THE CENTRAL BANK
OF THE REPUBLIC OF UZBEKISTAN

MONETARY POLICY GUIDELINES FOR 2024 AND THE PERIOD OF 2025-2026

Central Bank of the Republic of Uzbekistan

MONETARY POLICY GUIDELINES FOR 2025 AND THE PERIOD OF 2026-2027

Approved by the Resolution of the Board of the Central bank of the Republic of Uzbekistan #37/1 dated November 23, 2024

Prepared by the Monetary Policy department.

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CONTENT

ABBREVIATIONS

GDP	–	gross domestic product
CPI	–	consumer price index
PPI	–	producer price index
FAO	–	Food and Agriculture Organization of the UN
Fed	–	Federal Reserve System
IMF	–	International Monetary Fund
FRDU	–	the Fund for Reconstruction and Development of Uzbekistan
VAT	–	value added tax
GS	–	government securities
FD	–	fiscal dominance
MD	–	monetary dominance
REER	–	real effective exchange rate
CBDC	–	central bank digital currency

INTRODUCTION

The guidelines of the monetary policy determine the views of the Central Bank of the Republic of Uzbekistan on the current economic situation and expected macroeconomic development in the medium-term perspective, as well as monetary policy measures aimed at ensuring price stability in this period.

This year, the economy of Uzbekistan continues to grow at a slightly higher rate than expected within the baseline scenario of the Monetary policy guidelines for 2024 and 2025-2026. Growth in household income and high foreign direct investment are the main factors supporting domestic demand as well as economic growth.

In the first half of the year, due to the liberalization of energy resource tariffs, inflationary processes accelerated in the economy, and the secondary effects of these changes are manifested in the increase of core inflation starting from the second half of the year. At the same time, supply disruptions have had a negative impact on the prices of some food and fuel products in recent months.

The Central Bank's policy rate was cut by 0.5 percentage points in July due to the lower-than-expected impact of energy price increase on inflation expectations as well as anticipation of lower inflation in the near term. However, the policy rate was kept at 13.5 percent amid unchanged headline inflation in the following months.

In the period of increased volatility and uncertainties, the monetary policy guidelines for the coming years were based on **the baseline, alternative and adverse scenarios** of macroeconomic development in the medium term depending on the probability of the realization of various factors and the extent of their impact on inflation.

The baseline scenario forecasts were made based on the assumption that domestic and external conditions will persist and continue in their current state. In particular, global inflation will decline, economic growth will remain positive and commodity prices will remain at relatively high levels, domestic demand will increase, and reforms will be actively continued.

According to the baseline macroeconomic development scenario, real GDP growth is projected at 5.5-6.0 percent in 2025, 5.5-6.5 percent in 2026

and 6.0-6.5 percent in 2027, driven by tight monetary conditions and fiscal consolidation.

Consumer demand is expected to normalize and **inflation is expected to decline to 6.0-7.0 percent in 2025 and close to the 5 percent target in 2026-2027**, supported by relatively tight monetary conditions. In the second half of 2026, the inflation rate is projected to reach the target, which will allow monetary conditions to ease and gradually transition to a neutral phase.

An alternative scenario was developed assuming that current domestic conditions would prevail and external risks would intensify, including the prolonged period of high global inflation, a significant decline in economic activity in some of the largest economies, and the negative impact of the risks of increased fragmentation of the world economy.

In this scenario, it is assumed that the negative impact of external risks on economic growth will be offset by stimulus measures supporting domestic demand, including through fiscal stimulus and increased credit investments. As a result, the rate of economic growth is projected to be 5.0-5.5 percent in 2025, 5.0-6.0 percent in 2026, and 5.5-6.5 percent in 2027.

At the same time, due to a decline in economic activity and prolonged tight monetary conditions, inflation is expected to be **7-8 percent in 2025, 6 percent in 2026, and reach the 5 percent target in the first half of 2027**.

In addition to the baseline and alternative scenarios of macroeconomic development, **the adverse scenario** based on the increase in inflationary risks was considered. Under this condition, monetary policy measures aimed at reducing inflation were analyzed.

This scenario for medium-term macroeconomic development took into account the negative impact of climate change on production indicators in the region, increased fiscal incentives in conditions of limited production, as well as risks that could lead to a reduction in the aggregate supply in the economy due to the inability of energy supply to meet the demand. Under the influence of these risks, inflation is expected to be around **8-9 percent in 2025, 7-8 percent in 2026**, **and reach the 5 percent target at the end of 2027.**

At the same time, the likelihood of achieving the target depends on the effectiveness of the monetary policy measures, which requires maintaining tight monetary conditions.

In any of the abovementioned macroeconomic development scenarios, monetary policy measures aim to ensure price stability, which is the primary goal of the Central Bank. They also aim to reduce inflation to the target of 5 percent and maintain it at this level.

