be financed by financial support of EUR 18 billion approved by the European Union for 2023 and significant amounts of aid expected from the United States. The funding from the United States is likely to come in the form of grants, while the EU financing is to be provided as interest-free soft loans with terms of up to 35 years and with a 10-year grace period for the first installment, which will reduce budget expenditures on paying interest.

In August, the Ministry of Finance of Ukraine postponed payments on sovereign Eurobonds for two years and changed the terms of government derivatives (GDP warrants), reducing financing needs. The government was to have paid USD 6 billion on these instruments in the next two years.

Along with this, domestic borrowing needs to be stepped up in order to reduce risks to the budget. The approved IMF monitoring program set the task of achieving a full rollover of current domestic liabilities in 2023. The Ukrainian banking system has sufficient resources even to exceed this plan. Volumes of the banks' spare liquidity in NBU certificates of deposit alone were larger than UAH 380 billion as of mid-December. An increase in demand for government securities from the banks requires further adjustment of their yields toward market terms. A rise in domestic borrowing also significantly reduces the risk of monetary financing.

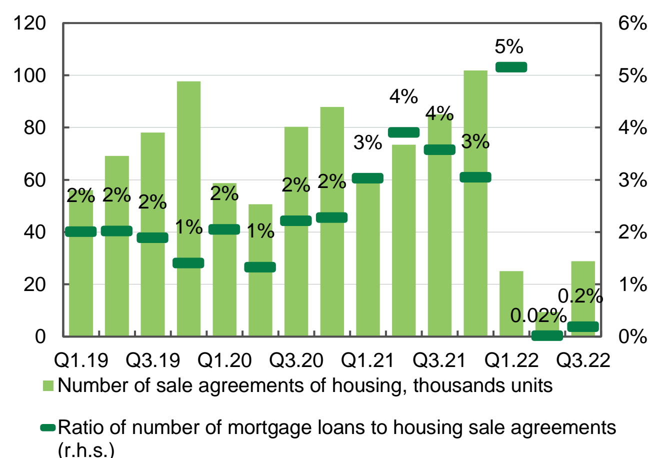
The IMF program will facilitate the optimization of public finances

A new four-month monitoring program approved on 19 December by the IMF Executive Board will provide significant support to the resilience of the economy. Its implementation is a prerequisite for the launch of a full-fledged financing program from the Fund. The monitoring program will also support the coordination of international financial assistance from other partners and facilitate the further implementation of structural reforms. The program envisages steps aimed at increasing volumes of tax revenues, activating the domestic debt market, minimizing the risks of monetary financing of the budget, maintaining the long-term resilience of the financial sector, and ensuring the efficiency and transparency of state-owned enterprises and banks.

2.2. Real Estate Market and Mortgage Lending

Demand for housing remains weak and unstable: there are few buyers and their interest is affected by the intensity of air strikes on populated centers. The creation of new housing supply has slowed. Coupled with the destruction of residential real estate due to shelling, this will lead to a decrease in the supply of housing in the near future, and to a potential shortage over the longer term. Declared purchasing prices are mainly growing, whereas rentals remain almost a half of the pre-war levels. The divergent price dynamics reflect an imbalance on the real estate market, and relatively cheaper rents will restrain demand for housing purchases. Growth in the turnover of goods gave an impetus to the retail real estate market. It is primarily the performance of small malls that has been improving. Lessors of office premises remain in a difficult situation.

Figure 2.2.1. Housing market activity



* The number of new mortgages according to findings of a survey held among banks. The data for 2022 is provided for a sample of the banks for which their total gross mortgage portfolio accounted for more than 90% of the sector's overall portfolio as of the end of 2021.

Source: the Ministry of Justice of Ukraine, banks' data.

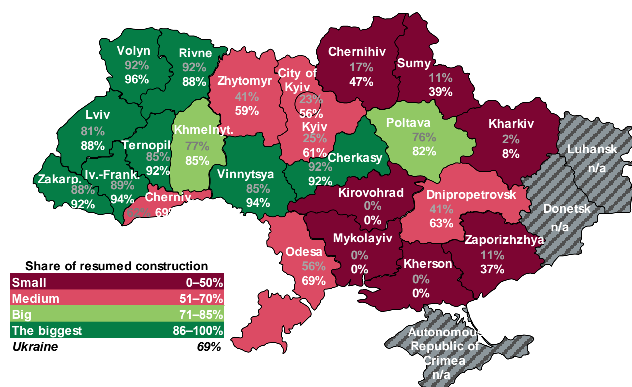
Buyers' activity is almost absent

Demand for housing remains very weak and unstable. Notaries report that in the first nine months of this year the number of concluded deals was slightly more than a quarter of the number seen in the same period last year. The appetite of buyers, which are few, depends significantly on the security situation in certain populated centers, and particularly on the intensity of air strikes. Therefore, the escalation of air attacks on Ukraine dampened buyers' interest again in Q4. Existing demand is primarily oriented toward finished housing ready for moving in, whereas speculative purchasing with the aim of reselling the property later is practically absent. Moreover, the war is transforming the preferences of potential buyers, who now prefer safer and autonomous residential property. Considering the protracted duration of the war, high security risks for households, and slow recovery in incomes, demand will remain subdued for a long time, and the market will stagnate over the medium term. Demand will potentially come from those who lost their homes due to the war, but only if they have necessary means, including compensation for the lost property.

Market supply will fall in the future

The number of resumed construction sites has been gradually growing after construction almost stopped in the first months of the war. Overall, work resumed at more than two thirds of construction sites in Ukraine. This mostly concerned property in housing estates that have higher chances of being sold out: primarily in western oblasts of Ukraine and those at final stages of construction. At other sites, the resumption has mainly happened on paper only. According to the State Statistics Service of Ukraine, 2.8 million square meters of housing in apartment blocks were completed in the first three quarters of 2022. This was just a half of the record-high level of the same period last year, but also only a quarter less than the five-year average. The situation with starting new construction is more difficult. In the first nine months of the year, developers received construction permits to build two times fewer apartment blocks than the average in the same period of the previous four years. That said, receiving a permit does not mean construction starts right away – the actual start may be postponed for a long time.

Figure 2.2.2. The share of new housing construction that has resumed*, by Ukraine's oblasts

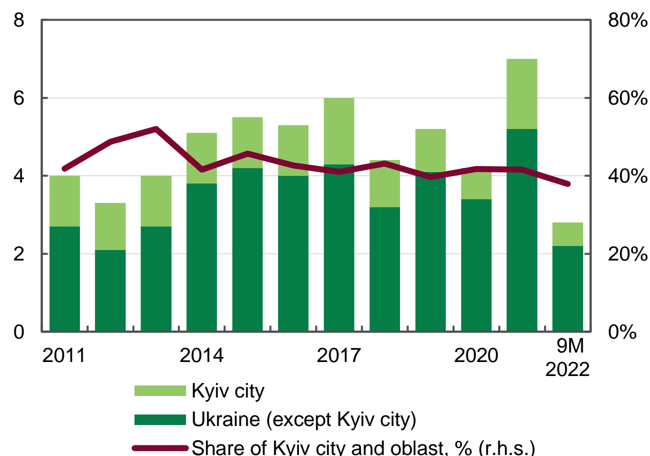


* Compared to the number of construction sites that were active as of 23 February 2022. Grey – as of 30 May; white – as of 28 October 2022.

Source: LUN website.

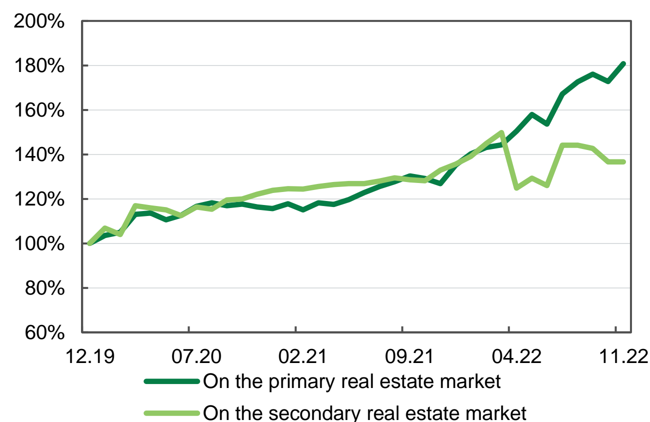
Volumes of residential real estate are changing due to new supply and, to an even greater extent, due to destruction of existing housing. According to the *Russia will Pay* project, more than 16,000 apartment blocks and almost 127,000 private houses were either destroyed or damaged from the start of the full-scale war to November. Combined with the

Figure 2.2.3. Commissioned residential property in apartment blocks, million sq. m



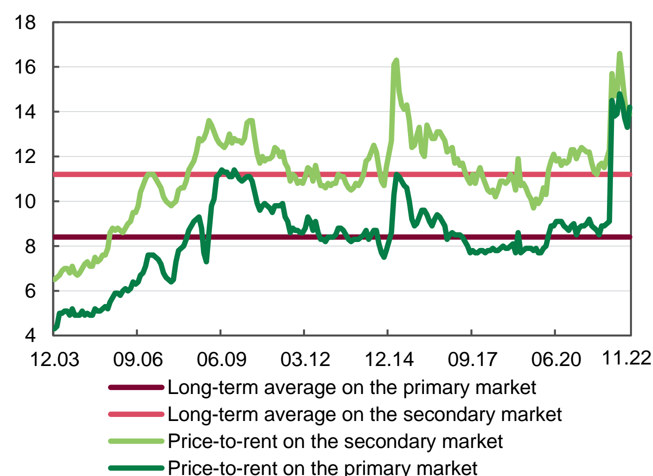
Source: SSSU.

Figure 2.2.4. Hryvnia price index on the residential real estate market of Kyiv



Source: websites of real estate agencies, NBU estimates.

Figure 2.2.5. Price-to-rent ratio in Kyiv



Source: websites of real estate agencies, NBU estimates.

weak pace of new construction, this will significantly reduce housing supply in the near future, leading to shortages in the housing market after the war.

Going forward, the primary real estate market will be regulated by a new law on protecting the rights of construction investors. The new rules of the game, provided there is a proper by-law regulatory framework, can be beneficial for the development of the market and lending. However, adapting to new conditions will take time. Moreover, the implementation of the law, in particular the mechanism of a guaranteed share for new construction, will require the government to take resolute decisions.

Declared prices are chaotic and mostly not market-driven

Declared hryvnia prices are growing on the primary real estate market only, with the fastest growth seen in the west of Ukraine. In a number of regions, the rise in prices has been outpacing headline inflation. According to LUN website, in January–November 2022 prices for newly built housing rose by around 40% in Kyiv. The growth was twice as fast in Lviv. Developers trying to compensate for the increase in construction costs is the main price growth driver. However, taking into account the almost zero demand for newly built housing, the rise in prices mostly reflects the wishes of sellers, and not market conditions.

The major share of deals are being made on the secondary market, but prices are rather volatile in this segment. Price drivers on the secondary market are not always rational: the terms of sale depend on many unique factors and motives of the parties. Prices will remain chaotic for as long as activity on the market is weak.

The rental market provides better benchmarks of equilibrium prices than the real estate market

The response of the housing rental market to the change in the macro environment and security conditions has been fast and strong. Having declined in spring, demand remains low on this market, and it shows no significant signs of improvement. Following a period of high volatility in the first months of the war, rentals stabilized at a level that is 40% below that of February on average.

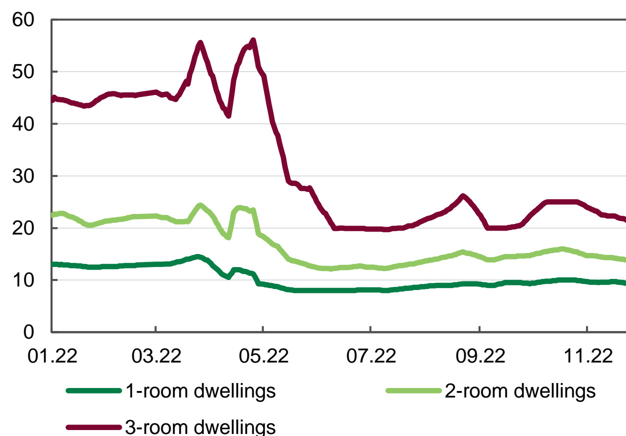
The price-to-rent ratio[1] also shows that the real estate market is far from equilibrium. The ratio has risen markedly since March, reaching a record high. According to this criterion, the market is considered to be in balance if the price-to-rent ratio is close to the long-term average. Rental prices being low compared to real estate prices will also restrain demand. Considering price levels, rental is now a better option than buying housing, and this will last for a long time.

Mortgage lending is nearly non-existent

There was almost no new mortgage lending from March to September, with very few mortgages being issued. A little more than 100 mortgages amounting to around UAH 1 million on average were issued in September–October. The majority

[1] The price-to-rent ratio is calculated using the following formula: purchase price per square meter divided by annualized rent price per square meter.

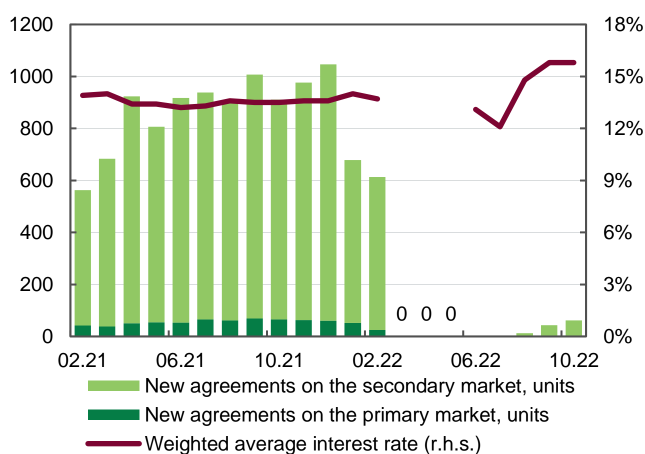
Figure 2.2.6. Rent prices of apartments in Kyiv, daily data*, UAH thousands



* The data was adjusted on a two-week basis.

Source: Bird.

Figure 2.2.7. New mortgage lending



Source: banks' data.

of them were provided on the secondary market. The mortgage market will remain sluggish until the end of the war due to high risks. Demand might be raised somewhat by the state lending support programs Affordable Mortgage and eOselia, which offer reduced interest rates – 7% and 3% per annum, respectively.

The retail real estate market is gradually stabilizing

The situation on the retail real estate market is improving. Overall, the turnover of goods at shopping malls is increasing, with demand for staple goods recovering the most rapidly. The pace of growth is faster in the western oblasts of Ukraine. Consumers' behavior is also changing: shopping centers in close proximity to buyers are growing more popular, and shopping is becoming targeted – consumers mostly aim at fast and planned purchases. The revenues of shopping malls are recovering gradually thanks to an increase in their lessees' sales, as rentals are mostly determined as a percentage of goods turnover. Small- and medium-sized malls are doing better in terms of vacancy and profitability. In contrast, large shopping malls are suffering due to dormancy in their two core activities: large international lessees have not resumed their operations because of security risks, and the entertainment segment remains unpopular. Electricity supply disruptions are slowing the sector's recovery.

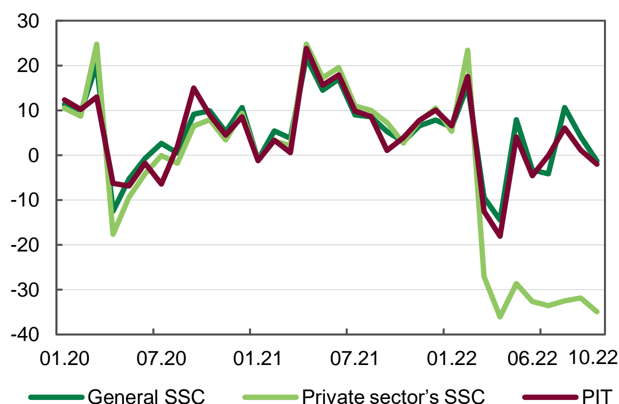
The market of office premises will continue to stagnate

The market for office space continues to be influenced by fundamental changes in the work format of companies' staff. Remote work is further becoming the norm for many businesses. Moreover, demand for office premises directly depends on domestic business activity, which is now in decline. The office premises market thus continues to stagnate. Rentals remain low, and vacancy is increasing. As lease contracts were mostly long-term, lessees have to occupy the premises and pay rent until their contracts expire. However, after the contract expiry, lessees reduce their rented space, negotiate for discounts, or move out. In autumn, some employees returned to offices due to long-lasting power outages. Office space owners that offer stable electricity supply using electric generators as well as uninterrupted internet and communication raised their rents considerably. However, this effect will only be temporary. The segment of office real estate will remain depressed for the longest time, being unattractive to investors and creditors.

2.3. Households and Related Risks

The private sector has seen a plunge in employment and wages since the start of the full-scale war. As a result of a sharp increase in military allowances and the stable incomes of public sector workers, the total nominal income of households exceeds last year's figures. Because of significant payments to the military, households' real income will probably stay at last year's level. Regular and substantial military allowances have also ensured an overall increase in household savings and additional inflows of funds into the banking system. Demand for new loans remains subdued. Households' debt burden is shrinking. However, many bank clients have difficulty servicing their loans and may temporarily lose access to banking products.

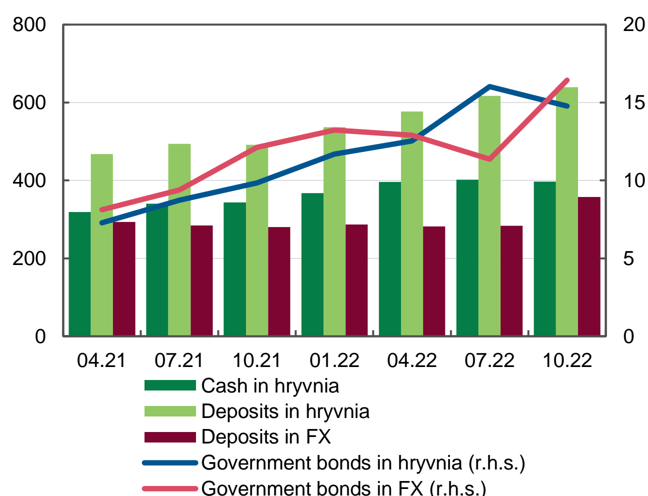
Figure 2.3.1. Revenues from the single social contribution (SSC) and personal income tax (PIT), in real terms, % yoy



For the private sector, salary accruals are excluded from the total SSC revenues of the consolidated budget.

Source: The Pension Fund of Ukraine, STSU, NBU estimates.

Figure 2.3.2. Major types of financial savings, UAH billions



Source: NBU.

Aggregate incomes are driven by large payments to the military

The incomes of private sector workers have fallen sharply since the breakout of the war due to forced mass layoffs, emigration, downtime, and pay cuts. However, the loss of these incomes was largely compensated for by the surge in the incomes of military service personnel. Nominal household incomes in H2 2022 are above last year's levels, according to single social contribution and personal income tax data. Significant payouts to members of the armed forces have likely made it possible to maintain the household aggregate real income at the level of a year ago, despite accelerated inflation.

Household savings are increasing thanks to regular payments from the state

The growth in nominal incomes and the thrifty behavior of consumers have contributed to the increase in savings. Most notably, both cash and non-cash FX savings increased in H2 2022. In July, the NBU relaxed its FX restrictions and allowed individuals to buy foreign currency on the condition that they use it to make term deposits. The volume of FX term deposits therefore started to grow for the first time since the COVID-19 crisis began.