At the same time, the following important guidelines aimed at increasing the effectiveness of monetary policy measures in the coming years were identified, which include:

1. Increasing the demand for instruments of attracting excess liquidity through their securitisation (collateralisation) and ensuring the development of interest rates on interbank repo operations close to the key rate;

2. Intensifying the issuance of the Central bank notes of various maturities and volumes in order to determine the short-term segment of the yield curve and to ensure that the yields of the Central bank notes fully reflect the expectations of market participants;

3. Conducting a legal audit and making necessary changes to the rules for the implementation of monetary policy operations and regulatory documents on the money and REPO markets;

4. Improving the reserve requirement instrument by gradually expanding the coverage of commercial banks' liabilities by these requirements and reducing the requirements for foreign currency liabilities;

5. Improving the system of macroeconomic analysis and forecasting, which is actively used in decision-making in monetary policy, particularly aligning the parameters of short- and medium-term forecast models with the current economic reality with the support of experts from international financial organizations;

6. Continuing coordinated application of monetary and macroprudential policies to contain inflationary pressures by balancing the growth rates of retail loans. In particular, tightening of macroprudential requirements for certain types of retail loans, as necessary.

In general, the Central Bank continues to implement an active monetary policy aimed at reducing inflation to the 5 percent target and ensuring price stability in the medium term. Conditions are maintained at sufficiently tight levels to sustainably reduce inflation, and any potential inflation risks are promptly addressed through monetary policy instruments.

I. ANALYSIS OF MACROECONOMIC CONDITIONS AND MONETARY POLICY IN 2024

1.1. Analysis of internal and external factors of inflation

In January-September 2024, economic growth accelerated, primarily supported by industry, services, and investment activity. A significant increase in remittance inflow contributed to higher household incomes and stable consumer demand.

Meanwhile, budget expenditure grew faster than revenues in the first half of the year. However, during the third quarter, there was an increase in budget revenues and a slowdown in spending.

Economic growth. In January-September 2024, real GDP growth amounted to 6.6 percent compared to the same period last year.

Industry, construction, and services were the main supply-side drivers of economic growth. In recent years, the contribution of services sector to GDP growth has remained significant *(Figure 1.1.1).*

As of the end of January-September 2024, there was a substantial growth in the industry, construction, and services sectors compared to the same period last year. In particular, real growth amounted to 9.1 percent in construction, 7.0 percent in industry, and 12.8 percent in services.

Figure 1.1.1. GDP decomposition by production method, *p.p.*

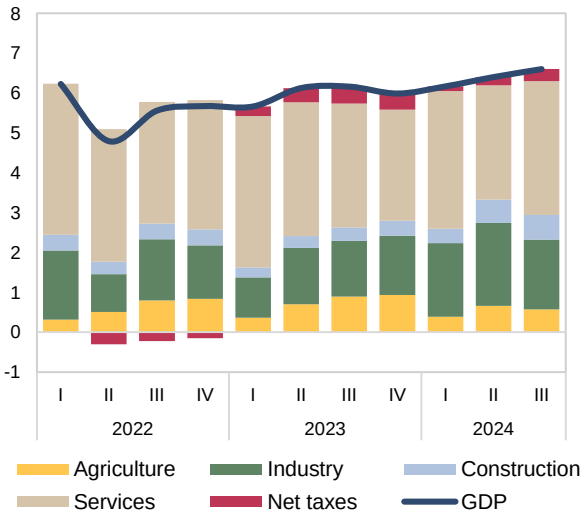
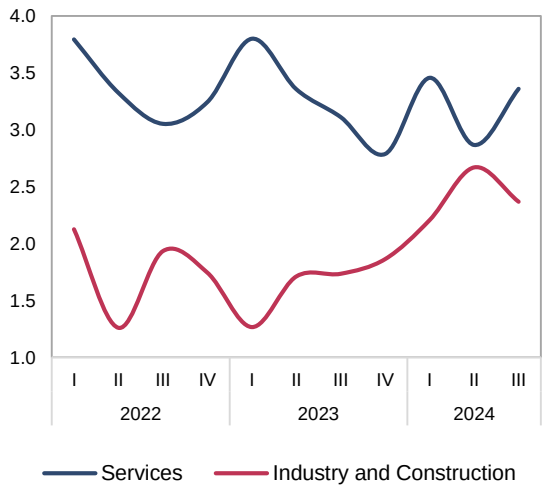


Figure 1.1.2. Contribution of selected components to GDP growth, *p.p.*



Source: Statistics Agency.

Investment activity, particularly FDI and non-guaranteed foreign loans *(with a real growth rate of 62.1 percent),* has been a major driver of aggregate demand *(Figure 1.1.3)*. The major portion of investments was directed to the industrial sector, in particular, to the mining industry.

Despite a decrease in the share of education, transportation and storage, information and communication services, and housing construction in total investments, investments in the services and construction sectors continued to increase at a high rate.