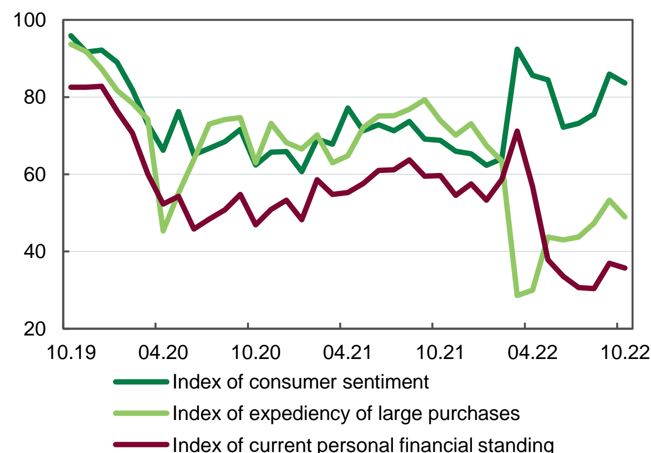
Households' hryvnia funds in bank accounts also increased. First and foremost, current accounts rose in volume due to being liquid and because of the still unattractive interest rates on term deposits. The growth in retail funds in banks was almost completely driven by inflows into the accounts of military personnel and social benefit recipients. The expanding share of military pay in the general income and retail savings caused household funds inflows to concentrate in the state-owned banks that service these accounts. The household demand for government securities has increased significantly. However, the volumes of these investments are still quite low compared to other savings instruments.

The unemployment rate is at an all-time high, and displaced people are in no rush to return from abroad

Unemployment is likely higher than 30%, according to ILO methodology, and will decline slowly. Even before the start of regular power cuts, labor demand had not yet stabilized. NBU surveys show that most companies do not plan to change staff numbers during the next year. However, one-third of businesses expect more layoffs. Protracted power outages could make these estimates worse.

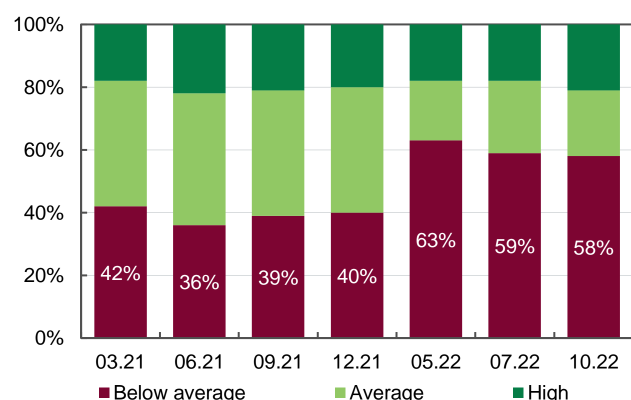
According to UN data, more than 7 million people have left and remained abroad since the onset of the full-scale war. However, this estimate also includes individuals who were

Figure 2.3.3. Households' consumer sentiment, points



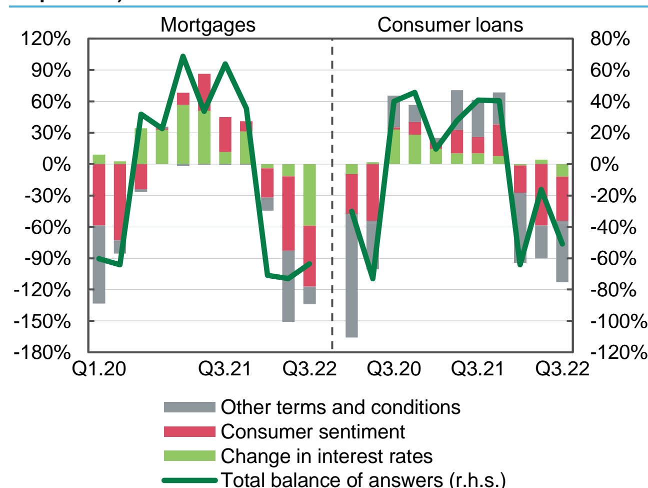
Source: Info Sapiens, monthly population surveys (ages 16+).

Figure 2.3.4. Households' estimates of their well-being levels



Source: Info Sapiens, quarterly population surveys (ages 16+).

Figure 2.3.5. Factors of changes in retail loan demand (balances of responses*)



* A positive balance of responses indicates an increase in demand.

Source: NBU, Bank Lending Surveys.

forced to leave or who were deported to russia. The vast majority of forced migrants have declared their intention to return after the war ends or when their homes become safe to live in.

External migration undermines domestic demand for financial services, but these effects are not having a critical impact on the banks at this point. Displaced people continue to actively use Ukrainian-issued card products and make online payments. In addition, a significant percentage of these individuals are children, who are not active bank clients.

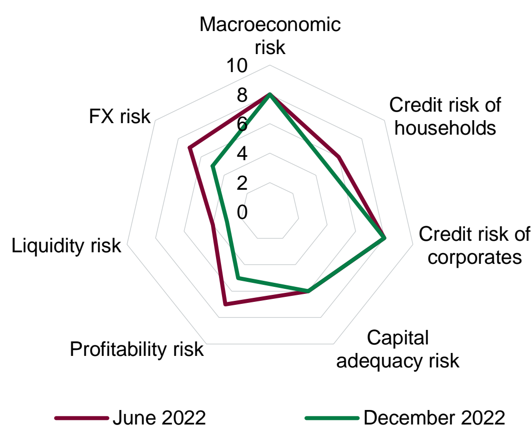
Low consumer demand is reducing lending and the debt burden

The loss of income by a large part of households affected their own assessments of their well-being. According to Info Sapiens data, 58% of respondents consider it below average. In October, when massive missile attacks began, consumer sentiment worsened and demand for durable goods decreased. Consumer demand from households therefore remains subdued. This is depressing the demand for both unsecured consumer loans and mortgages. Households' debt burden has slightly decreased as the retail loan portfolio shrinks and nominal incomes rise. However, this trend is not uniform. Job losses and salary cuts in the private sector have made it much harder for many households to service their loans. The borrowers who have been hardest hit by the war have stopped servicing their loans, primarily consumer ones, en masse. These individuals will find it extremely difficult to regain access to loans, especially from banks.

Part 3. Banking Sector Conditions and Risks

3.1. Financial Sector Risk Map

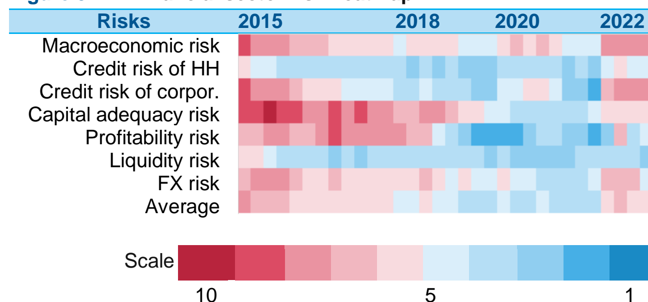
Figure 3.1.1. Financial Sector Risk Map*



* The NBU assesses risks on a scale from 1 to 10, with 1 being the lowest level of risk, and 10 the highest. The assessment reflects the outlook for the next 12 months. The methodology for building this risk map has been adjusted to factor in the data availability.

Source: NBU estimates.

Figure 3.1.2. Financial sector risk heatmap



Source: NBU estimates.

Description:

- Macroeconomic risk indicates the level of threats arising in the real economy or the fiscal area
- Credit risks of households and of corporates reflects expected changes in the share of non-performing loans in bank loan portfolios and the need for extra provisions for those loans
- Capital adequacy risk measures the ability of banks to maintain an adequate level of capital
- Profitability risk measures the ability of banks to generate net profit
- Liquidity risk is a measure of the ability of banks to meet their liabilities to depositors and creditors in full and on time
- FX risk is the risk that foreign exchange market trends will affect the resilience of banks.

Macroeconomic risk: unchanged

The economic downturn will be considerable this year, despite a recovery in Q3. Public debt and the budget deficit remain high relative to GDP. Massive attacks on energy infrastructure exacerbate the macroeconomic outlook. Significant inflows of international financial assistance have improved the balance of payments and partially compensated for the negative change in other risk indicators.

Credit risk of households: decreased

Despite decreasing somewhat, credit risk of households remains at a medium level. The debt burden of households remains low, as it was before the war. A slowdown in lending and rising nominal incomes facilitated a decline in the risk. The household debt burden thus did not grow. Material credit losses are pushing up the risk.

Credit risk of corporates: remained the same

The credit risk of corporate borrowers remains high. The situation for businesses is aggravated by problems with electricity supplies, and the expectations of enterprises remain pessimistic. The share of corporate defaults is rising.

Capital adequacy risk: unchanged

The capital adequacy risk remains medium primarily due to substantial safety margins accumulated before the war. Only a few financial institutions have already resorted to this reserve to absorb losses, mainly credit risk losses. At the same time, most of the banks increased their capital with profits earned this year.

Profitability risk: dropped

Profitability risk has decreased and is assessed as medium. Having generated losses in H1, the banking sector returned to profitability. This was facilitated by higher core incomes and improved operational efficiency. However, provisioning costs will grow further.

Liquidity risk: declined

The liquidity risk is moderate. Inflows of retail and corporate deposits remain stable. Holdings of high-quality liquid assets grew. At the same time, some banks face some liquidity problems.

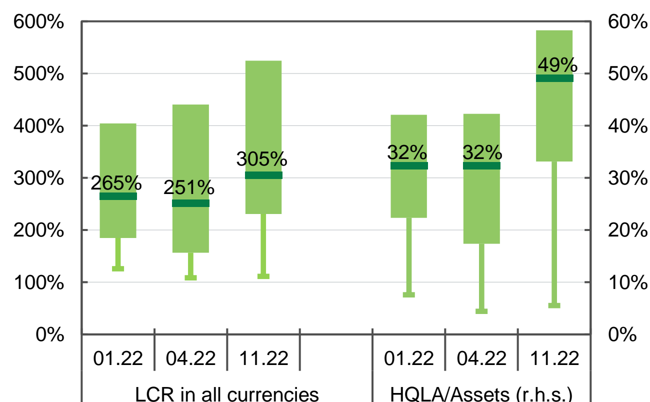
FX risk: decreased

The level of FX risk has dropped to medium. The UAH/USD exchange rate adjustment in July reduced the volatility of the cash exchange rate and eased pressure on the FX market. Financial assistance from partner countries promoted an increase in international reserves. At the same time, the financial institutions' expectations about exchange rate dynamics remain moderately pessimistic.

3.2. Liquidity and Funding Risk

The banking sector has continued to receive significant inflows of funds from government payments. However, funding is distributed unevenly, with inflows of hryvnia funds mainly going to state-owned banks. At the same time, some medium-sized and small banks faced outflows of client deposits at the start of the full-scale war. The structure of funding is deteriorating, and the share of funds in current accounts is growing. The NBU's decision to absorb some of the excess liquidity by raising reserve requirements will make banks put more effort into encouraging inflows of funds.

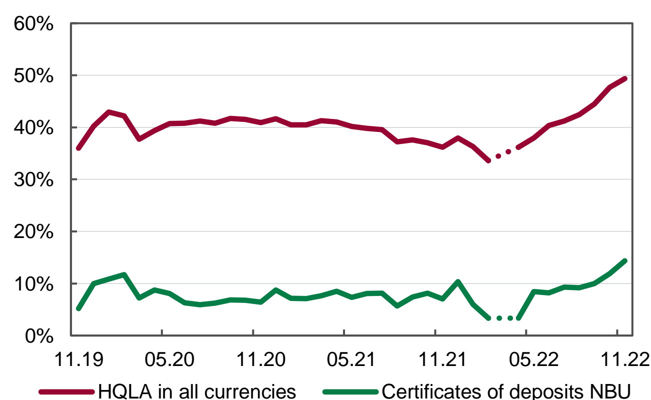
Figure 3.2.1. Distribution of LCR in all currencies and the share of high-quality liquid assets (HQLA) in all currencies in net assets*



* The faces of the rectangles correspond to the distribution's first and third quartiles. The lines inside the rectangles are medians. The lines extending below the rectangles indicate minimum values.

Source: NBU.

Figure 3.2.2. Shares of HQLA and NBU certificates of deposit in net assets*



* At banks solvent as of 1 December 2022. Data for 23 February–3 March 2022 were not submitted – marked with a dashed line.

Source: NBU.

The sector's liquidity is increasing despite the war

The banking sector's liquidity continues to grow thanks to inflows of client deposits. From the onset of full-scale war to November, funding from households and businesses rose by a fifth. Government spending, particularly wages paid to people serving in the military, are the main source of additional liquidity in the system. International assistance and newly-issued funds transferred to the budget by the NBU equal more than half of state budget expenditures in 2022. Therefore, the banks received new resources from outside the Ukrainian private financial system. These large, regular, and long-lasting inflows of additional funds to the banking system make the current crisis quite different to previous ones.

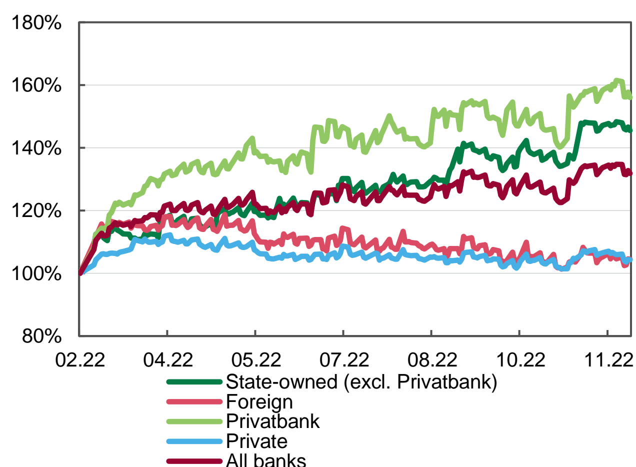
An increase in client deposits meant the banks did not need to take expensive refinancing loans, which they had been taking out actively in the periods of highest uncertainty during the coronavirus crisis and at the start of the full-scale invasion. Their share in funding dropped to a two-year minimum. As a result, in November, the NBU was able to end the practice of offering blank financing as a crisis liquidity support instrument.

Financial institutions serviced and repaid foreign debt, which continued to decrease, and accounted for only 4% of liabilities at the end of Q3. Since the volumes of their external loans were insignificant, the banks did not need to restructure them.

Excess liquidity in the sector is prompting the NBU to act to absorb it

The accumulated excess liquidity in the banking sector and weak response of deposit rates to the change in the key policy rate are forcing the NBU to start mopping up liquidity. From January 2023, the banks' reserve requirements for hryvnia and foreign-currency demand deposits will grow by 5 pp, to 5% and 15% respectively. Following this decision, the banks will have to maintain larger balances on their correspondent accounts with the NBU in order to meet reserve requirements. The banks can partially meet reserve requirements by holding specific domestic government debt securities on their balance sheets. Increasing reserve requirements will not absorb all of the excess liquidity, but will encourage the banks to put more effort in managing their funding. In particular, they will have more stimuli to encourage inflows of term deposits through raising their deposit rates. Going forward, the NBU can continue raising reserve requirement ratios.

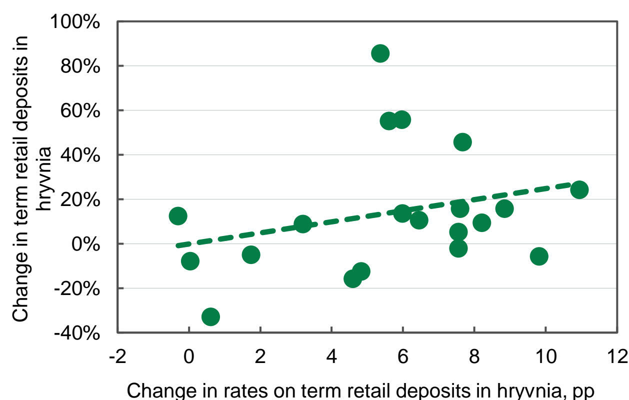
Figure 3.2.3. Hryvnia retail deposits by groups of banks, 24 February 2022 = 100%*



* At banks solvent as of 1 December 2022.

Source: NBU.

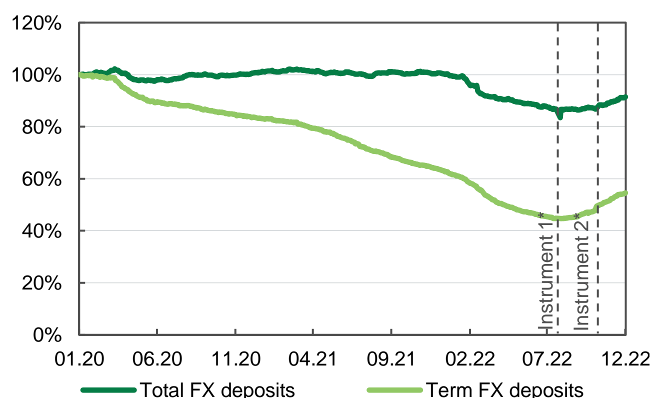
Figure 3.2.4. Change in term deposit rates and inflow of retail deposits in hryvnia*, June–November 2022



* At 20 largest banks in terms of retail term deposits in hryvnia as of 1 December 2022.

Source: NBU.

Figure 3.2.5. FX retail deposits, USD equivalent, 1 January 2020 = 100%



* The NBU allowed Ukrainian citizens to buy cashless foreign currency to put on a term deposit: Instrument 1 – up to the equivalent of UAH 50,000 for a period of 3 months or more (later increased to UAH 100,000); Instrument 2 – at the official exchange rate, for 6 months or more, with mandatory conversion into hryvnias on maturity, with no limit on the amount.

Source: NBU.

Mixed dynamics established in hryvnia retail deposits across the banks

The increase in hryvnia retail deposits in the banks was driven by a rise in nominal household income, primarily due to payments made to people serving in the military. From June, retail deposits have been growing primarily at the state-owned banks Privatbank and Oschadbank: they maintain the larger shares of accounts of people serving in the military, as well as the social accounts in which government transfers to households accumulate. Retail deposits have been declining in H2 at private Ukrainian and foreign-owned banks. Only some of financial institutions from these categories managed to secure inflows of funds thanks to their competitive fees and the convenience of their products and services.

In order to stabilize volumes of hryvnia retail deposits, and taking into account the key policy rate hike by the NBU, the banks started to gradually raise their deposit rates in July. Subsequently, hryvnia term deposits started to grow for the first time since the onset of large-scale russian aggression. However, their share still remains less than a third. The banks that were short of liquidity or that wanted to replace expensive NBU refinancing loans were more active in raising their rates.

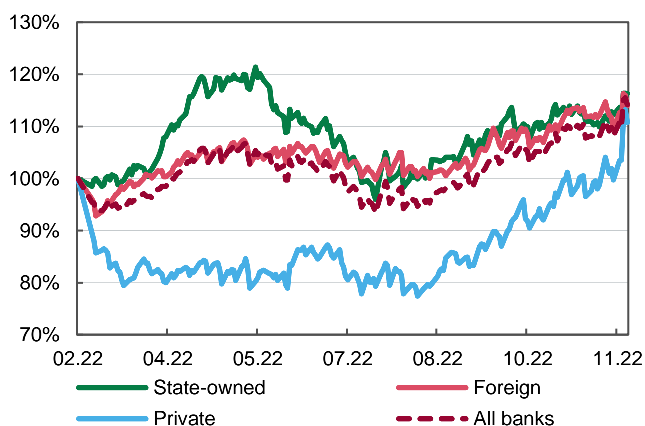
However, with the current low deposit interest rates, hryvnia deposits only moderately compensate for inflation and depreciation risks. If deposit rates do not rise further, volumes of retail term deposits in hryvnia will continue to drop at a number of banks. As retail term deposits are the most stable funding component, a decrease in their share of overall deposits could push up liquidity risks.

Retail FX term deposits have grown for the first time since the coronavirus crisis

After russia started its military aggression, individuals started to gradually withdraw their FX funds from the banks. The share of retail term deposits in foreign currencies has already been shrinking since the start of the coronavirus crisis due to interest rates being almost zero. This trend accelerated this year (Figure 3.2.7). In July, this tendency reversed, thanks to individuals being allowed to buy FX cash to make term deposits. Later this trend reinforced thanks to an increase in the limit on foreign currency purchases and the introduction of a new instrument that offered a hedge of savings against changes in the official exchange rate. As a result, retail term deposits in foreign currencies grew as a share of total funding, approaching the levels of February. FX term deposits increased across all groups of banks. This is a positive tendency. However, there is a risk that funds from a large share of deposits, as they mature, are likely to remain on current accounts or to be gradually withdrawn through cash desks.

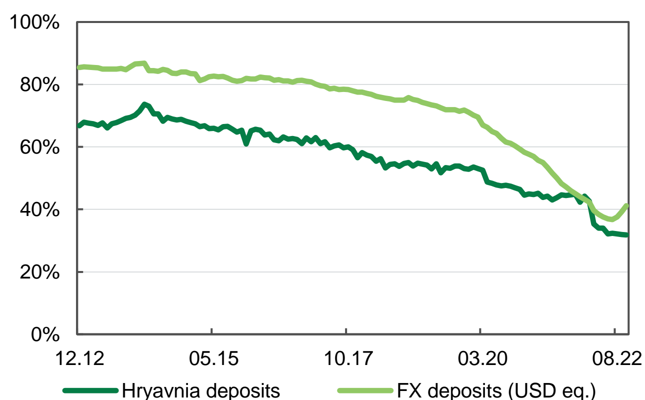
The banks have a limited number of options for placing FX funds, particularly due to the continued decrease in demand for FX loans. Therefore, the financial institutions keep their spare FX liquidity on correspondent accounts in the strongest foreign banks or in foreign sovereign debt securities rated AA-/Aa3 or higher. As client deposits are mostly held in high-quality liquid assets, the banks face almost no FX risks and

Figure 3.2.6. Hryvnia corporate deposits by group of banks, 23 February 2022 = 100%



Source: NBU.

Figure 3.2.7. Shares of retail term deposits by currency*



* At banks solvent as of 1 December 2022.

Source: NBU.

liquidity risks. At the same time, as yields on FX assets rise, the banks may also raise rates on FX deposits.

Corporate deposits grew as businesses adapted to working in wartime

The dynamics of corporate deposits with banks are related to the level of economic activity. A decrease in corporate deposit inflows in early summer increased the competition between the banks for such deposits, prompting them to raise their deposit rates. In autumn, account balances started to grow across all groups of banks as business activity picked up. Larger volumes of corporate deposits ensure more even access of the banks to funding, while inflows of retail deposits are concentrated on several financial institutions – primarily the state-owned banks.

In the near future, russia's attacks on critical infrastructure and related blackouts will dampen business activity, leading to a decline in inflows of corporate deposits to the banks. This will push up liquidity pressures and spur competition for client deposits.

The term structure of funding has deteriorated, and liquidity risks persist

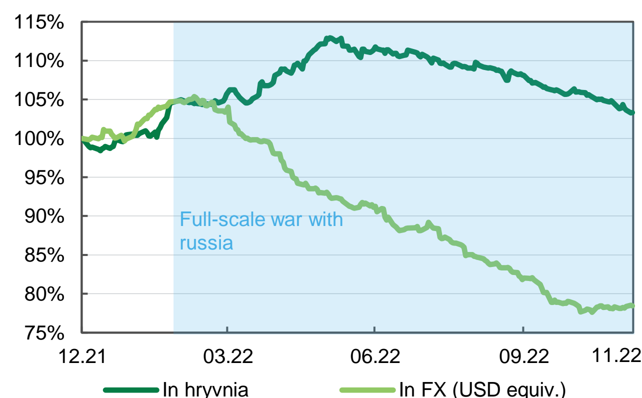
The majority of the banks are complying with liquidity ratios by a comfortable margin, and the share of high-quality liquid assets on the balance sheets of the financial institutions is growing. However, most of the funds flowing into the banks remain on current accounts, which affects the term structure of funding. In particular, the share of retail term deposits in all currencies dropped from 43% in the pre-invasion period to 35% as of the end of October. Moreover, a number of medium-sized and small banks faced outflows of retail and corporate deposits. As of the start of November, the balances of client deposits decreased compared to February at 25 banks, which together held around 8% of the sector's net assets.

According to the Lending Survey, the majority of banks do not forecast a rise in liquidity risks in the near future. However, amid war and uncertainty the materialization of these risks might be very rapid. Therefore, while being confident of the low probability of liquidity risks materializing, the banks must still be fully prepared for this eventuality. The list of measures to be taken in the event of liquidity risks materializing must be regularly revised as part of business recovery and crisis funding plans.

3.3. Corporate Lending Risk

Having grown in H1 2022, the net hryvnia corporate loan portfolio started to shrink in H2. The FX portfolio is falling rapidly. Because of the deep recession and slow recovery of the economy, demand for credit is subdued. The banks have limited their lending to providig loans to their existing clients or participating in government support programs. Since February, the banks have reported overall losses of 9% of their performing loans. About 15% of the portfolio will encounter significant servicing problems if current conditions persist, the NBU estimates. The protracted nature of the war and the large-scale destruction of energy infrastructure are driving up credit risks in the corporate segment. The banks' total losses from credit risk will therefore increase going forward. The banks should not delay in recognizing these risks.

Figure 3.3.1. Net corporate loans, Dec. 2021 = 100%



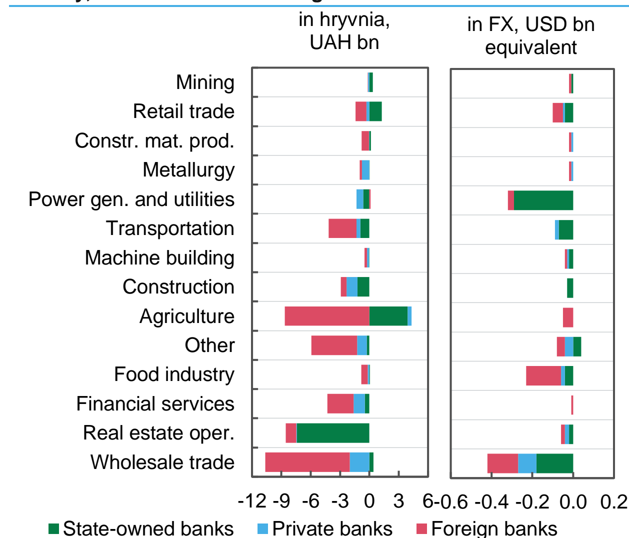
Issued by banks that were solvent as of 1 December 2022.
Source: NBU.

The corporate loan portfolio is shrinking due to subdued demand

The banks are lending to businesses even as the war grinds on, which is why the hryvnia corporate loan portfolio grew in H1 2022. However, this trend was interrupted in H2. From its peak in June, the net hryvnia corporate loan portfolio fell by 7%, and the gross hryvnia loan portfolio by 3%. The reduction in the net portfolio is driven by two components: suppressed demand and provisioning for incurred and expected credit losses. Since June, when strong demand for loans to fund the springtime sowing of crops waned, loan repayments have generally exceeded newly made loans. Also since that time, the banks stepped up loan loss provisioning.

Corporate loan demand is directly related to business activity. Production remains far below pre-war levels (see the Q3 2022 Business Outlook Survey). Businesses expect a further drop in the volumes of production, services, and trade turnover (see the November 2022 Monthly Survey of Ukrainian Enterprises). Because of a decreased need for working capital, the oustanding loans of large foreign corporations have declined. Because of high uncertainty, capital investment is almost non-existent. Thus, there is little to no demand for long-term credit. The fallout from the massive attacks on energy infrastructure will have a further adverse impact on production levels and loan demand.

Figure 3.3.2. Change in gross performing corporate loans by industry, from 1 June 2022 through 1 December 2022



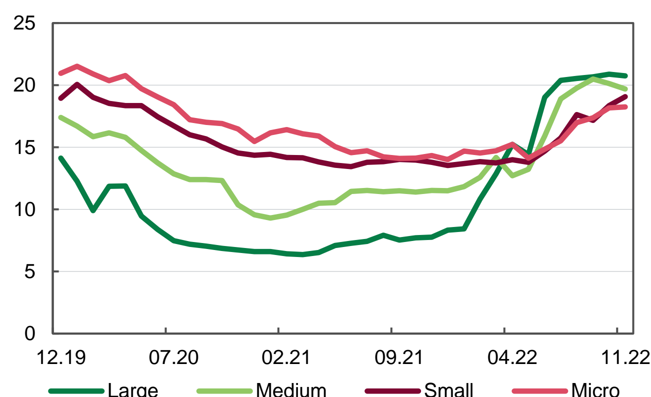
Issued by banks that were solvent as of 1 December 2022.
Source: NBU.

The banks' risk appetites have decreased, hryvnia lending continues under state programs

The banks are extremely cautious about lending in wartime. Over the past three quarters, business loan approval requirements have been increasingly hard to meet, and lending standards have been tightening, the banks estimate (see the Q4 2022 Bank Lending Survey). Existing customers that have a good credit history with a bank have an easier time getting their loan applications approved. The banks compensate for increased risks by charging higher interest rates on loans.

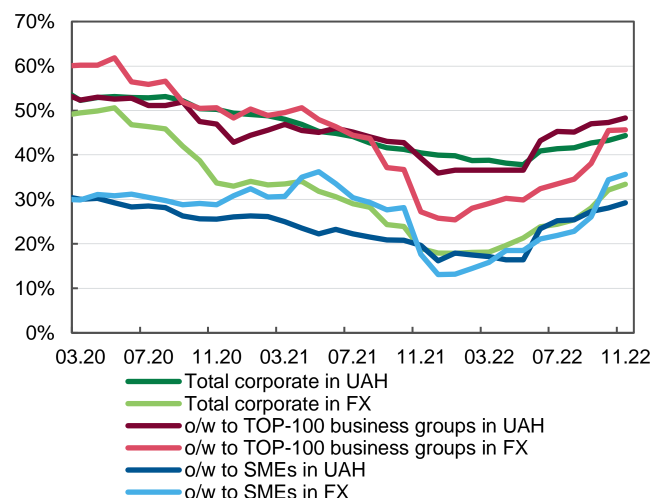
Access to cheap loans under the state support program Affordable Loans 5–7–9% will continue. However, after the spring surge in agricultural lending, activity within this program declined. New loans are being granted, but they are not making up for the loss of interest and principal on previously made loans. As a result, gross outstanding debt within the program decreased in October, for the first time since the program's launch. Most loans granted in H2 2022 under the state support program are provided to farmers and traders. Only in these sectors has the loan portfolio been expanding somewhat. Most of the lenders are state-owned banks. The banks in other groups are working with a portfolio

Figure 3.3.3. Rates on new hryvnia loans to non-financial corporations



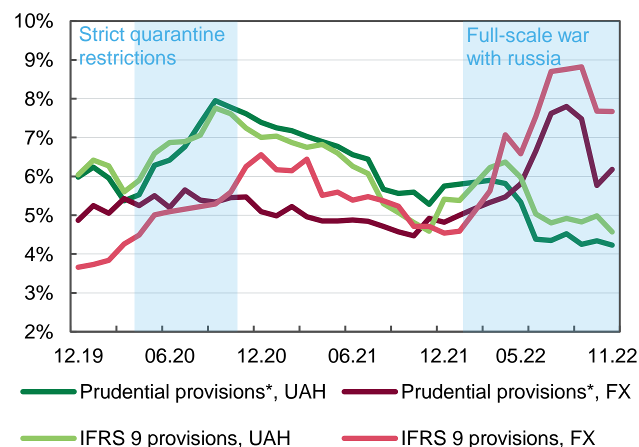
Issued by banks that were solvent as of 1 December 2022.
Source: NBU.

Figure 3.3.4. NPL ratio



Issued by banks that were solvent as of 1 December 2022.
Source: NBU.

Figure 3.3.5. Provision coverage of performing corporate loans



* Credit risk according to Regulation No. 351.
Issued by banks that were solvent as of 1 December 2022.
Source: NBU.

that was primarily formed before the war and that is gradually shrinking. The 5–7–9% program will remain the key driver of hryvnia corporate lending if high risks persist.

FX lending is rapidly declining

Neither the banks nor borrowers find FX loans attractive under current conditions. The banks polled in the Bank Lending Survey highlighted a record drop in demand for FX loans. Borrowers are reluctant to take on currency risks amid high depreciation expectations. Since the outbreak of the full-scale war, a quarter of the net portfolio has been repaid, some of it early. Given existing risks, the FX loan portfolio will continue to shrink.

The banks are postponing the recognition of losses from the credit risk of the corporate portfolio

The banks have begun to recognize credit losses, but their full extent will become clear only over time. After martial law was imposed, 13% of the corporate portfolio defaulted. By the beginning of December, the NPL ratio had risen to 40.5%. The banks assign NPL status to loans that cannot be serviced without seizing their collateral. Two-thirds of new NPLs have been recognized as such due to falling more than 90 days overdue. The requirement to take into account the number of overdue days was suspended at the onset of the war, but was reinstated in the summer. If clients are having difficulties servicing loans, the banks offer options to restore their solvency. Since the war broke out, 9% of the hryvnia corporate portfolio and 20% of the FX corporate portfolio has been restructured. Private and foreign banks have been more active in restructuring than state-owned banks since the beginning of hostilities.

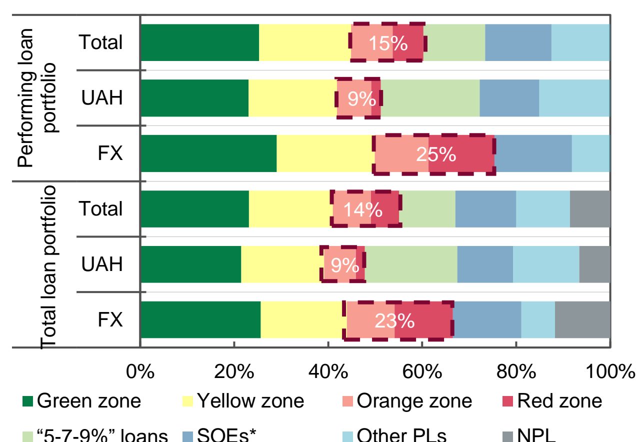
Since February, the banks have recorded total credit losses of 9% of the pre-war net corporate loan portfolio. Provisions were primarily made for loans that became NPLs. Conversely, the coverage of performing hryvnia corporate loans by provisions has declined, while the coverage of FX loans has only slightly risen compared to the start of the year. The banks keeping their credit loss estimates for the performing portfolio at pre-war levels may indicate that they are using faulty models or making overly optimistic macroeconomic assumptions.

Losses from the deterioration of portfolio quality will increase

The NBU has conducted an in-depth analysis of the largest corporate borrowers that owed the banks a total of at least UAH 20 million as of 1 December 2022. Combined, these borrowers make up 60% of the net portfolio. Loans granted under the 5–7–9% program and loans to state-owned companies were left out of that study. Lending to these businesses increased in the first two months of martial law and remained almost unchanged thereafter. The sample of borrowers was broken down into four risk zones:

- **Green zone**: borrowers that historically had acceptable debt ratios, with core assets located outside of the warzone and unscathed by hostilities. For FX loans: borrowers that had FX revenues or FX-linked revenues.

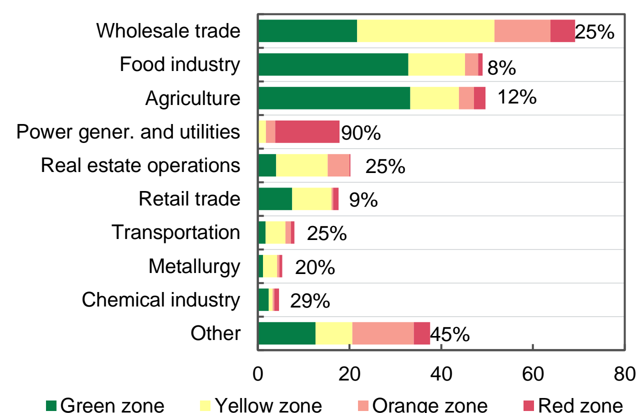
Figure 3.3.6. Net corporate loans, estimated quality as of 1 December 2022



The 1,090 largest corporate loans were analyzed. The classification approaches are explained in the text. * State-owned enterprises.

Source: NBU.

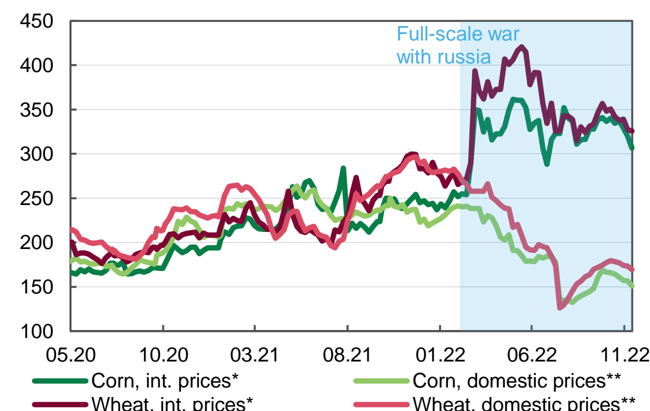
Figure 3.3.7. Distribution of net loans to borrowers from major industries, by risk zone, as of 1 December 2022, UAH billions



The 1,090 largest corporate loans were analyzed. The classification approaches are explained in the text. The sector's performing loans ratio in the orange and red zones is indicated as a percentage (excluding state-owned enterprises).

Source: NBU.

Figure 3.3.8. International and domestic grain prices, EUR/t



* On CPT (Euronext) terms, futures.
** On EXW terms.

Source: APK-inform, NBU estimates.

- **Yellow zone**: borrowers that were affected by at least one of the risk factors: non-critical deteriorations in business conditions due to the partial loss of property and equipment; certain assets being located in regions adjacent to the warzone. For FX loans: borrowers that did not have FX or FX-linked revenues.
- **Orange zone**: borrowers that had at least one risk factor: a russian citizen as their ultimate beneficial owner; most assets located near the war zone; borrowers' loans at other banks recognized as NPLs in the past month. For FX loans, in addition: borrowers with no sources of FX revenue.
- **Red zone**: borrowers that were exposed to several risk factors: being located in or close to the warzone; suffering heavy destruction of fixed assets and loss of important property and equipment. Borrowers were in sectors that face significant risks of losing income (green energy, real estate). Borrowers' loans in other banks were recognized as NPLs in the previous month. For FX loans, in addition: borrowers had no sources of FX revenues.

Businesses owned by large groups were evaluated together and assigned to the same zones. If a business group reported losses of major assets, smaller related businesses were automatically categorized as running additional risks.

The results of the assessment indicate that 15% of the performing portfolio will have significant difficulties in debt servicing. The FX portfolio is riskier than the hryvnia one, in part due to the lack of FX earnings at a number of companies. Going forward, it is highly likely that a significant share of the borrowers in the orange and red zones will fail to make timely payments on their debts. Coupled with the already recorded 9% in losses, this implies a loss of 20% of the pre-war performing portfolio.

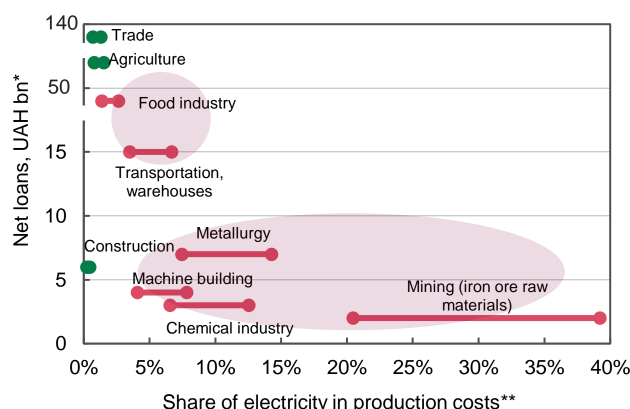
Threats that credit risks will grow further remain high

The revival of economic activity in the summer and autumn helped enhance the payment discipline of a number of borrowers. However, risks of a further decline in the production and revenues of businesses persist.