Consumer activity remains strong. There is a robust growth in retail turnover *(9.2 percent)*, catering *(10.9 percent)*, and tourism services imports *(52.1 percent)*.

Figure 1.1.3. FDI dynamics, *million USD*

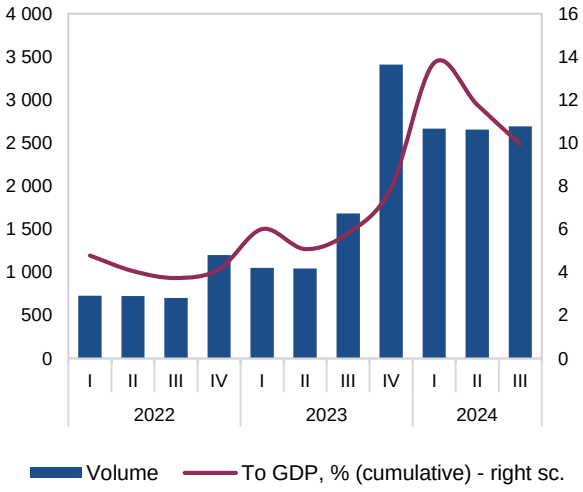
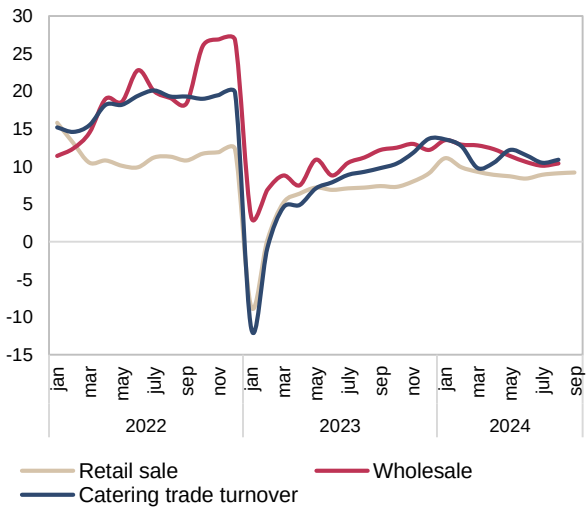


Figure 1.1.4. Trade and catering turnover, *real percentage growth*



Source: CBU calculations based on data from Statistics Agency.

Figure 1.1.5. Interbank transactions, *annual growth*

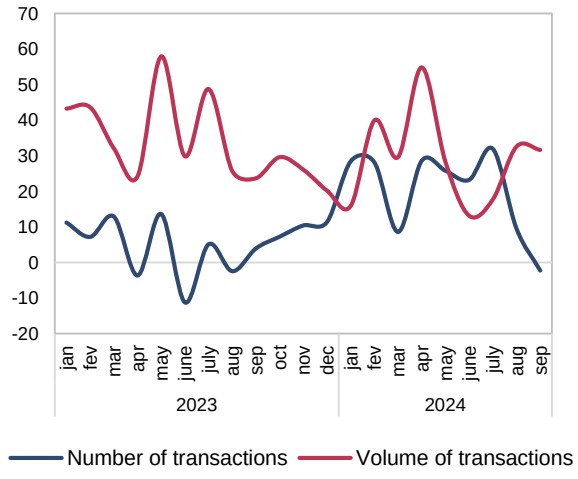
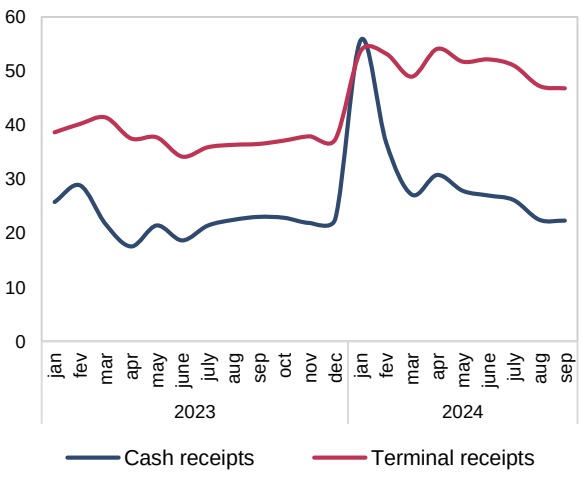


Figure 1.1.6. Revenues from trade and paid services, *annual growth*



Source: CBU calculations.

Strong economic activity was also reflected in the volume of interbank transactions, increasing by 28.6 percent during the first nine months of the current year compared to the same period last year *(Figure 1.1.5).*

In January-September of 2024, revenues from trade and paid services increased by 32.1 percent compared to the same period last year, with positive growth observed each month *(Figure 1.1.6).*

During this period, monthly price index growth in the residential real estate market slowed and demonstrated lower dynamics than the corresponding period of 2023. Given the high base of the previous year, the growth of housing price in soum terms in the secondary market was 15.5 percent in September 2024, in contrast to 32.8 percent last year *(Figure 1.1.7)*.

Having declined in July 2024, the number of vacancies slightly rose in August and September *(Figure 1.1.8)*. In particular, there was a significantly higher number of announced vacancies in retail trade, catering and manufacturing sectors compared to other sectors.

Fiscal conditions. In the third quarter of this year, a negative gap remained between budget expenditures and revenues. Consolidated fiscal deficit in the second quarter was 3 percent of GDP, while a sharp decrease to 0.3 percent was observed in the third quarter *(Figure 1.1.9)*. The decrease is mainly attributed to continued fiscal consolidation efforts.

Figure 1.1.7. Price index in secondary housing market

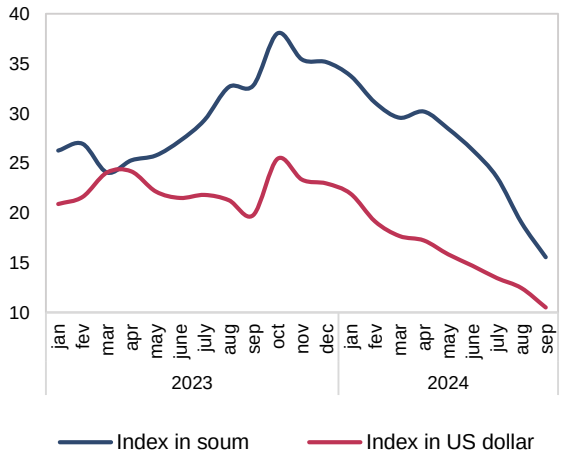
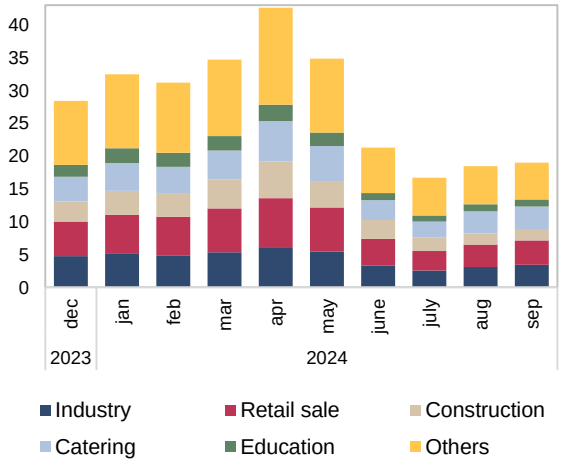


Figure 1.1.8. Number of announced vacancies, *thousands*



Source: CBU calculations based on open data.

In the first half of 2024, government expenditures increased at a higher pace than revenues. In particular, in the first quarter of this year, an annual growth of revenues and expenditures amounted to 11 percent and 22 percent, respectively. However, in the second quarter, the gap between the two indicators narrowed (with revenues growing by 8 percent and expenditrues by 5 percent). During the third quarter, the revenue growth was 33 percent while the expenditures grew by 9 percent.

Overall, the current stimulative fiscal policy has been significantly contributing to robust economic activity by driving consumer demand.

There has been a decline in tax revenues to GDP in recent periods *(Figure 1.1.9)*. Meanwhile, total payments on public debt and external debt increased *(Figure 1.1.10),* reaching 6 percent and 4 percent of net quarterly GDP in the first and second quarters of 2024, respectively.

Decreasing tax revenues to GDP amid growing economic activity may indicate an increase in informal sector activity and a need for further improvements in tax administration or review of legislation gaps[1].