Small- and medium-sized agricultural producers' access to the grain corridor is limited. The current gap between domestic and export prices for agricultural goods reduces the potential of producers to earn their planned revenues. Because of a number of adverse factors, the volume of sown winter crops plunged by almost 40% this year. Farmers are expected to use less fertilizer and fewer plant protection products, potentially leading to lower crop yields next year.

Massive attacks on energy infrastructure have exposed borrowers to significant losses. In addition to reducing production, these attacks are deepening existing supply chain disruptions. As a result of interrupted operations and increased production costs, the solvency of businesses in most sectors will deteriorate. This effect will be most pronounced in the energy-intensive sectors of the mining, chemical, and metallurgical industries, which may suspend production. Due to production cycle disruptions, from

Figure 3.3.9. Net loans to real sector companies and the share of electricity in production costs



* Loans over UAH 2 million, as of 1 November 2022.
** The share of electricity costs was calculated as the amount of electricity consumed by the industry in 2020 multiplied by the lowest and highest prices charged by power providers (the lower and upper values, respectively) and divided by the costs of production of goods in 2020, excluding depreciation and amortization, labor costs, and deductions for social events.

Source: SSSU, Ukrenergo, NBU estimates.

manufacturing or cultivation to storage of finished goods, the food industry will suffer losses.

In June, the NBU estimated that the banks' may lose at least 20% of their loan portfolio. Considering the recent adverse circumstances, minimum loan portfolio losses may actually approach 30%.

Table 1. State of corporate loan portfolio as of 1 December 2022

No.	Name of the industry	Gross performing loans			Loan migrating* to NPLs in 12 months		NPL ratio**, %	Distribution of loan volume by administrative regions of actual operational activity*** of corporate borrower, %				Distribution of loans under "Affordable loans 5-7-9%" (out of UAH 95 bn)
		total, UAH bn	SMEs in UAH bn	credit risk coverage, %	by quantity, %	by debt amount, %		liberated		intensive hostilities	other	
								in the spring	in the autumn			
1	Agriculture	103	75	4.1%	17.4%	12.4%	12.8%	29%	5%	1%	65%	56.3%
2	Mining	3	1	6.2%	21.7%	21.3%	32.8%	2%	18%	0%	80%	0.4%
3	Food industry	61	17	4.6%	11.0%	11.7%	24.2%	26%	9%	3%	62%	7.2%
4	Light industry	2	2	3.9%	6.1%	24.1%	27.9%	10%	2%	0%	87%	0.6%
5	Chemical industry	8	5	2.3%	9.1%	6.2%	22.1%	30%	13%	0%	58%	2.6%
6	Production of construction materials	5	2	3.8%	14.5%	13.9%	13.4%	39%	11%	0%	50%	0.7%
7	Metallurgy	7	4	2.8%	15.6%	43.0%	45.0%	13%	7%	3%	77%	1.6%
8	Machine building	7	3	3.4%	19.5%	28.9%	62.5%	12%	12%	5%	70%	1.4%
9	Electricity supply and other utilities	26	17	9.1%	16.7%	41.7%	46.8%	26%	21%	2%	50%	0.3%
	o/w green power generation	20	15	10.4%	18.6%	33.9%	42.7%	7%	28%	3%	61%	-
10	Construction	6	3	4.3%	24.1%	54.4%	68.0%	33%	2%	0%	65%	1.5%
11	Sale of vehicles	4	2	2.9%	6.6%	7.1%	24.8%	41%	16%	2%	41%	1.3%
12	Wholesale trade	96	41	5.2%	11.2%	14.7%	19.6%	33%	12%	3%	51%	17.3%
13	Retail trade	24	4	4.8%	8.2%	2.8%	20.6%	30%	6%	6%	58%	2.5%
14	Transportation	13	7	5.4%	14.4%	14.4%	22.0%	40%	13%	1%	46%	1.7%
15	Hotels	6	6	29.3%	13.3%	9.7%	10.3%	95%	0%	0%	5%	0.1%
16	Real estate transactions	27	19	8.1%	18.8%	33.6%	62.8%	76%	0%	1%	23%	0.4%
	o/w commecrcial real estate	16	10	7.4%	18.7%	36.8%	70.2%	87%	7%	1%	5%	0.0%
17	Financial services	6	4	10.7%	14.9%	19.6%	24.3%	86%	0%	1%	13%	0.1%
18	Other	23	11	3.5%	14.2%	13.1%	19.0%	73%	2%	1%	24%	4.2%
19	State-owned enterprises	71	3	4.1%	10.0%	3.0%	6.6%	19%	20%	17%	43%	-
	Total	**498**	**227**	**5.2%**	**14.4%**	**14.7%**	**27.1%**	**34%**	**11%**	**5%**	**49%**	**100%**

Issued by banks that were solvent as of 1 December 2022. For loans over UAH 2 million as of 1 December 2022.
* The ratio of the number or amount of debt of borrowers whose loans have changed from performing to non-performing within 12 months in accordance with the requirements of Regulation No. 351.
** The calculation of the NPL ratio does not include Privatbank loans granted to companies related to former shareholders and individuals affiliated with them (taking into account such loans, the total NPL ratio is 40.5%).
*** Distribution by volume of loans by administrative region of actual operational activity, according to the survey of the banks on 1 July 2022 (72% of the performing corporate portfolio): "liberated in the spring" – city of Kyiv and Kyiv, Sumy, and Chernihiv oblasts; "liberated in the autumn" – Kharkiv and Mykolaiv oblasts; "active battle zone" – Donetsk, Luhansk, Zaporizhzhia, and Kherson oblasts.

Source: NBU.

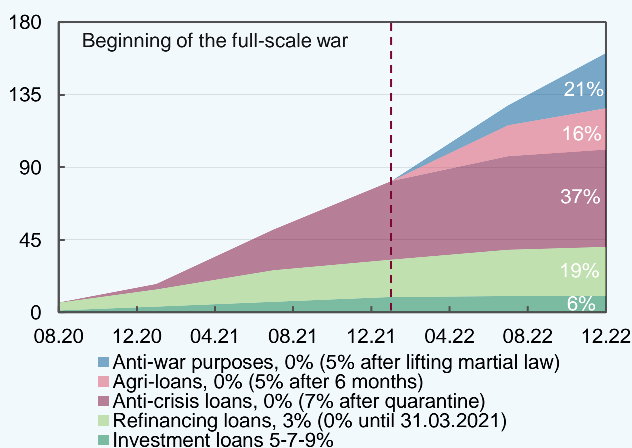
Box 1. Affordable Loans 5–7–9% Program Is the Driver of Corporate Lending

The Affordable Loans 5–7–9% state support program was launched in 2020 to stimulate investment lending. From the first months following its launch, the program's focus shifted to anti-crisis lending to support businesses, first during the quarantine and then during the war. In crisis conditions, state support began to play a key role in lending. The program will retain its importance in 2023.

The state program Affordable Loans 5–7–9% commenced in February 2020. The program's only purpose at first was to facilitate access by sole proprietors, small and micro-enterprises to bank lending to implement investment projects. The program is based on a mechanism of partial compensation of interest rates. The interest rate on a loan provided by a bank is determined by market conditions: a spread that covers operating costs and credit risks and ensures profitability is added to the cost of deposits. The latter is measured by the UIRD, an index of rates on three-month deposits. The banks are essentially compensated at a floating rate that is revised quarterly as the UIRD changes. At the start of the program, the loan rate was 17%–19%. However, the borrower had to pay only a fixed low rate of 5% to 9%. The Business Development Fund (hereinafter the Fund) uses budget funds to compensate the difference to the bank.

The program got off to a slow start due to subdued demand for investment loans and because of the low cap on the loans of UAH 1.5 million. In addition, the COVID-19 pandemic and quarantine complicated business conditions. As a result, the program's terms changed in April 2020. Two new areas were added: anti-crisis loans (first at 3%, then at 0% from December 2020) and loans to refinance existing debt (0% until the end of March 2021, then 3%). The maximum loan size was raised to UAH 3 million for the first time (this cap was subsequently revised several times). This jump-started the program's development.

Figure B.1.1. Total amount of signed contracts by area of support, UAH billions



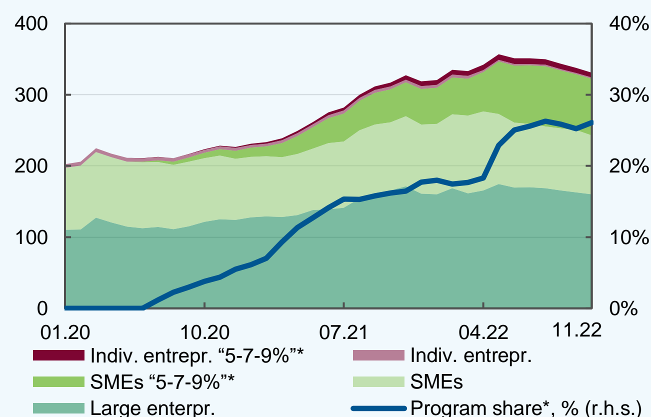
The shares of different areas of support in the total amount of contracts are indicated in %, as of 19 December 2022.

Source: Business Development Fund, MoF.

After russia launched its full-scale invasion, the program was expanded by two new areas in March 2022: support for the crop sowing campaign, and loans to overcome the consequences of the war. Initially, borrowers paid 0% interest on loans in these areas. Further changes removed the restrictions on the size of businesses participating in the program. In October, a mechanism with a 9% interest rate was added to restore production capacities destroyed by the war.

The program gradually became an engine of lending. In 2020, loans granted under the program accounted for 5% of the net hryvnia corporate portfolio. In 2021, this share reached 18%. As of December 2022, it stood at 26%. In the wartime year of 2022, lending took place almost exclusively through the program. By mid-December 2022, UAH 161 billion in loans under 52,000 loan agreements had been approved in all areas. The total amount of outstanding loans was about UAH 95 billion.

Figure B.1.2. Net hryvnia loans to businesses, UAH billions



* Selection of borrowers of the "5-7-9%" program as of 1 July 2022.

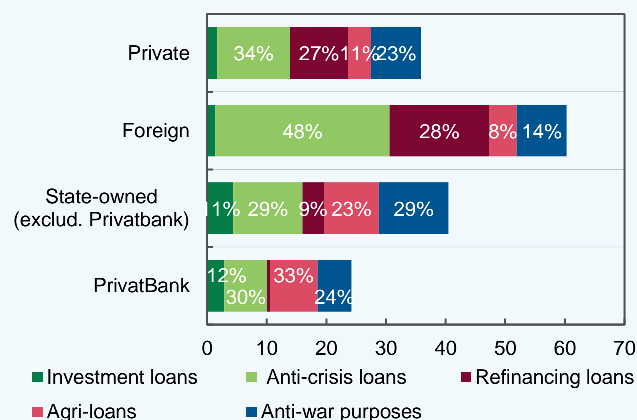
Source: Business Development Fund, NBU estimates.

The program outlines only general requirements for borrowers. The ultimate choice of clients is up to the bank. Since the program's inception, lenders have approved about 60% of the loan applications. The main reasons for rejection have been a weak business plan, insufficient solvency, a tarnished business reputation, and a lack of proper reporting.

The loan portfolio remains dominated by loans to agricultural producers. As of mid-December, 53% of approved loans went to agriculture, 24% to retail, and 14% to industry.

Currently, 45 banks are taking part in the program. By volume, state-owned banks account for 40% of all approved loans. The banks of foreign banking groups make up about the same share. In most banks, anti-crisis (COVID-19-relief) loans account for the majority of the loans made. State-owned banks in 2022 granted sowing-support loans more actively, while private Ukrainian and foreign banks have a high share of refinancing loans.

Figure B.1.3. Total amount of signed contracts, by area of support and by groups of banks, UAH billions



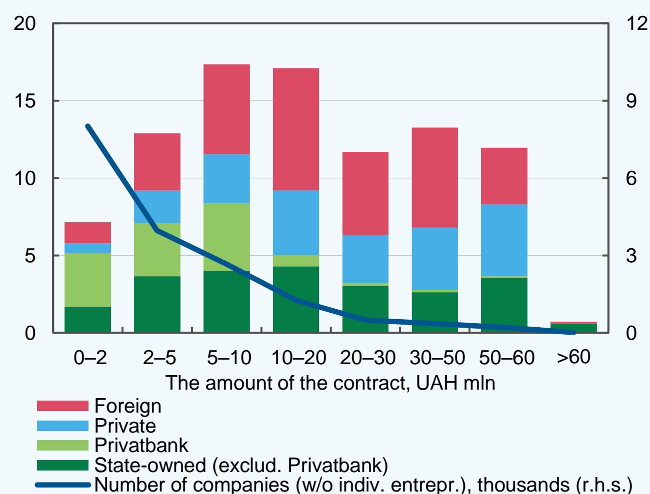
The shares of the different ways of support in the total amount of contracts by group of banks are indicated in %, as of 19 December 2022.

Source: Business Development Fund, MoF.

Through state support, the banks have provided funding to clients that had not actively used bank services in the past. About half of the corporate borrowers who joined the program in 2022 had not taken out any bank loans for at least the previous two years. However, not all new borrowers are independent. Some 40% of them belong to larger groups of companies.

The average size of the loans granted during the program's existence is about UAH 3 million. By number, smaller loans to sole proprietors and micro-enterprises predominate in the portfolio. With the onset of full-scale war, however, the volumes of new loans increased significantly as the program expanded to cover companies of all sizes and the government removed the cap on the amount of state support granted during martial law.

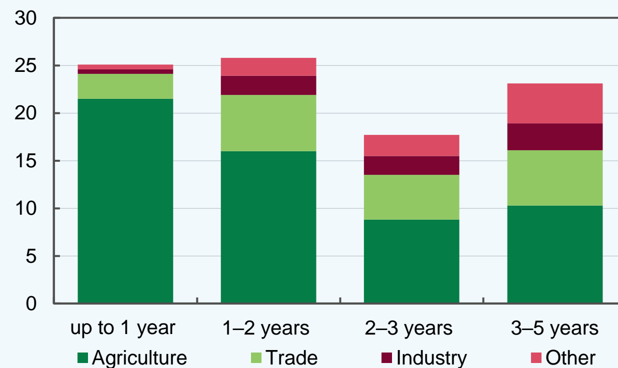
Figure B.1.4. Distribution of loans of program participants, by amount and group of banks*, UAH billions



* Borrowers as of 1 July 2022.

Source: Business Development Fund, NBU staff estimates.

Figure B.1.5. Loan time to maturity*, UAH billions

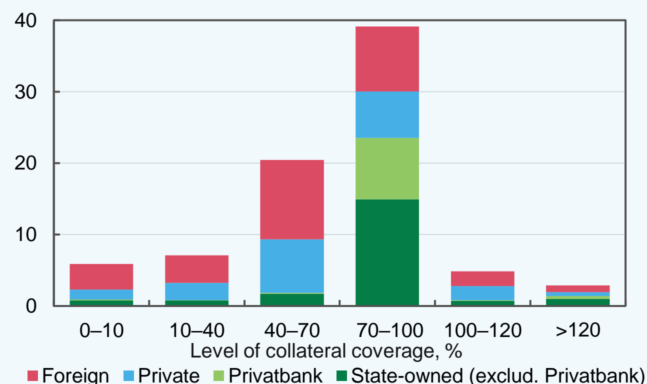


* Borrowers as of 1 July 2022.

Source: Business Development Fund, NBU estimates.

Borrowers appreciate favorable terms and, to maintain access to the program, diligently service their loans. This kept the quality of loan servicing very high for a long time. In 2020–2021, the program's NPL ratio was under 1%. During the full-scale war, however, the NPL ratio has surged, to 8% in early November.

Figure B.1.6. Performing loans, by collateral coverage ratio and by group of banks*, UAH billions



* Borrowers as of 1 July 2022 (for loans over UAH 2 million), in banks solvent as of 1 November 2022.

Source: Business Development Fund, NBU estimates.

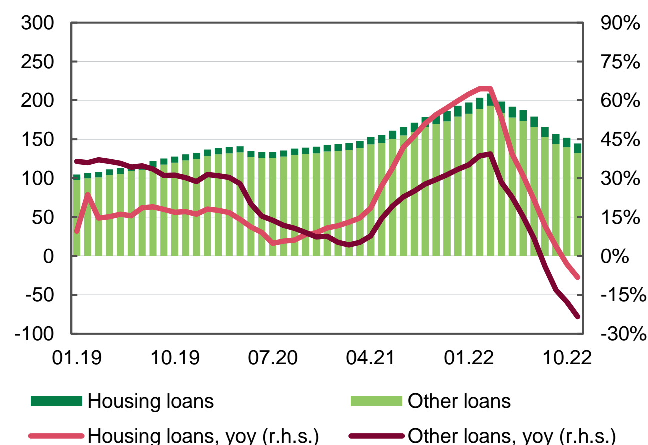
The prevalence of zero-rate loans, rising market interest rates, and rapid portfolio growth have significantly increased the government's expenses on funding the program. This year, instead of the previously planned UAH 3 billion, the Fund will require more than UAH 9 billion. These expenses have been included in the state budget, but their disbursement has run into delays. As of 1 November, the debt amounted to UAH 2.6 billion, the equivalent of two months' worth of interest compensation. This debt deters the banks from further using the program.

In wartime, state support is key to maintaining businesses' access to loans. The Affordable Loans 5–7–9% program will therefore continue to play an important role in 2023. As expanding the program will require additional resources, its design needs to be optimized. Most enterprises have already adapted to work in wartime conditions and resumed production. Therefore, it is worth considering the possibility of raising rates. The program needs a separate design for agricultural producers, taking into account the difficulties with sales of the harvest due to disrupted logistics.

3.4. Retail Lending Risk

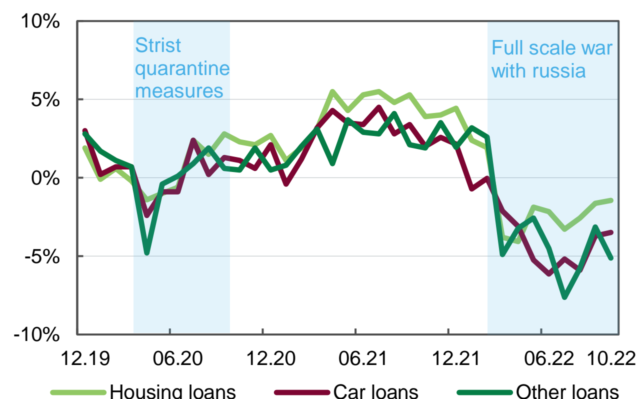
The retail loan portfolio continued to shrink on the back of credit risk losses and sluggish new lending. Loan demand, which is mainly driven by consumption, will remain depressed for a long time. Lending is held back by a lack of effective demand, coupled with the banks' reasonably prudent lending standards, which tightened even more in wartime. The banks have already recognized substantial losses from household loans. The ratio of nonperforming loans increased by 14 pp between early February and November, and is expected to keep on rising.

Figure 3.4.1. **Net hryvnia retail loans, UAH billions**



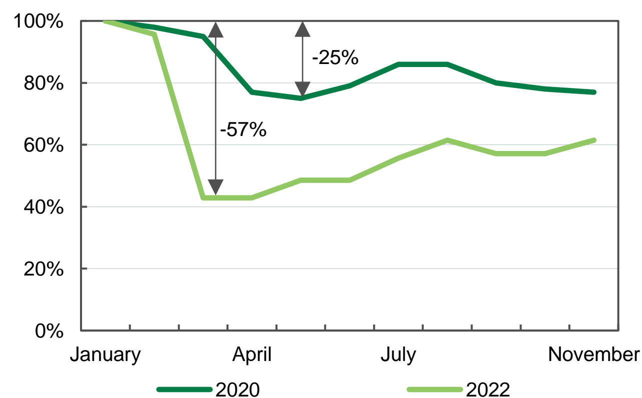
At banks that were solvent as of 1 December 2022.
Source: NBU.

Figure 3.4.2. **Change in net loans, mom**



At banks that were solvent as of 1 December 2022.
Source: NBU.

Figure 3.4.3. **Google searches for "loan"*, January 2022 = 100%**



* Based on the monthly average number of searches for the word "loan".
Source: Google trends.

The retail loan portfolio is contracting because of provisioning and low demand

The retail loan portfolio has been steadily declining since the outbreak of full-scale war. In November, net unsecured consumer loans and car loans dropped by 30% on January, while mortgages decreased by 17%. The reasons for the decline in the net portfolio are the materialization of credit risk and sluggish new lending, which is failing to offset current loan repayments. Provisioning is primarily responsible for the decline in the volume of unsecured consumer loans. Meanwhile, the mortgage and car portfolio is shrinking, mainly thanks to repayments of existing loans, as new loans have not been issued for a long time. The losses from credit risk arising from mortgages and car loans are smaller than those for unsecured loans.

Loan demand is reviving very slowly

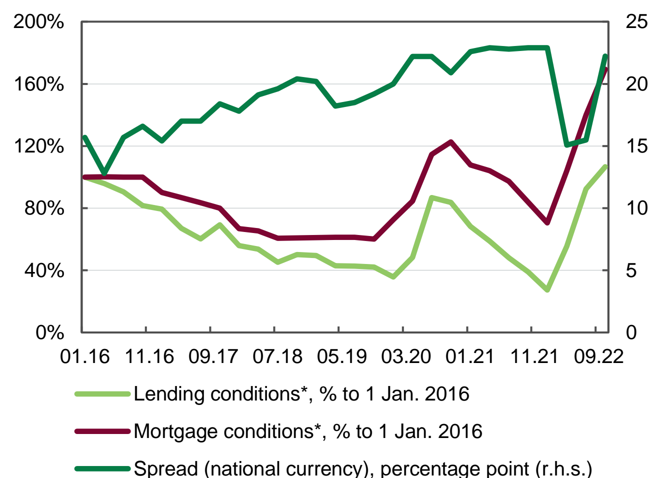
Household demand for loans depends on consumption, which is weak at the moment – among other things, this demand is fueled by the propensity to make big purchases. A clear indicator of interest in taking out loans is the change in the number of searches for loan offers on the Internet. The number of searches for the word "loan" in March dropped by 57% compared to February. This is twice as much as in 2020, when tight quarantine restrictions were in place. Although the number of searches has been growing gradually since May, it is still well below its pre-war level.

The gloomy outlook for the real estate market (see Corporate Lending Risks Section) effectively halted mortgage lending in the first months after the start of the full-scale invasion. In spite of the need of many displaced persons for new housing, high security risks and households' worsened financial standings are making it impossible for the mortgage market to function as usual and develop. Only the secondary market is seeing a small amount of demand for housing. Despite there being several government lending support programs, only few new mortgages are being issued.

The banks retain their conservative approach to lending

The banks' supply of loans decreased along with the drop in household demand for loans. Lending surveys show that the banks for three quarters running have been reporting tighter lending standards and a decrease in the number of approved loan applications, for both unsecured consumer loans and mortgages. The banks projected their lending standards to tighten further. The decline in the bank's lending activity is also seen in a marked cut in their marketing expenses, which the financial institutions stepped up before the war to attract customers. The share of click-paid traffic to bank's sites has also decreased.

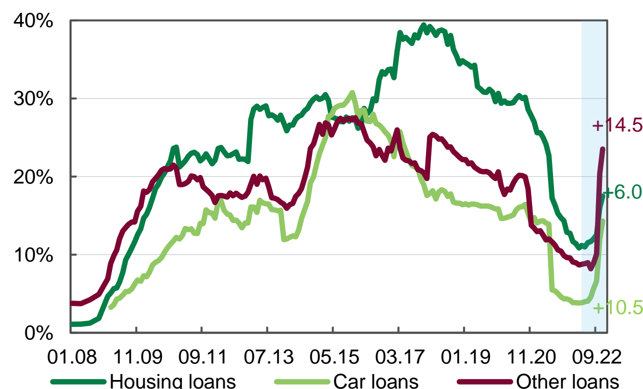
Figure 3.4.4. Lending standards for households



* The line reflects the cumulative change in the balances of responses to the quarterly lending survey question about how the criteria for approving household loan applications have changed during the current quarter.

Source: NBU.

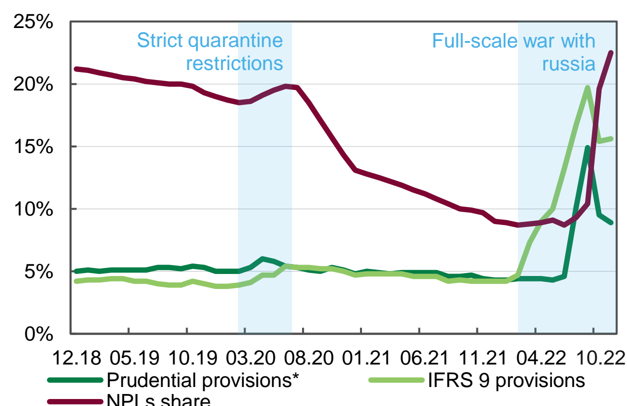
Figure 3.4.5. Share of hryvnia retail NPLs



The blue area stands for the 2022 crisis. At banks that were solvent as of 1 December 2022, excluding one-off outliers. The figures on the graph show change in NPL ratio in pp on early February 2022.

Source: NBU.

Figure 3.4.6. Provisioning for performing loans and the share of hryvnia retail NPLs



* Credit risk according to Regulation No. 351.

Source: NBU.

In summer, the banks rolled back their loan repayment holidays, which also meant raising interest rates on loans to their pre-war levels and tightening price conditions for lending. The tightening of lending standards is justified by the difficulty in assessing the solvency of borrowers, and great uncertainty about their future income and ability to service loans.

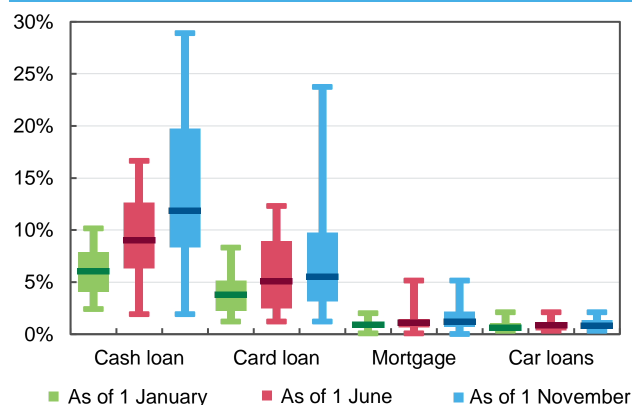
The cancellation of some regulatory relaxations has revealed a significant decline in loan quality

The quality of consumer loans is degrading rapidly on the back of a drop in real household income, higher expenses arising from forced relocation, and purchases of equipment to be used in blackouts. Loan repayments falling past due are the main indicator of a worsening loan portfolio. When loan repayment holidays were in effect, it was difficult to identify the actual ratio of nonperforming exposures. In June, when the banks started to roll back their loan repayment holidays, the NBU required them to resume calculating the number of days that loan payments have been overdue. Regulatory approaches stipulate that an increase in the number of days that loan payments have been overdue gradually pushes up the prudential provisioning, as set forth in Regulation 351. Over time, this increase leads the banks to classify loans as nonperforming. Therefore, the reimposition of regulatory requirements resulted in an increase in prudential provisioning for the performing portfolio. In October, the banks started to classify the loans on which no interest was paid as nonperforming. The share of nonperforming retail loans rose by 14 pp compared to early February, with that of unsecured loans growing the most rapidly. Currently, repayments on another 13% of the performing portfolio are slightly overdue. The bulk of these loans are likely to become nonperforming in the near future and require additional provisioning. Thus, the overall losses from the retail loan portfolio will come close to 30%.

Provisioning for retail loans is responding to higher risks with a lag

The current crisis has once again revealed shortcomings in the banks' approaches to measuring expected credit losses. The banks seldom increase their credit losses estimations in good time in response to worsening macroeconomic conditions and forecasts over the 12-month horizon. In practice, the banks increased, mostly with a lag, these estimations on those portfolios that had already generated significant losses (Figure 3.4.7). Expected credit losses for card and cash loans at stage 1 under IFRS 9 have currently risen, totaling 12% and 6% respectively. Some banks increased their expected credit losses only last autumn. This corresponds to the average losses sustained over the past several years. However, the default ratio was higher during previous crises. Therefore, there is good reason for the banks to increase their expected credit losses further. At the same time, the banks continue to report low parameters for expected credit losses for mortgages and car loans. There are grounds for some optimism here: the lending standards for secured loans have been prudent in recent years. That

Figure 3.4.7. Distribution of expected losses on hryvnia retail loans at stage one under IFRS 9



The faces of the rectangles correspond to the distribution's first and third quartiles. The lines inside the rectangles are medians. The lines extending above and below the rectangles indicate maximum and minimum values.

Source: data from 18 banks surveyed in April, June and November 2022 and NBU estimates.

said, the risks for these portfolios have risen because of the war.

The risk of mortgage portfolio losses arising from the war has declined

The risk that collateral will be destroyed decreased after Ukrainian troops liberated several oblasts that were previously occupied by russia. The share of mortgages secured with collateral located in areas where hostilities are taking place dropped to 4% of the total mortgages issued over the last two years. This is four times less than when the occupation of Ukrainian territory by russia was at its greatest extent.

The banks are relying on the capital cushions they built before the crisis

The capital cushions the banks accumulated before the war enabled them to absorb credit losses from retail loans, largely from unsecured ones. Since 2021, the NBU has required the banks to hold capital buffers for this portfolio, gradually raising risk weights to 150%. In July, the NBU decreased risk weights to 100%, freeing up some of the banks' capital. This capital is enabling the banks to absorb credit losses. The losses from the loan portfolio are also being offset by the interest income from performing share of the portfolio. What is more, the performing retail portfolio is also generating fee and commission income.

The future of the retail portfolio is uncertain

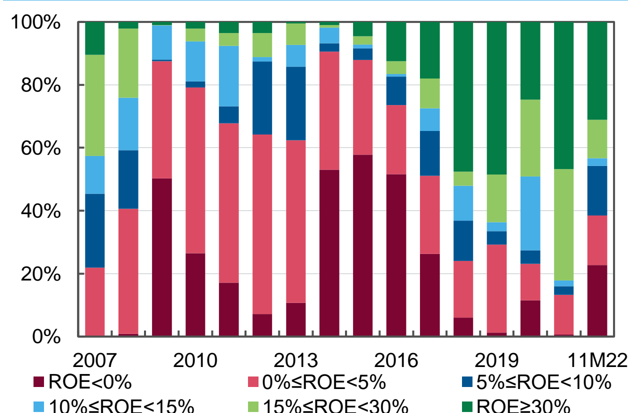
Looking ahead, consumer demand and, consequently, demand for retail loans will remain depressed, while the solvency of borrowers will deteriorate. In Q3 lending survey, the banks referred to the debt burden of households as high for the first time since 2018. Borrowers who are unable to service their loans during the current crisis are likely to be taken off the banks' list of desired customers in future. The coherent recovery of the portfolio is only possible if macroeconomic conditions improve and income rises. Until then, lending will come with higher risks. Government support programs will help shore up the mortgage portfolio. Any protracted decline in the portfolio will pose challenges to the banks' ability to generate profits, especially for those banks whose business models focused mainly on this segment.

The underlying factors fueling a further deterioration in portfolio quality persist: the real income of a large portion of the population is declining, while the unemployment rate remains high. Massive air strikes on the country's energy infrastructure, coupled with a slowdown in economic activity in winter, could worsen the situation still more, increasing the banks' losses.

3.5. Profitability Risk

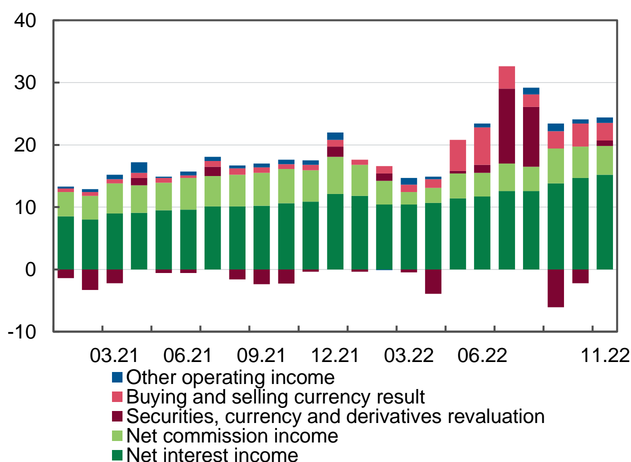
Despite the war, the banking sector remains operationally efficient and is continuing to generate a net profit. Net interest income rose markedly, largely thanks to inflows of liquidity into the banking sector and growth in income-generating assets. The banks' fee and commission income gradually recovered after falling sharply in spring, and returned to last year's levels in September. Additional income came from revaluations of exchange-rate-linked securities and proceeds from FX trading. High income and almost unchanged expenses allowed the financial institutions attain record-high operational efficiency. Large operating incomes allowed the majority of the banks to cover their credit risk losses. Provisioning was generally in line with the estimates the NBU made in June, but electricity supply disruptions will lead to a new wave of credit losses.

Figure 3.5.1. Distribution of ROE by banks' share in assets



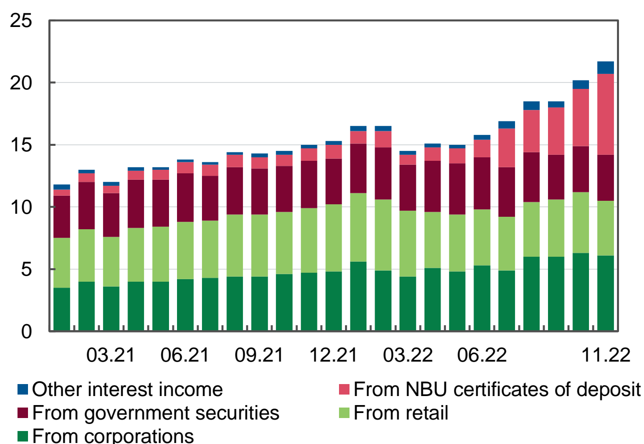
Source: NBU.

Figure 3.5.2. Operating income components, UAH billions



Source: NBU.

Figure 3.5.3. Interest income components, UAH billions



Source: NBU.

The sector is more profitable than during previous crises

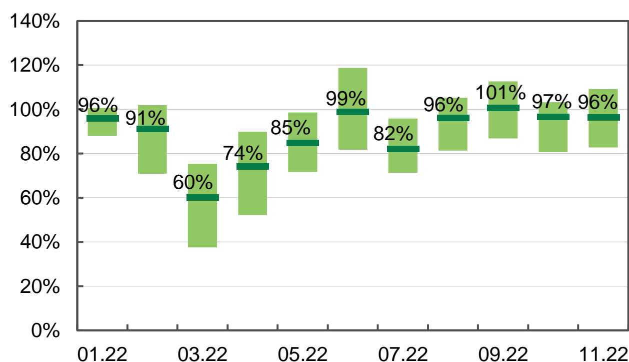
As expected, the war continues to dampen the banks' profitability, primarily through the materialization of credit risk. That said, the sector continued to generate high operating profit. The number of institutions posting operating losses dropped almost to the level of 2021 after sharply increasing at the start of the aggression. Despite the losses recorded in H1, which were mainly driven by provisioning, the banking sector generated a profit in the first eleven months of the year. Over this period, the average return on equity in the system reached 9.3%. The rate of return was negative in previous crises. The sector's resilience was supported by relatively stable demand for banking services thanks to clients' trust, significant liquidity and conservative lending standards in previous years.

Growth was seen in two major components of the banks' income: net interest income and net fee and commission income. Net interest income grew by 28% yoy in the first eleven months of the year. Net fee and commission income returned to last year's level in September. However, in H2 the banks' financial performance before provisioning was also driven by other important components: income from FX trading and the revaluation of securities. The adjustment of the hryvnia's official exchange rate in July resulted in significant gains from the revaluation of U.S. dollar-linked domestic government debt securities. State-owned banks have large holdings of such securities on their balance sheets, as they received them as capital injections after the crisis of 2014–2016. Thus, the revaluation of domestic government debt securities yielded almost a third of the state-owned banks' operating income in Q3. Income from FX trading was another component that gained importance during the war. Volumes of this income started to increase rapidly in May, when the difference between the official and the cash market exchange rates widened greatly.

Growth in interest income accelerated

The banks continued to increase their interest income from corporate lending, as well as from investments in securities. Volumes of interest income from corporate lending grew steadily thanks to the loan portfolio being larger than last year and due to higher interest rates. In contrast, interest income from retail loans decreased, as the net portfolio had been in decline since February. In addition, the banks temporarily lowered interest rates on retail loans in spring and started to bring them back to the level of February only in Q3.

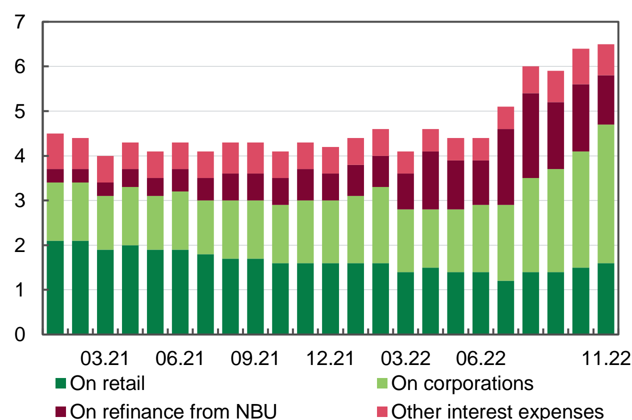
Figure 3.5.4. Ratio of actually received and accrued interest income on loans to clients



The faces of the rectangles correspond to the distribution's first and third quartiles. The lines inside the rectangles are medians.

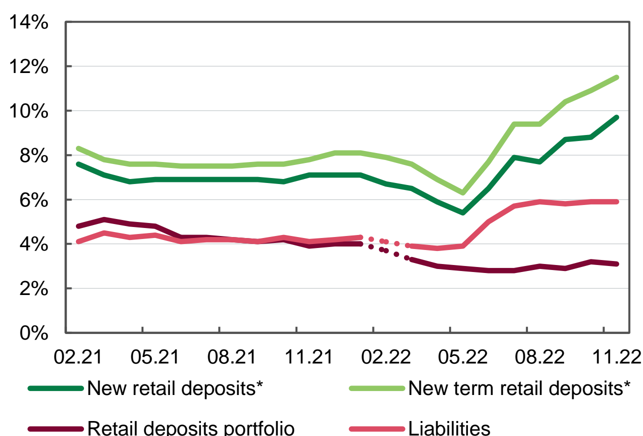
Source: NBU estimates.

Figure 3.5.5. Interest expenses components, UAH billions



Source: NBU.

Figure 3.5.6. Cost of retail deposits and banks' liabilities in hryvnias, % per annum



* No loan rescheduling or any other amendments to lending terms. Submission of data on interest rate on deposit portfolio and liabilities for February-March was suspended.

Source: NBU.