Figure 1.1.9. Consolidated budget revenues and expenditures, *percentage of GDP*

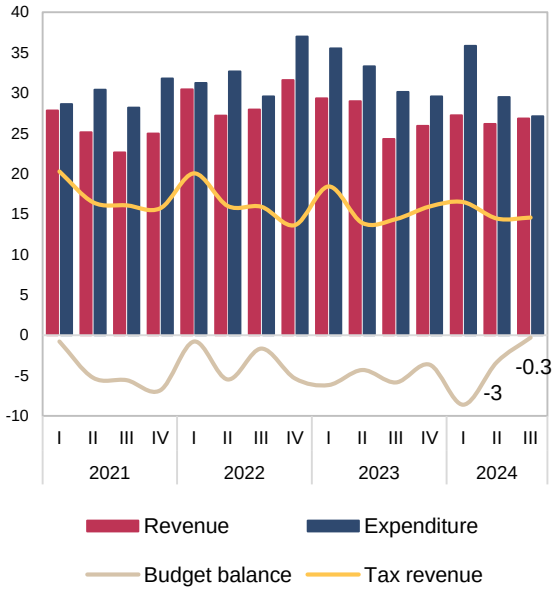
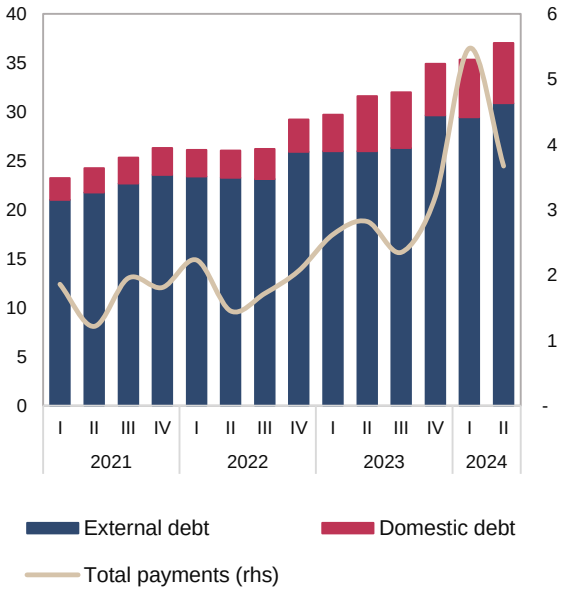


Figure 1.1.10. Government debt and external debt payments, *percentage of GDP*



Source: CBU calculations based on data from Statistics Agency and Ministry of Economy and Finance.
Note: Budget revenues and expenditure and external debt payments to GDP are calculated based on quarterly GDP data.

[1] Gaps in legislation are ambiguities or unsettled tax laws. These imperfections allow individuals and legal entities to reduce their tax liabilities or avoid paying taxes altogether without violating the law.

A decrease in tax revenues can increase dependence of the budget on non-tax revenues, such as earnings from natural resource export or borrowings, thus leading to higher government vulnerability, a substantial rise in debt and interest expenses, adding pressure on government financial position. This, in turn, can have negative implications to economic growth in the long-run through reducing the state's investment capacity.

External economic conditions

Global inflation has been gradually decelerating as a result of tight monetary policies conducted by central banks in 2023-2024.

According to the IMF's October forecast, global inflation is projected to be 5.0 percent by the end of 2024, slightly lower than the previous estimates. Meanwhile, inflation in advanced economies is expected to continue its downward trend, reaching 2.2 percent by the end of this year.

In contrast, inflation deceleration in developing countries is expected to take longer than previously expected. End of year inflation is expected to be at around 7.0 percent. A slower decrease of global service inflation and ongoing geopolitical tensions have delayed the start of monetary policy easing cycle compared to previous expectations.

In January-September this year, global financial conditions started to ease amid decelerating inflation. In particular, weighted average interest rate for major advanced economies[2] decreased by 42 basis points to 3.78 percent per annum. Leading central banks are expected to further cut interest rates through 2024 as inflation continues cooling down.

According to the IMF's October forecast, global economy in 2024 is expected to grow by 3.2 percent *(unchanged from the July 2024 forecast).* Growth in advanced economies is projected to reach 1.8 percent *(an increase of 0.1 percentage points)*, while emerging economies are expected to grow by 4.2 percent.

Global trade in goods and services is expected to continue expanding, with an increase of 3.1 percent in 2024 *(4.6 percent in emerging markets)*.

In particular, having sharply risen *(by 120 percent compared to the beginning of the year)* in the second quarter as a result of a substantial increase in trade volume from China to other countries, global container

[2] Classification of the G7 countries by the IMF.

index decreased in the third quarter *(year-to-date growth was 31 percent in September)* due to weakening demand.

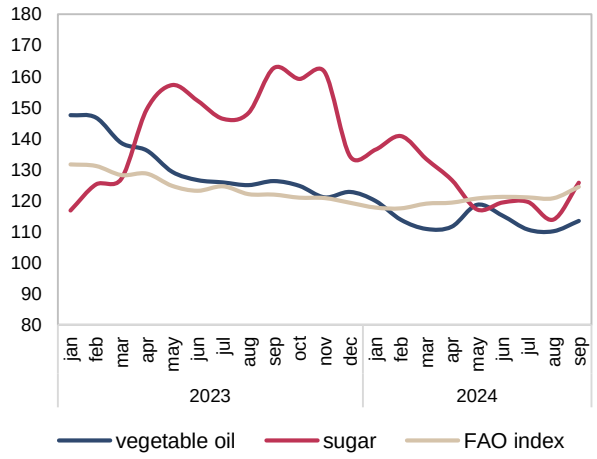
Global Purchasing Managers' Index *(PMI)*, an indicator of economic activity, pointed to a third consecutive monthly decline in the manufacturing sector in September. While economic activity increased in the United States, Japan, the United Kingdom, and Brazil, there was a slowdown in the Eurozone, Russia, and China. Meanwhile, activity in the services sector remained strong, having upward dynamics since the beginning of 2023.