In the first months of the war, a large discrepancy arose between the interest income accrued and actually received by the banks, which was due to loan repayment holidays. However, in summer this ratio returned to 100% at many of the banks. The banks are taking into account in their provisioning the fact that they did not receive accrued interest.

Interest income was significantly supported by investment in domestic government debt securities and even more by holdings of NBU certificates of deposit. The banks fully benefited from inflows of liquidity, which went almost entirely into short-term risk-free instruments of the NBU. Certificates of deposit that the banks have accumulated on the back of large government payments are now generating over a quarter of the banks' monthly interest income. A sizeable increase in required reserve ratios is likely to put an end to this trend. Higher income from securities offset the decrease in income from retail lending.

The net interest margin rose as the growth in the cost of funding was weak

Following a key policy rate hike in June, the banks raised their deposit rates moderately. As liquidity was high, the banks had little incentive to offer better deposit terms to their clients. However, a wave of increases in retail deposit rates did occur later: the cost of 12-month hryvnia deposits grew by 4.6 pp from June, reaching 12.4% per annum[2]. At the same time, the growth in the rates on new term deposits was offset by a decrease in their share of total retail funding – an increasingly large portion of funds stayed on current accounts with zero or low interest rates. As a result, the total cost of retail deposits even slightly decreased from the start of the year. In the meantime, the cost of corporate deposits has grown significantly, as the banks are competing for them much more than for retail deposits. As the banks' interest expenses rose more slowly than income, their margins grew year-on-year. In the next few quarters the margin will stabilize and is likely to start declining due to the increase in required reserve ratios and the higher cost of the deposit portfolio.

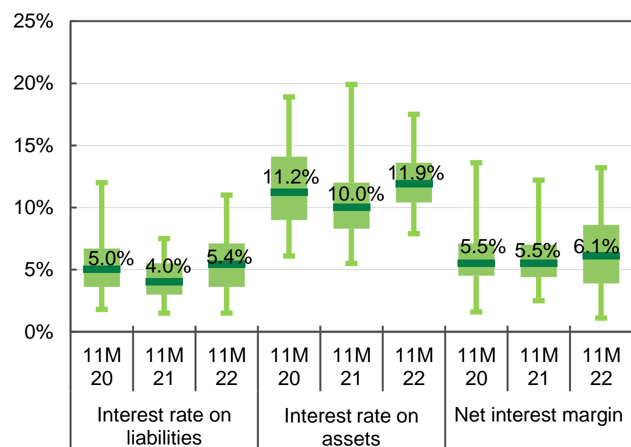
In June, the interest rate risk in the banking book fully materialized for those banks that overrelied on NBU refinancing loans. The key policy rate hike to 25% per annum made previously taken refinancing loans too expensive for the banks, so the financial institutions tried to repay them to the regulator as soon as possible. However, a number of medium-sized and small banks were not able to repay the NBU funding due to limited liquidity. In late November, NBU loans accounted for more than 10% of liabilities at 15 banks. Since they cannot produce equivalent growth in income from their assets, these banks are incurring large losses from interest rate risk.

Fee and commission income recovered, and its further dynamics will be determined by economic activity

The banks' fee and commission income fell sharply in the first few months of full-scale war. This resulted from lower

[2] According to the Ukrainian Index of Retail Deposit Rates (UIRD).

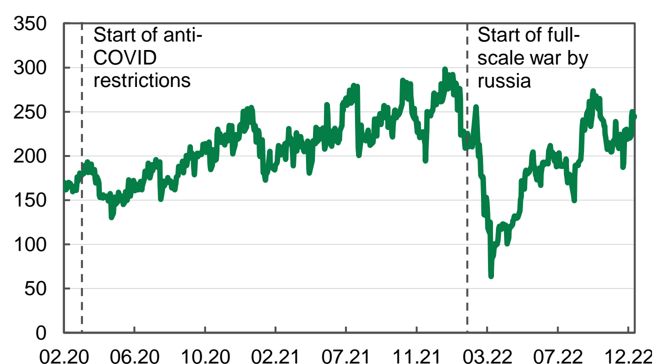
Figure 3.5.7. Yields on banks' assets and cost of their liabilities, and net interest margins, % per annum



Upper and lower edges of the rectangles represent the first and the third quartiles of the indicator distribution across the banks for the date. Dashes inside the rectangle show the median. Upper and lower dashes outside the rectangle show the 5th and 95th percentile.

Source: NBU.

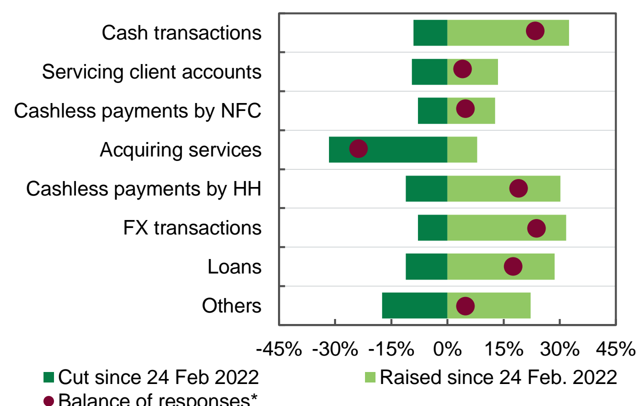
Figure 3.5.8. Banks' net fee and commission income per day*, UAH millions



* Based on daily balance sheet data; 20-day trailing average.

Source: NBU.

Figure 3.5.9. Change in banks' commission tariffs under martial law, % of surveyed banks



* Positive values mean that the majority of banks raised their tariffs.

Source: a survey of the banks' operating activities under martial law conducted by the NBU in December 2022.

demand for banking services, as well as from the banks temporarily reducing and even canceling charges for some critical services for businesses and households. When the security situation improved and transaction volumes started to rise, the banks' fee and commission income began to recover. In September, volumes of net fee and commission income had already started to exceed the level of September 2021. However, cumulatively over the first eleven months of the year, the banks' net fee and commission income was 14% lower year-on-year. Fee and commission income has been growing over last several months on the back of larger transaction volumes and higher tariffs. The majority of the banks brought their tariffs back to the level of February for all main transactions, except for acquiring, and even raised tariffs for some services. In particular, tariffs increased for clients' lending and FX transactions, and for card transfers.

The key risk to fee and commission income in the coming months lies in a potential decline in transaction volumes as a result of the damage to energy infrastructure and long blackouts. At the same time, temporary outages in October–November had a moderate impact on net fee and commission income.

Operating efficiency is increasing

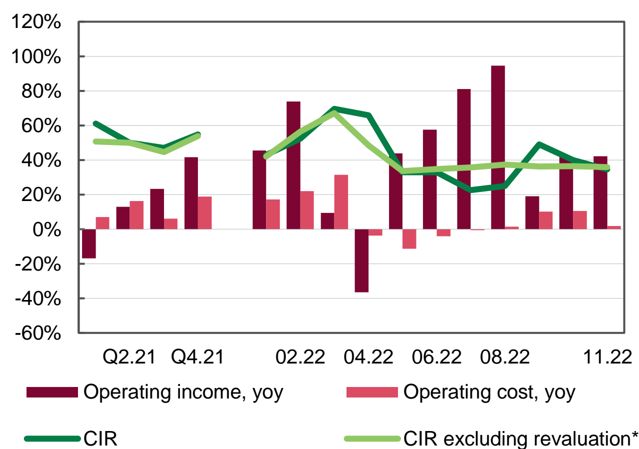
In H2, the banks' administrative expenses generally remained almost unchanged in annual terms, and some banks continued to reduce these costs. In particular, wage costs decreased in April–August due to layoffs. Expenses on maintaining branches also declined as their number dropped and due to the inability to access branches in temporarily occupied territories. The cost-to-income ratio (CIR) excluding the revaluation of securities, foreign currency, and financial derivatives was 40.7% in the first eleven months of the year, which was a significant improvement on previous years. Operating expenses accounted for around a half of net interest and net fee and commission income.

Regular electricity supply disruptions will put some pressure on operational efficiency. The banks will be forced to make extra spending on technical equipment for their branches in order to ensure uninterrupted communications and electricity supplies. The banks will also continue to report losses from damage inflicted to their fixed assets during hostilities. However, with current performance indicators, the impact from additional expenses will not be critical for the banks' profitability.

Credit risk losses will continue to rise

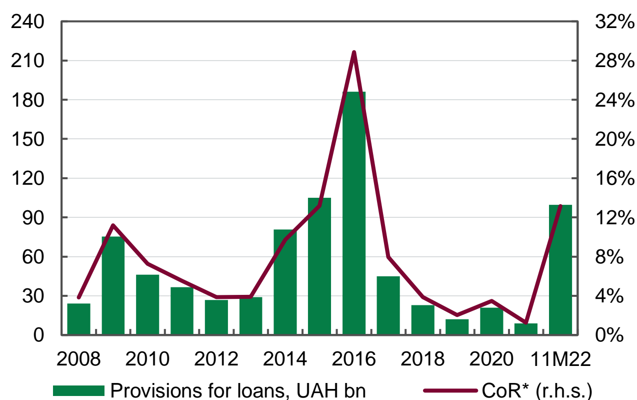
The banks continue to recognize incurred and expected losses from the deterioration in the quality of their loan portfolios. Over the first eleven months of the year, the ratio of loan loss provisions to net loan portfolio (CoR) reached 13%. The banks regularly review their loan portfolio quality and are gradually recognizing additional credit losses. Provisioning is likely to increase substantially in December as the loan portfolio quality declared by the financial institutions at the end of the year will be reviewed by external auditors.

Figure 3.5.10. Banks' operational efficiency



* Of securities, foreign currencies, and derivatives.
Source: NBU.

Figure 3.5.11. Cost of risk (CoR)



* Ratio of provisions for loans in respective period to net loan portfolio.
Source: NBU.

In June, the NBU assessed potential credit losses from the current crisis at no less than 20% of the net portfolio. Taking into account disruptions in electricity supplies, the estimate of potential losses was raised to 30% of the loan portfolio. A decline in economic activity due to blackouts will affect businesses' operating cash flows and household income, making it more difficult for clients to service their bank loans. The banks will have to offer additional short-term restructuring and sometimes even immediately recognize the loss of part of their loans.

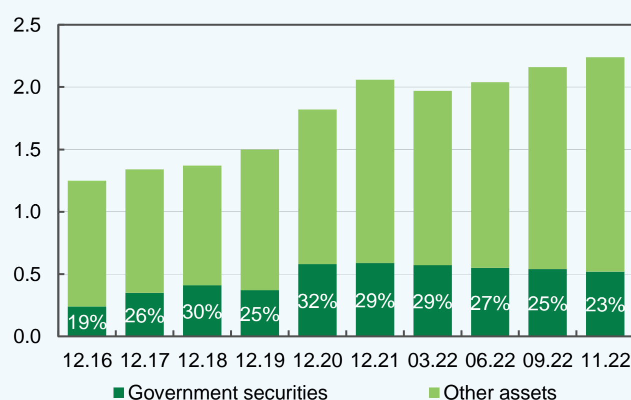
However, even with higher provisioning rates, the majority of banks will be able to either generate profits or return to profitability over the next few quarters. The banks' high operating profits create a significant cushion, which will absorb credit losses before they start to affect bank capital.

Box 2. How the Interest Rate Risk of Investments in Domestic Government Debt Securities Materializes

Investments in domestic government debt securities remain one of the most significant components of Ukrainian banks' assets. These instruments carry almost no credit risk, but have an inherent interest rate risk. This year, interest rate risk has materialized in two ways: the banks suffered losses due to the fair value revaluation of part of the domestic government debt securities, while some took losses because of the increased cost of the refinancing loans they took out to make these investments. The 2021 regulatory stress test was supposed to prepare banks for this shock. Going forward, interest rate risk will still have to be factored into the investment process.

In late November, the banks owned a total of UAH 535 billion in domestic government debt securities, 84% of them hryvnia-denominated. State-owned banks are the largest holders of this instrument. They received most of the government securities while being recapitalized as a result of previous periods of crisis. The fair value of these "capitalization" bonds is UAH 228 billion. The rest of the portfolio was purchased by financial institutions themselves, depending on market conditions, including the yield. Since full-scale war broke out, the volume of domestic government debt securities held by the banks has declined somewhat. Government bonds nonetheless remain a significant component of the banks' assets, making up about a quarter of their structure.

Figure B.2.1. Domestic government debt securities in banks' net assets, UAH trillions



Source: NBU.

Government bonds are practically the least risky instruments in the local financial market. The risks of the government defaulting on its hryvnia commitments are lower than the risks of default of other issuers in Ukraine. Credit risks associated with hryvnia domestic government debt securities are therefore low. EU banking regulation and the Basel recommendations stipulate the possibility of setting zero capital requirements for credit risks on government securities denominated in domestic currency. The NBU included this in its regulatory requirements for Ukrainian banks. However, domestic government debt securities cannot be considered a completely risk-free investment, as they carry interest rate risk. Regulations also provide for the coverage of this risk, in particular during assessments of capital requirements for market risk and during ICAAP.

Interest rate risk is a probability of taking losses due to adverse changes in market interest rates. Depending on the accounting approach, interest rate risk can manifest itself in two ways:

- For instruments that the bank evaluates at fair value, interest rate risk is shows itself through the regular revaluation of the security at current market rates. An increase in interest rates in this case immediately leads to a loss of the security's value.
- Another manifestation of interest rate risk is an unfavorable change in the cost of funding the bank has raised to invest in securities. Bank funding usually has shorter maturities than assets. So a rise in market interest rates increases the bank's expenses faster than the return it makes on assets. This reduces the interest margin and worsens the bank's financial performance.

IFRS 9 outlines three approaches to the valuation of financial instruments, including domestic government debt securities:

- at amortized cost (AC):
- at fair value through profit or loss (FVPL)
- at fair value through other comprehensive income (FVOCI).

The first is applied to instruments that the bank plans to hold until maturity. The other two are for instruments that the bank plans to trade, or may under certain circumstances trade in the market. This model also applies to securities that have embedded derivatives: domestic government debt securities for which principal repayments are indexed to the hryvnia-dollar exchange rate have been used to capitalize state-owned banks. Should market interest rates increase, the bank must revalue the domestic government debt securities held in its FVPL and FVOCI portfolios. At the end of November, these accounted for about 80% of the banks' domestic government debt securities.

Table 2. Banks' portfolios of domestic government debt securities, by type of assessment*, UAH billions

Portfolio	AC	FVPL	FVOCI
Ukreximbank	21.6	27.8	12.9
Oshadbank	52.0	54.7	8.0
Privatbank	0.0	96.6	149.2
Ukrgazbank	0.0	0.0	19.6
Other banks	28.5	6.8	57.2
Total	**102.1**	**185.8**	**246.9**
Total, %	**19.1%**	**34.7%**	**46.2%**
Revalued at fair value	No revaluation	Revalued	Revalued
Revaluation impact on regulatory capital		Impact through profits	No impact

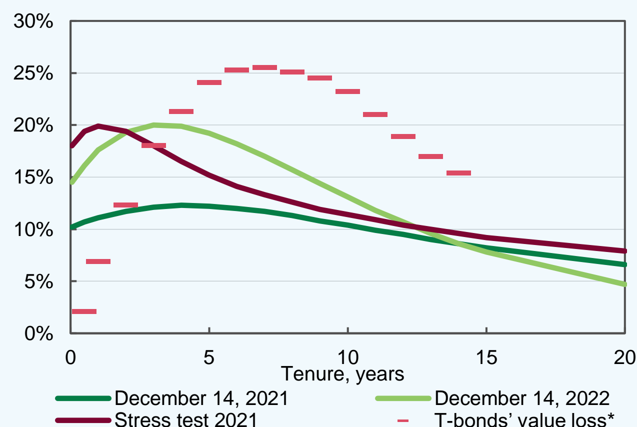
* As of 1 December 2022.

Source: NBU.

At the onset of the full-scale war, transactions in the secondary securities market halted. As a result, the market

for a long time went without benchmarks for the expected return on government securities. In September, when the secondary market reopened, its transactions determined new, higher benchmarks for the yield on securities. The banks therefore revalued their securities held at fair value and recognized their losses. The losses have not yet materialized, but have the potential to. Their size depends on duration, which depends on the coupon rate and maturity. Securities' loss of value reached up to 25%.

Figure B.2.2. Spot rate curves with continuous compounding and loss of value of domestic government debt securities from 14 Dec. 2021 to 14 Dec. 2022



* Median loss on domestic government debt securities with relevant maturities.

Source: NBU.

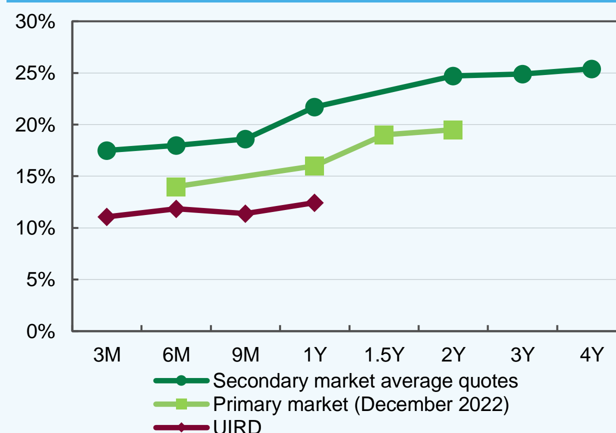
In 2021, the NBU stress tested the risk of the loss of value of government securities due to changes in market rates. Assumptions about the level of shock and possible losses were comparable to the events of 2022.

The losses that banks incur from the revaluation of domestic government debt securities affect their equity. However, not all of them change their regulatory capital. They only adjust it by the amount of the revaluation of the securities in their FVPL portfolios. Meanwhile, changes in other comprehensive income from the revaluation of the FVOCI portfolio, as per Ukrainian requirements, do not affect regulatory capital. As most government securities are specifically held in the FVOCI portfolio, losses from interest rate risk have not had a significant adverse impact on the banks' regulatory capital. Thus, the consequences of interest rate risk materialization for the banks' capital this year have been moderate. However, this risk must be taken into account going forward, particularly when calculating the bank's required internal capital under ICAAP.

When investing in securities with the purpose of holding them for a long time until maturity, the bank takes on interest risk – which can materialize if the cost of funding rises during this time. In June 2022, this risk was illustrated by the sharp increase in the cost of refinancing that is linked to the key policy rate. After the rate hike, the banks' interest expenses began to rise, with those on refinancing loans increasing the fastest. The banks that had used these loans to fund investments in domestic government debt securities began to suffer significant losses. The growth in market interest rates over time is reflected in the rates on client deposits, which are primarily short-term.

The cost of bank funding is determined by a combination of borrowings for different terms at different rates. When setting target returns, the banks focus not only on the cost of funding, but also on the cost of its most stable component – term deposits. In early December, the spread between the yield on bonds issued in the primary market with maturities of up to one year and the retail deposit rates for the same term (UIRD) was 2–3 pp, depending on maturity. Such a spread is comparable to the banks' administrative expenses. By raising shorter-term funds to invest in domestic government debt securities and increasing the maturity of the investments, a bank assumes additional risks: interest and liquidity ones. For example, when a bank needs to cash out of long-term investments and repay shorter-term liabilities, the bank will pay 27% on refinancing loans, or will have to sell securities at a discount. This will expose financial institutions to additional significant losses. The spread should compensate for these risks. The primary-market yield on domestic government debt securities has not yet offered the banks an attractive risk-return ratio.

Figure B.2.3. Domestic government debt securities' yields and deposit rates as of 21 December 2022



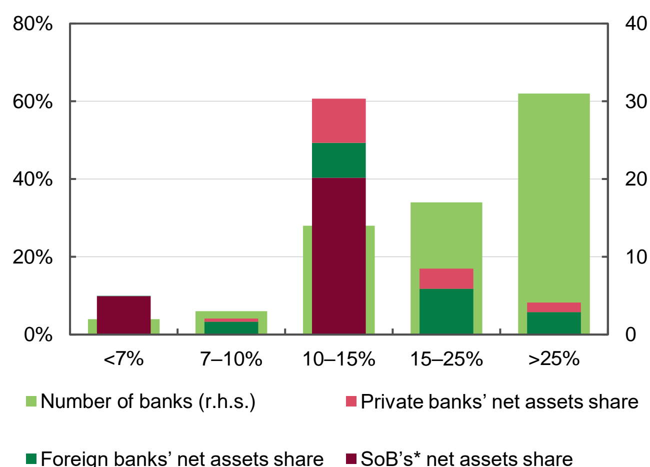
Source: NBU.

The secondary market for public debt has yet to make a full recovery since the start of the full-scale war. However, yields there exceed those of the primary market. Provided that primary-market yields on domestic government debt securities continue to gradually approach secondary-market rates, the banks will grow more interested in these securities. At the same time, it will give a boost to the secondary market as well, because players who purchased domestic government debt securities in the primary market will be able to sell them in the secondary market without taking a loss.

3.6. Capital Adequacy Risk and Banks' Resilience Assessment

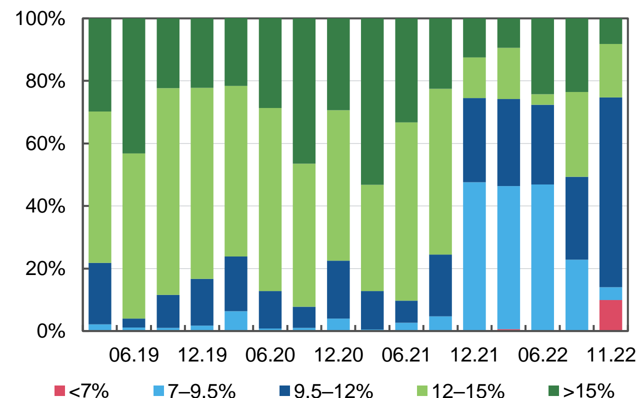
The banks have already suffered significant losses from the materialization of war-related risks, primarily due to the loss of loan portfolio quality. However, capital cushions and operational efficiency are enabling financial institutions to maintain capital above minimum requirements. At the same time, the threat of further losses of capital for a number of banks is increasing. Some of them are already in breach of minimum capital requirements. The number of violators may continue to grow. A reliable assessment of capital will underlie the development of measures to rebuild capital on time. The NBU therefore plans to carry out a resilience assessment next year.

Figure 3.6.1. Banks' core capital adequacy ratios as of 1 December 2022



* State-owned banks.
Source: NBU.

Figure 3.6.2. Distribution of capital adequacy ratios of banks by their share in total assets



Source: NBU.

The banks are maintaining and in some cases building up capital cushions even as the war drags on

The vast majority of Ukrainian banks maintain sufficient capital despite the full-scale war. A number of the banks have actually increased their capital this year. This can be attributed to several factors. First and foremost, prior to the invasion, the banks had significant capital cushions, including a buffer for the credit risk of the unsecured retail portfolio, which the banks have now been able to use. In addition, financial institutions remain profitable in the face of all challenges: in the first ten months of 2022, the banks significantly ramped up their operating profits in annual terms. However, current capital indicators do not fully reflect the banks' losses from the war. The banks are slowly building up provisions against loans, especially when it comes to the corporate segment. This is driven by hopes that borrowers will be able to go back into business.

As of early December, the minimum capital adequacy requirements were violated by two banks that jointly account for one-tenth of the sector's assets. One of them is a large state-owned bank. Three small banks are in breach of the requirements for the minimum size of regulatory capital (at least UAH 200 million). About five more financial institutions are operating with capital adequacy ratios close to the minimum required levels.

Threats to capital adequacy persist

The NBU's reverse stress test in June showed that the banks could absorb credit risk materialization losses of 25% of their pre-war performing portfolios. This estimate's underlying assumptions were unchanged interest income from the performing portfolio, lower commission income, and higher administrative expenses compared to the previous year. Overall, these moderately conservative assumptions have proved correct. Meanwhile, certain risks to the banks' capital have even increased. First of all, credit risk is increasing due to massive attacks on infrastructure. This factor's impact on bank loans will be spaced out in time, and its size will depend on the duration and scale of power supply disruptions.

The NBU will conduct the banks' resilience assessment next year

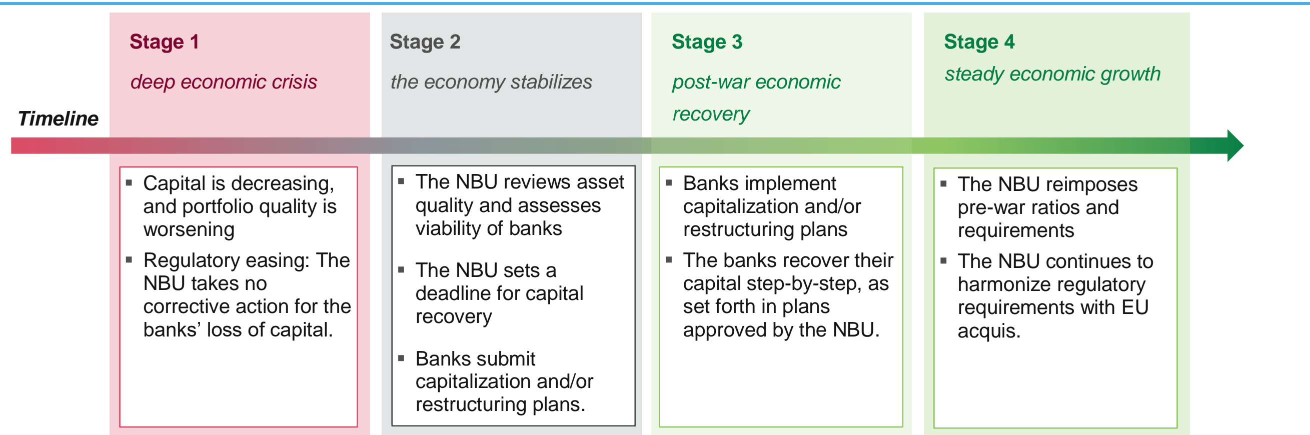
The NBU wishes to make a quality-oriented and reliable assessment of the exact level of the banks' capital, and the risks of its adverse changes going forward. The NBU therefore plans to conduct an asset quality review next year. In addition, the banks' medium-term resilience will be assessed by calculating expected performance indicators under current macro forecasts. Based on the assessment results, the regulator will set a timeline for rebuilding capital

for banks that need it. For this, the banks will have to develop capitalization and/or restructuring plans.

This year has shown that most banks will be able to recover capital themselves with their future profits. The NBU will provide the banks enough time to do so, as long as they have viable business models. This will take more than a year. Some banks, including state-owned ones, may need recapitalization by a shareholder. At the same time, the regulator will focus more supervisory attention on financial institutions that are incapable of positive operating performance. Such financial institutions may come under restrictions aimed at protecting their depositors. Meanwhile, banks that implement their action plans in good faith will continue to enjoy relaxed regulation.

Based on the findings of the resilience assessment, further decisions will be taken on adjusting the relaxed regulatory regime and implementing requirements for the banks in line with the EU acquis.

Figure 3.7.3. **Stages of the banking sector's prudential regulation**

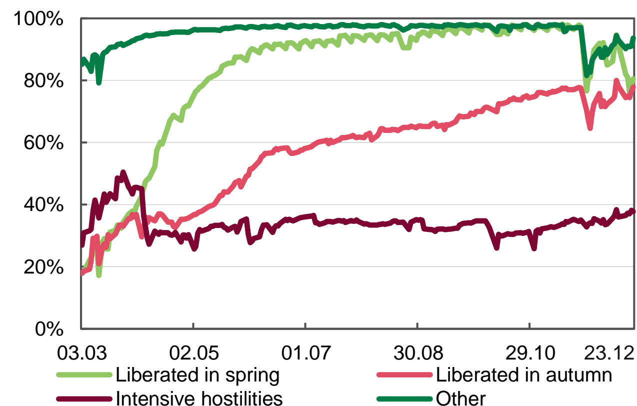


Source: NBU.

3.7. Operating Activity and Operational Risk

The banks have been able to adapt to the protracted war: branches are resuming operations, while the financial institutions are gradually optimizing their network and labor costs. The risk of blackouts has become a new challenge for the banks. However, they are already implementing a project to ensure the continuity of services under long-lasting blackouts. The banks' operating losses have already hit UAH 13 billion, and continue to rise. The loss of income and property accounts for a large portion of the banks' losses. However, not all banks are recognizing their operational risk events properly.

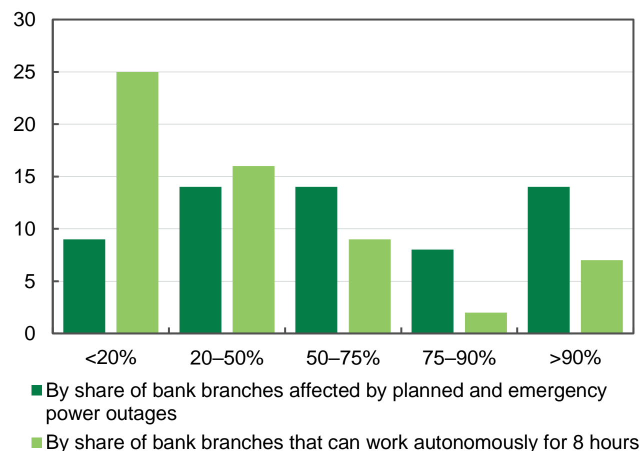
Figure 3.7.1. Proportion of working branches of systematically important banks in 2022



Regions are classified into groups. "Liberated in spring" comprise Kyiv, Sumy, Chernihiv oblasts, and city of Kyiv. "Liberated in autumn" comprise Mykolaiv and Kharkiv oblasts. "Intensive hostilities" comprise Donetsk, Luhansk, Zaporizhzhia, and Khesron oblasts.

Source: survey of banks, NBU estimates.

Figure 3.7.2. Distribution of banks by the impact power cuts have on them, number of banks



Source: survey of banks, NBU estimates.

The banks are resuming operations on liberated territories

After the start of the full-scale invasion, some banks were forced to suspend the operations of their branches due to security threats to their staff and property. Branches are resuming operations as territories are deoccupied. In most oblasts practically all bank branches are operational. The liberation of areas in eastern and southern Ukraine, which happened last autumn, pushed up the share of operating branches in Kharkiv and Mykolaiv oblasts from 65% in late August to 80% in November. A few days after the deoccupation of Kherson, some large banks started recommencing the operations of their networks in the city.

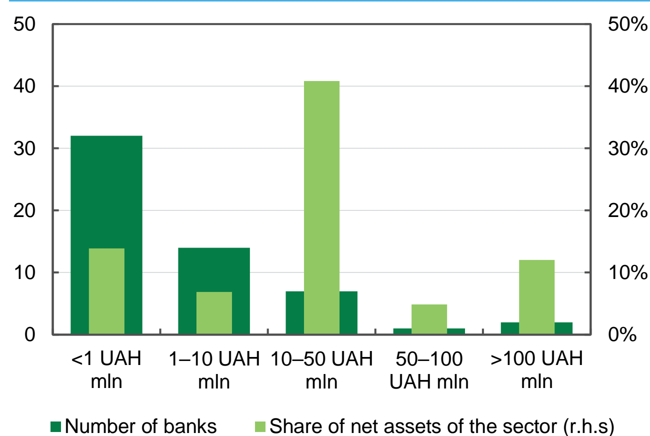
Power outages are a new challenge to the banks' business continuity

Missile attacks on Ukrainian cities and the damage to energy infrastructure inflicted in October–December are making it more difficult for the banks to operate. Most banks say that power outages negatively affect the operation of over half of their branches. The share of operating branches of systemically important banks contracted noticeably on some days in November and December because of disruptions in power supply. To ensure the uninterrupted operation of their infrastructure, the banks are having to buy backup sources of power and communications. In early December, almost half of all the banks had less than a fifth of their branches being able to operate on backup power during a business day. The banks estimated in early December that the additional operating losses they have sustained because of power cuts could exceed UAH 300 million. The bulk of these losses were suffered by large banks that have lots of branches.

The banks are implementing an NBU-initiated project to ensure the uninterrupted provision of services

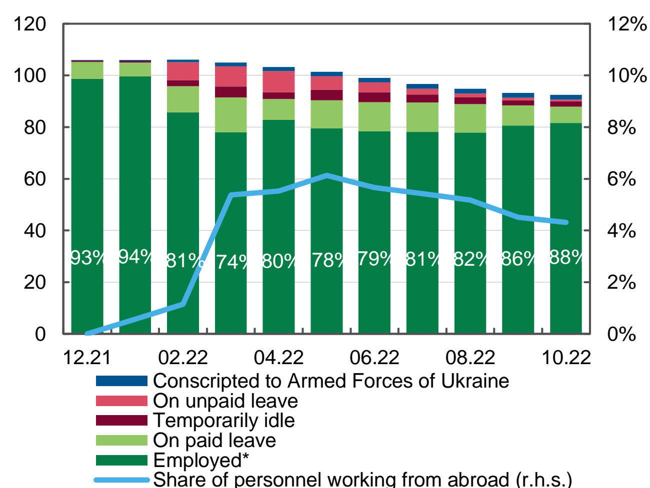
With a view to ensuring the business continuity of the banks, the NBU initiated the Power Banking Project, which the banks are already implementing. The banks must ensure the functioning of their systems, the implementation of critical business processes, and communications with the NBU data processing center even in the event of a long-lasting blackout. A lot of groundwork here was done during the first months of the war: in spite of massive missile attacks and power outages the banks are safeguarding the continuity of payments. What is more, in every region, the banks must set up on-call branches that will provide services to clients during protracted blackouts. As of Mid-December there were 1,100 such branches across communities. The banks are communicating to their clients an up-to-date list of these branches and their opening hours. This list is also available on the NBU's official website. The banks are in the process of introducing "national ATM roaming" a feature that will put

Figure 3.7.3. Distribution of banks by additional operating losses amount due to power outages



Source: survey of banks, NBU estimates.

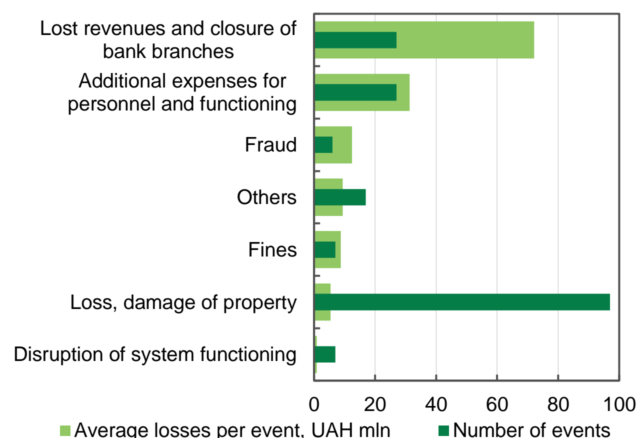
Figure 3.7.4. Banks' number of staff, thousands



* Bank employees on maternity or parental leave are excluded from the category. Percentages show the share of bank employees to total bank personnel.

Source: survey of banks, NBU estimates.

Figure 3.7.5. Classification of the biggest* war-related operational risk events of banks



* Reflects information on the five biggest operational risk events of the banks that participated in the survey. The list excludes events related to credit or market risk of banks.

Source: survey of banks, NBU estimates.

uniform extended limits on and cancel additional fees for ATM withdrawals by holders of cards issued by other banks. The largest banks have already joined in the initiative. When fully implemented, the Power Banking Project will markedly boost the resilience of the banking network.

Financial institutions are cutting staff, while optimizing their network

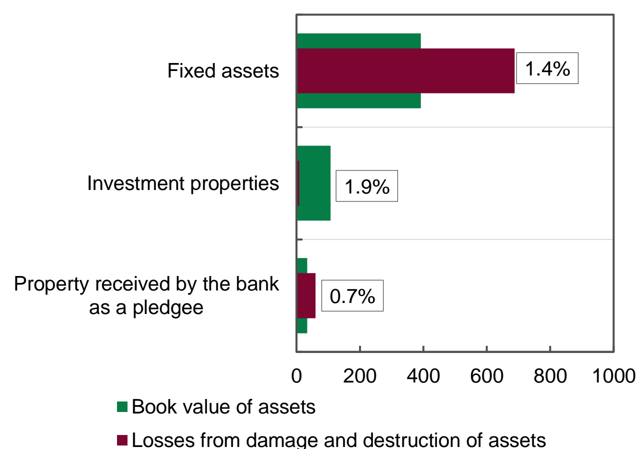
The banks are having to downsize their branch network in the wake of the protracted occupation of some Ukrainian territories, declining economic activity, population reductions in some cities and towns, and security threats. In Q2 and Q3, the banks shut down over 1,000 branches, most of which were located in Kharkiv, Donetsk, Kherson, and Zaporizhzhia oblasts. The shutdowns entailed staff cuts. In contrast to the initial weeks of the war, when staff were forced to take paid time off or were temporarily idle, over the last six months the banks have made staff redundant more often. Since the start of the full-scale invasion, the number of bank staff has reduced by 12%. In early November, only 4% of bank employees were working from abroad. This share is gradually shrinking compared to the peak figure in May.

The banks are incurring new losses from operational risk

The banks are sustaining increasingly more losses from the materialized operational risk (OR) because of the war. In December, the NBU once again surveyed all solvent banks on their operational risks. In early November, the number of banks reporting in their databases non-zero losses from OR was 59, up from 51 in May. Meanwhile, total OR losses have more than doubled over the last six months – to UAH 13 billion – compared to the two initial months of the war. Total OR risk losses include losses incurred by the banks and income that has not been received due to disrupted operations. Income that has not been received by a large retail state-owned bank accounts for over half of the sector's total OR losses.

The banks are using differing approaches to documenting OR events in their databases. About ten mostly small financial institutions record all losses from the russian invasion as one event. However, most banks break down events by their type. In a survey, the banks named the five biggest OR event losses arising from the war. The most widespread event is the loss of property. The banks also frequently reported the loss of income because of the economic downturn, falling demand for their services, and disrupted operations, due to, among other things, the closure of branches. The third biggest event in terms of numbers and the second biggest event in terms of average losses is additional labor costs and the cost of maintaining business continuity. These costs include the cost of relocating staff, additional payments made to staff members, the resumption of branch operations, and purchases of additional communications devices and generators to be used in a blackout. Fraud, system failures, and fines were less common OR events. The banks described most OR events as ongoing, meaning that these event could continue to generate losses.

Figure 3.7.6. Banks' real estate in war-affected territories as of 1 November 2022 and losses from lost assets for February–October, UAH millions



War-affected territories are located in combat areas or are temporarily occupied as classified by banks. Percentages show the share of real property on the respective territories over the entire book value of real property of banks.

Source: survey of banks, NBU estimates.

The banks' losses from destroyed property have increased

From early May through November, the banks' losses from the destruction of their property grew almost fivefold, to UAH 757 million. The banks wrote off assets located in areas where hostilities are taking place more actively than in spring.[3] That said, changes in the locations of hostilities sometimes increased the banks' assets in war-affected zones. In early November, the residual value of assets in war-affected zones was 1.4% of the banks' total real estate, down from 1.7% in early May. The liberation of Kherson in November improved this figure. By early December, only some banks had estimated whether their property in the city had been preserved. These banks said that 86% of their assets had survived and were fit for use. Potential losses of all of the property the banks currently cannot control do not pose any serious threat to the banks' business continuity and financial soundness.