Despite continued impact of geopolitical tensions and weaker aggregate demand, economic growth in major trading partners has remained stable supported by large public investments and recovering private consumption. At the same time, despite restrictive stance of monetary policy which is expected to decrease inflationary pressures, inflation in most trading partners is projected to stay significantly above the target till the end of the year.

Although the **FAO food price index** has remained stable since the beginning of the year, there have been considerable changes in some of its components. In particular, the prices of meat, oil and dairy products have been demonstarting an upward trend since the beginning of the year.

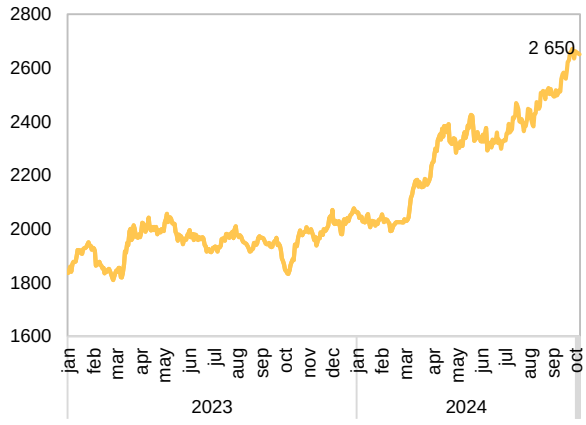
Meanwhile, the food price index reached its highest growth rate in the last two and a half years in September *(3.1 percent)* largely due to a price increase for sugar and vegetable oil. In Brazil, drought and wildfires are damaging sugarcane fields, while there are crop problems in vegetable oil producing countries due to adverse weather conditions *(Figure 1.1.11).*

Figure 1.1.11. FAO Food Price Index, *2014-2016 = 100*



Source: FAO.

Figure 1.1.12. Gold price, *USD / troy ounce*



Source: Investing.com

World gold price peaked in January-September this year, rising by 29.2 percent. Global demand for gold remains strong due to geopolitical tensions, interest rate cuts, as well as, central banks' policies of increasing the share of gold in foreign exchange reserves *(Figure 1.1.12).*

Amid economic stimulus measures implemented by the Chinese government, copper price started increasing in the third quarter of this year. Meanwhile, the price of cotton continues to decline due to abundant global supply.

In the first nine months of 2024, the volume of remittances reached $11.3 billion, which is higher by 34.8 percent compared to the same period last year *(Figure 1.1.13)*. Key factors behind the growth in remittances were a relatively stable exchange rate, a high wage growth, strong economic activity, and persistent demand for labor in migrant recipient countries.

Having decreased during summer months as a result of inflation acceleration in major trading partners, real effective exchange rate, however, started appreciating in September due to higher domestic inflation and stable nominal exchange rate.

The exchange rate of the Uzbek soum against the U.S. dollar has depreciated by 3 percent since the beginning of year. The relatively stable exchange rate is mainly attributed to favorable prices on exported goods, a substantial remittance growth, and foreign debt inflows to both public and private sectors.

Figure 1.1.13. Dynamics of remittances, *million USD.*

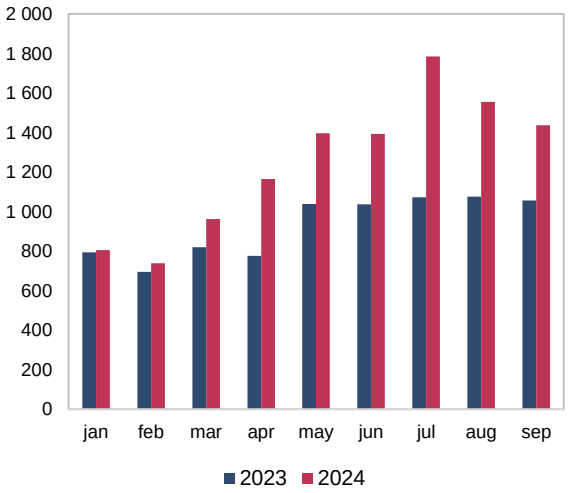
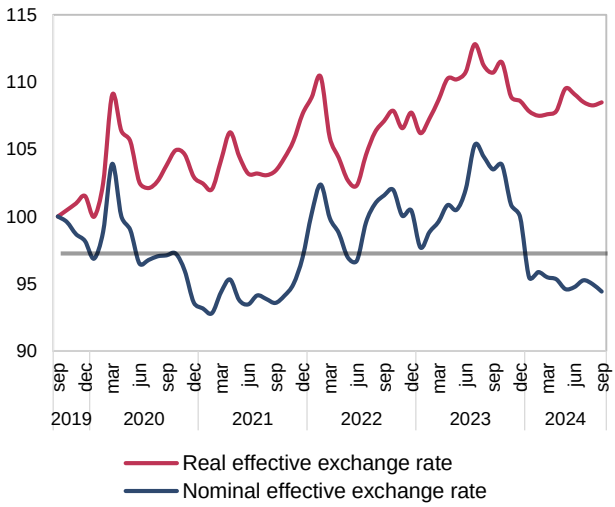


Figure 1.1.14. Dynamics of real and nominal effective exchange rates, *percent*



Source: CBU calculations.