The banks should upgrade their approaches to documenting OR events in their databases

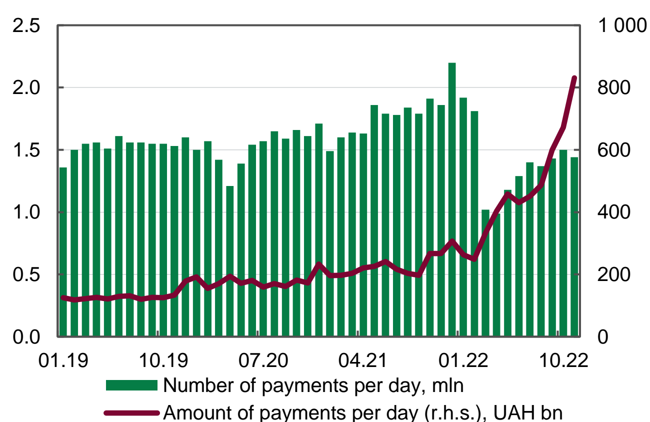
The findings of a survey conducted by the NBU revealed that some banks were underestimating their losses from OR events, or were not documenting any OR events arising from the war at all. The banks that did include OR events in their database used very different approaches to classifying and measuring their losses. The banks' lack of attention to logging OR events in their databases poses significant risks that these events will be underestimated in future. After all, information about OR events a bank has experienced affects not only that bank's approaches to OR management and its ability to draw up effective business continuity plans, but could also have a bearing on the bank's capital needs to cover OR in future.

[3] The banks themselves classified territories as war-affected zones. As of the date of the survey – 1 November 2022 – the right bank of Kherson oblast was most likely to be classified as a war-affected zone.

3.8. Payment Infrastructure Risk

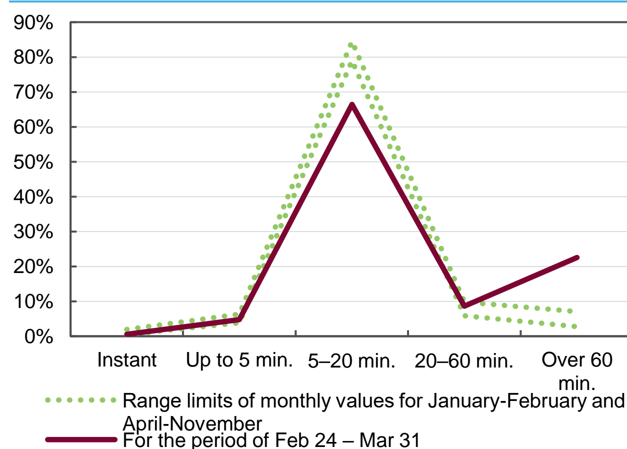
Despite the full-scale war in Ukraine, payments are made without interruption. This was facilitated by the NBU's continuous, starting from 2014, tightening of requirements for ensuring business continuity in an emergency, improved cybersecurity requirements, as well as coordinated actions of the regulator and the financial community. The number of interbank payments effected via the SEP is gradually rising, as economic activity recovers. Payments were made promptly even during the most difficult periods of the war. In October, the number and amount of payment card transactions exceeded the pre-war level. Ukraine's payment infrastructure resilience reduces the probability that a number of risks – mainly operational and liquidity ones – will materialize.

Figure 3.8.1. Average daily SEP indicators



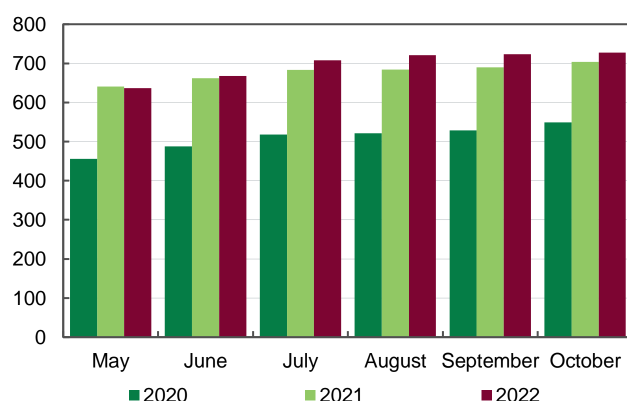
Source: NBU.

Figure 3.8.2. Distribution of time per SEP payments in 2022, by the number of transactions



Source: NBU.

Figure 3.8.3. Number of payment card transactions by months, millions



Source: NBU.

Payments are being made despite the war

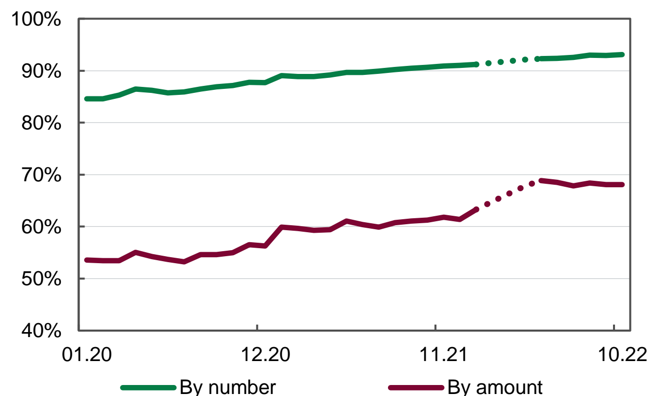
Wide-scale fighting and damaged infrastructure have not brought payments in Ukraine to a halt. Even in days of most intensive hostilities on a large theater of war and massive missile strikes, people could make payments, in particular with payment cards. The resilient settlement system helped maintain households' and businesses' confidence in the financial system. The security and continuity of cashless operations prevented the induced mass switch of households and businesses to cash payments, with a consequent decrease in the banks' liquidity. The key elements of the domestic payment infrastructure are the Ukrainian System of Electronic Payments (SEP) and two international payment systems – MasterCard and Visa.

Interbank settlements are effected on time

The SEP, which was set up by the NBU, is the only systemically important payment system in Ukraine. Almost all hryvnia domestic interbank transfers, by both banks and their customers, go through this system. After 24 February, the SEP operated as usual: 23 hours a day, seven days a week, as it did before the full-scale invasion. Most banks have had uninterrupted access to the SEP throughout the full-scale war. Only at the onset of the invasion was one bank temporarily disconnected from the SEP: its headquarters were located in an area where bitter fighting was taking place. On 23 November, when russia launched a massive missile attack on Ukraine's energy infrastructure, eight banks, for several hours, had technical problems connecting to the SEP. The reason for this lay in disrupted communications due to the unstable operations of communications providers.

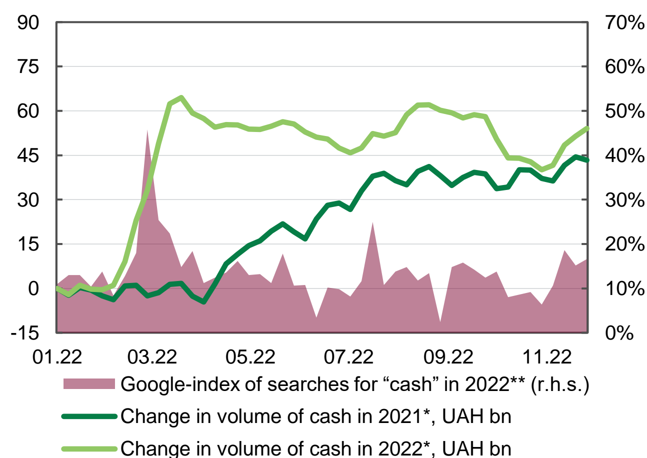
The shock of war and the slump in economic activity in March–April almost halved the number of SEP transactions compared to their pre-war volumes. However, later the number of payments grew gradually – in November payments were only 22% short of last year's figures. In the meantime, the transaction volume grew on, mainly fueled by government payments. In contrast, the operating activities of the SEP were little changed. As before the full-scale invasion, over 80% of SEP payments were made within 5 to 20 minutes. Only in 5% of cases does it take over an hour to execute payments. The only small deviation from the usual mode of transaction processing occurred during the initial days of defense, in late February and early March. Then it took over an hour to execute one out of five payments. Late February, and the days of massive air strikes on energy infrastructure, saw a partial shift in daytime payment peaks to the evening hours (usually transactions peak between 11 am and 12 am and 4 pm and 5 pm). Some days of massive air attacks also brought a slight decline in customers' activity – they deferred

Figure 3.8.4. Share of cashless payments in all card transactions



Data provision in February-April 2022 was suspended.
Source: NBU.

Figure 3.8.5. Demand for hryvnia cash



* Cash out-of-banks and in banks’ tills available, cumulative since the beginning of the year.
** Reflects the average level of requests in Google: “cash”, “cash money”, “withdraw cash” in Ukrainian and russian. The maximum of one component is 100%.
Source: NBU, Google trends.

some transactions until subsequent days. At other times, the hostilities had no significant bearing on the nature and structure of payments.

Clients are actively using payment cards

Three payment systems – MasterCard, Visa and PROSTIR – service most of the retail payment card transactions in Ukraine. MasterCard and Visa execute the bulk of the transactions. The infrastructure of these payment systems, which is integrated into their international networks, is protected from the physical impact of war in a single country. Therefore, provided there is internet access, card payments are made without disruption. The same is true of online payments with payment cards. Despite there being a decline in purchasing activity, in October 2022 the number of transactions with payment cards issued by Ukrainian banks grew by 3.4% yoy. Card transaction amounts are larger than last year mostly because of inflation.

The possibility of making card payments practically without disruption has decreased the role of cash further. The amount of banknotes and coins outside the banking system and in bank tills surged only during certain weeks of the year, when households feared that hostilities or damaged infrastructure would bring the banks’ operations to a halt. However, these fears did not materialize: this year’s overall increase of cash in the economy was only slightly larger than in 2021. The absence of panic cash withdrawals is evidenced by Google cash withdrawal searches, which peaked at the onset of the full-scale invasion. In the autumn of 2022, cashless payments accounted for 93% of card transactions by number, while by amount this figure already exceeded two thirds.

Support for payment infrastructure is main focus of the banks and the regulator

Prior to, and in the earliest months of the full-scale war, the financial institutions took a number of steps to ensure the business continuity of payment infrastructure. The banks set up backup storages for processing and storing data, including those that rely on cloud data warehouses (read more in the June 2022 Financial Stability Report, Box 4 “Assessment of Operating Losses of Banks due to War”). The NBU also has backup data storages to provide uninterrupted support to the SEP. In response to the threat of energy infrastructure destruction and the operational risk of a blackout materializing, the NBU drew up a plan of systematic measures to ensure the banks’ uninterrupted operations in the event of protracted power cuts.

A resilient payment infrastructure is crucial for safeguarding financial stability. Customers’ ability to make payments without disruption in 2022 bolstered their confidence in the banks, while also reducing the risk of capital outflows and easing pressures on the sector’s liquidity. High-quality payment services are shoring up the banks’ fee and commission income, among other things, enabling the institutions to maintain their network and to adapt their operations to current challenges.

Recommendations

Ensuring financial stability in extremely difficult wartime conditions requires coordinated efforts and close coordination between all financial market players – the banks, NBFIs, the NBU, and other market regulators, as well as the effective support from the state authorities. The NBU makes recommendations to the state authorities and financial institutions, and communicates its near-term goals and plans.

Recommendations for the State Authorities

Activate the domestic debt market in order to minimize the risks of monetary financing

The Ministry of Finance can raise large amounts of funds from Ukrainian banks to finance the budget deficit. The volume of the banks' spare liquidity in NBU certificates of deposit exceeded UAH 360 billion as of the start of December. Further increases in the yields on government securities will push up the banks' demand for them. Therefore, the Ministry of Finance should adjust the yields on domestic government debt securities at initial offerings in line with market conditions. Increasing domestic borrowing will significantly reduce the risk of the monetary financing of the state budget.

Optimize state support programs for businesses

The state program Affordable Loans 5–7–9% and the provision of state portfolio guarantees are the main drivers of lending in wartime. Taking into account the role of these programs, the government should continue supporting their operations and cover a wider scope of borrowers, especially operating businesses. The funds allocated for the programs can be used more effectively by improving the design of the programs, in particular by gradually raising rates on anti-crisis and anti-war loans.

Ensure fulfilment of commitments under the IMF monitoring program

The monitoring program envisages steps being taken to increase the volume of tax revenues, activate the domestic debt market, minimize the risk of monetary financing of the budget, maintain the long-term resilience of the financial sector, and ensure the efficiency and transparency of state-owned enterprises and banks. Its implementation is a prerequisite for conducting a full-fledged financing program.

Ensure the provision of services that are critical to the financial system

In particular, the state authorities should support uninterrupted operations of communication services providers even during blackouts. This primarily concerns phone and internet services, which are critical for the functioning of the banking sector.

The recommendation given in the June 2022 Financial Stability Report to approve draft law No. 5125 on credit unions remains relevant. The draft law aims at expanding development opportunities for credit unions and updating their regulation and supervision requirements in line with international experience. This will help create an effective, competitive, and transparent credit union market, as well as improve the protection of credit union members' rights.

Recommendations for the Banks

Provide an objective assessment of portfolio quality and recognize credit risk in a timely manner

The banks should use all available sources of information to assess their clients' ability to service their debts. Timeliness of loan servicing, in particular the payment of interest in full, is one of the key parameters in risk assessment. After loan repayment holidays ended in summer, the banks should fully take into account the nonpayment of interest. Some borrowers could still need short-term restructuring, but such restructuring should not serve to obscure the borrowers' actual ability to service debts. Moreover, the banks should revise the models they use to estimate expected losses under IFRS 9: currently their parameters are not sensitive to changes in macroeconomic conditions. Therefore, in practice, the estimates of expected loan losses measured at the first stage sometimes remain at pre-war levels.

Ensure uninterrupted operation of on-call bank branches during a blackout

The NBU and the banks are implementing the *Power Banking* project – a network of on-call bank branches that will keep working even during long-lasting power outages. These branches should be fully equipped for this purpose. The banks should duly inform their clients of the addresses of the on-call branches. In addition, the NBU has suggested that the banks introduce "national ATM roaming," which envisages uniform extended limits and no additional fees for ATM withdrawals by holders of cards issued by other banks. This will help satisfy clients' demand for services and maintain the stable functioning of the banking sector even during a long-lasting blackout.

Pay more attention to liquidity risk management

The sector's current high liquidity should not make banks less attentive to managing liquidity risks. A deterioration in the term structure of the portfolio requires faster action to stabilize the share of retail term deposits. This can be achieved primarily by raising interest rates on term deposits. Amid war and instability, liquidity risk can materialize quickly.

It is also important that financial institutions:

- strictly comply with NBU requirements while under martial law, in particular with regard to sanctions legislation and FX controls
- tighten measures for anti-money laundering and combating financing of terrorism, including acting against miscoding – a form of fraud in the bank acquiring network involving the use of false payment details
- inform the NBU in good time about breaches of capital or liquidity requirements and about the risks of such violations
- keep their business continuity plans and business recovery plans up to date
- adhere to ethical behavior requirements when recovering past due debts
- improve their cybersecurity systems: in particular, comply with cybersecurity requirements for critical information infrastructure objects, ensure proper information sharing with the NBU, and conduct information security audits.

Recommendations for Non-bank Financial Institutions

Ensure uninterrupted operation during the war

Non-bank financial institutions should ensure continued operation under conditions of limited electricity supplies or lasting blackouts. Electricity supply disruptions should not affect a financial institution's ability to run its business and support critical processes. In order to improve clients' access to their services, non-bank financial institutions should step up their online services while also providing customer support.

Bring their operations in line with regulatory requirements

As the security situation is stabilizing in regions not affected by the war, the NBU has resumed the imposition of corrective measures for violating certain requirements in order to maintain discipline on the market and protect the rights of financial services consumers. In particular, corrective measures will be applied to insurers and financial guarantor companies if they violate required financial ratios. Credit unions will fall under corrective measures for breaching the procedure for calculating credit risk. Corrective measures will also be imposed on market participants for violating deadlines for submitting reports. Therefore, in order to avoid sanctions, participants of the non-bank financial market should bring their operations into line with regulatory requirements as soon as possible.

NBU's Plans and Intentions

The NBU will continue to be flexible and prompt in its responses to wartime challenges and risks, and will adapt its regulatory approaches to support financial stability.

The regulator will continue to implement new requirements previously announced for banks in line with the approved schedule:

- deducting 75% of noncore assets from capital starting from 31 December 2022
- implementing the Net Stable Funding Ratio (NSFR) requirement at 100% from 1 April 2023.

The NBU plans to hold a resilience assessment of banks in 2023

Provided that the economic situation stabilizes, the NBU will assess the banks' resilience next year. This will include an asset quality review and stress tests of the largest banks under the baseline scenario. The resilience assessment will help determine the current level of the banks' capital and their potential capital needs in future. The NBU will factor in the assessment results when setting the schedule for cancelling the relaxation of requirements in wartime and implementing previously planned new regulatory requirements.

The NBU will take an active part in promoting Ukraine's accession to the EU

The NBU will facilitate the implementation of EU financial sector standards. The central bank's strategy to harmonize Ukrainian law with EU requirements remains unchanged. The NBU continues to work on developing the relevant regulatory requirements. Their implementation timelines will depend on how fast the financial sector recovers and the consequences of the current crisis are overcome.

Abbreviations and Terms

War, invasion	Full-scale russian invasion to Ukraine since 24 February 2022
War-affected, warzone	Communities in areas of hostilities, under temporary occupation or surrounded, in line with definition of Ministry for reintegration
5-7-9%, 5-7-9% state program	State program Affordable Loans 5-7-9%
ATM	Automated teller machine
CCAR	Core capital adequacy ratio
CIR	Cost-to-income ratio
CoR	Cost of risk
COVID-19, COVID	Coronavirus disease 2019
CPI	Consumer price index
EBIT	Earnings before interest and taxes
EBRD	European Bank for Reconstruction and Development
EIB	European Investment Bank
EM	Emerging markets
EU	European Union
FDI	Foreign direct investment
FX	Foreign currency/exchange
GDP	Gross Domestic Product
ICAAP	Internal Capital Adequacy Assessment Process
IFI	International Financial Institutions
IFRS	International Financial Reporting Standards
IMF	International Monetary Fund
ILO	International Labor Organization
HH	Households
HQLA	High-quality liquid assets
LCR	Liquidity coverage ratio
MoF	Ministry of Finance of Ukraine
SMEs	Small, and medium-sized enterprises
NBFI	Non-bank financial institution
NBU	National Bank of Ukraine
NFC	Non-financial corporations
NSFR	Net stable funding ratio
NPE/NPL	Non-performing exposure / loan
OECD	Organization for Economic Co-operation and Development
o/w	Of which
Parliament	Verkhovna Rada of Ukraine (Supreme Council)
PD	Probability of default
PL	Performing loans
Privatbank	Public Joint-Stock Company Commercial Bank “Privatbank”
Regulation No 351	Regulation of the NBU of 30 June 2016 No 351 approving Regulation on credit risk calculation by Ukrainian banks
ROE	Return on equity
SEP	System of electronic payments
SOE	State-owned enterprises
SREP	Supervisory Review and Evaluation Process
SSSU	State Statistics Service of Ukraine
STSU	State Treasury Service of Ukraine
T-bonds	Domestic government debt securities
UIRD	Ukrainian Index of Retail Deposit Rates
UK	United Kingdom of Great Britain and Northern Ireland
US	United States of America
VAT	Value-added tax
w/o	without

mln	million
bn	billion
sq. m	square meters
EUR	euro
UAH	Ukrainian hryvnia
USD	US dollar
USD eq.	US dollar equivalent
pp	percentage points
yoy	year-on-year
qoq	quarter-on-quarter
mom	month-on-month
bp	basis point
r.h.s.	right hand scale
min	minutes
H	half of a year
Q	quarter
M	month
Y	year