Figure 1.1.15. Export growth, *percent*

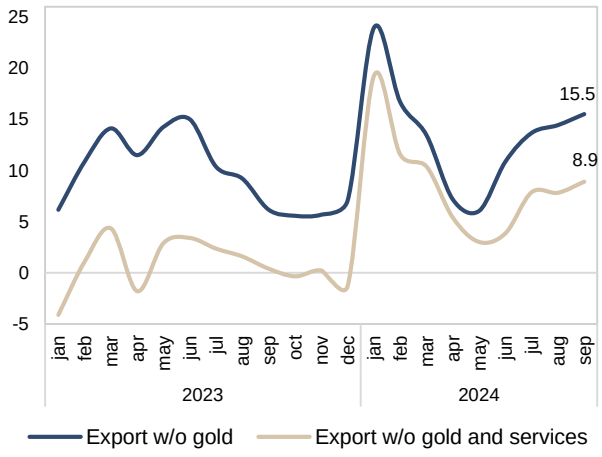
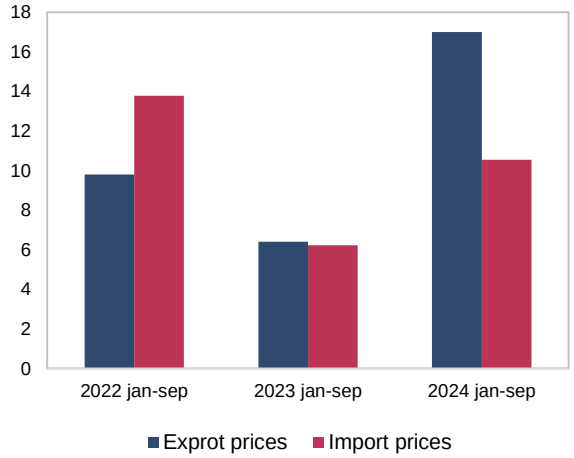


Figure 1.1.16. Dynamics of export and import price indices, *percent*



Source: CBU calculations based on data from Statistics Agency.

In January-September this year, exports excluding gold increased by 15.5 percent *(Figure 1.1.15).* Key export drivers were economic growth in major trading partners and favorable prices on exported goods.

In 2024, high prices for copper and uranium contributed to a significant growth in commodity exports. On the other hand, a decline in cotton price and weaker demand for textile products in neighboring countries led to a decrease in textile exports *(-6.6 percent)*.

Import growth was considerably lower than in the same period last year, amounting to 5.2 percent *(22 percent on average in 2021–2023).* Excluding energy resources *(a 59 percent increase compared to last year)* and services *(a 42 percent increase),* imports fell by 2.0 percent, mainly due to stable import prices and a high base effect from the large one-off import of machinery and equipment in 2023 *(Figure 1.1.17).*

Despite strong growth of investments in the first half of the year, imports of capital goods remained unchanged in January-September 2024, following a sharp increase *(46 percent)* last year. This may be attributed to the ongoing deployment of previously imported equipment, particularly transportation machinery. This year's high investment levels are expected to result in an increasing number of investment projects in the coming years.

Current account deficit amounted to 2.4 billion dollars in the first half of this year, a 15 percent decrease compared to the same period last year. One of the major factors was the positive income balance, largely supported by high secondary income.

Figure. 1.1.17. Import dynamics, *percent*

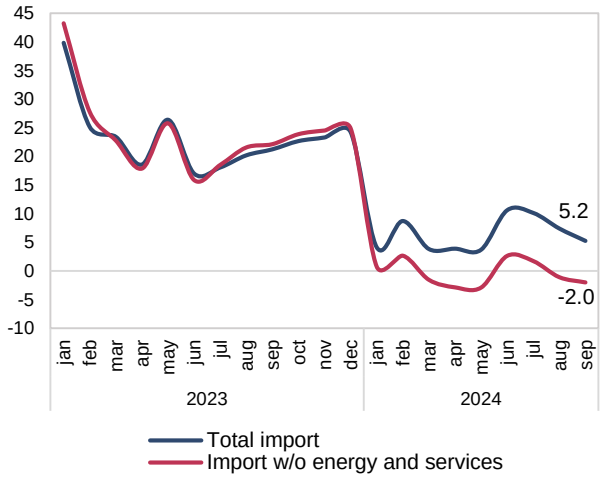
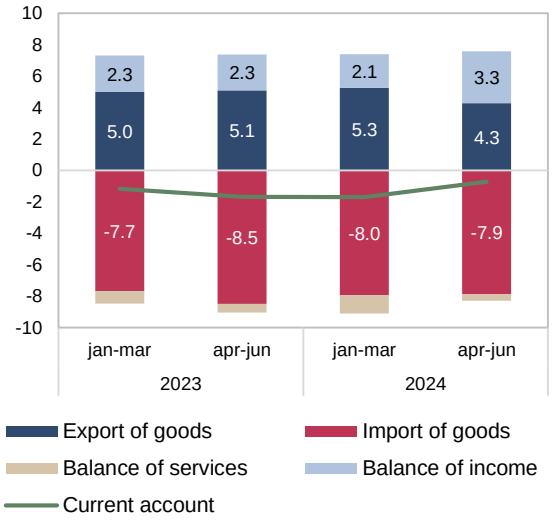


Figure 1.1.18. Current account balance, *billion USD*



Source: CBU calculations based on data from Statistics Agency.

In 2023, the current account deficit amounted to 7.7 percent of GDP, while in the first half of this year, the deficit decreased to 5.4 percent. With the positive trend in the income balance and import growth moderation, the deficit is projected to be around 6-6.5 percent of GDP by the end of the year.

1.2. Inflation dynamics and monetary policy response

In January–September 2024, inflation in the economy followed a somewhat volatile trend. While demand-side factors were mitigated by relatively tight monetary policy, there were significant supply-side inflationary pressures in the economy.

Figure 1.2.1. Headline and core inflation dynamics, *percent*

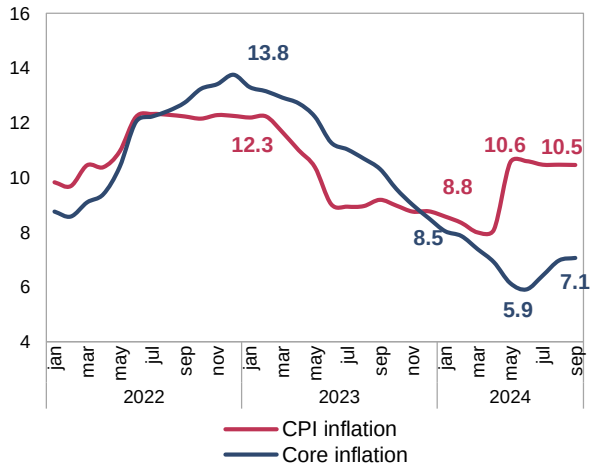
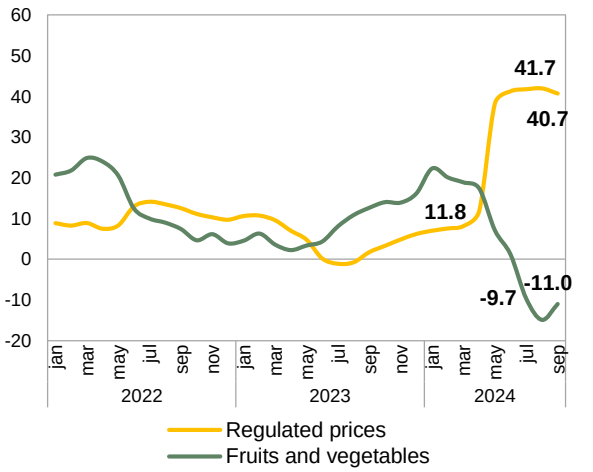


Figure 1.2.2. Headline inflation decomposition, *percentage points*



Source: CBU calculations based on data from Statistics Agency.

In the first quarter of this year, annual headline inflation had a declining trend and fell from 8.8 percent at the beginning of the year to 8 percent in March. However, inflation accelerated to 10.6 percent year-on-year in May due to the imposition of value-added tax on pharmaceuticals and medical services, and the liberalization of energy prices in the second quarter.

During the third quarter, annual inflation remained unchanged at 10.5 percent. Excluding the effects of energy price increases, inflation amounted to 6.9 percent year-on-year *(Figure 1.2.1).*

In the first half of this year, annual core inflation demonstrated downward dynamics, reaching 5.9 percent in June, the lowest rate over the past several years. However, in the third quarter, core inflation rose significantly and amounted to 7.1 percent in September, while its seasonally adjusted rate equalled 8.8 percent.

Core inflation acceleration in the third quarter was largely driven by delayed secondary effects from supply-side factors of the previous quarter *(such as energy price increases and the imposition of value-added tax on pharmaceuticals and medical services)* as well as the spillovers of higher fuel prices for vehicles *(methane and propane)* to other prices.

Moreover, strong demand for meat amid constrained supply and higher prices for vegetable oils in international markets observed in the last three months put upward pressure on core food inflation[3] *(Figure 1.2.4).*

Figure 1.2.3. Core inflation dynamics, *percent*

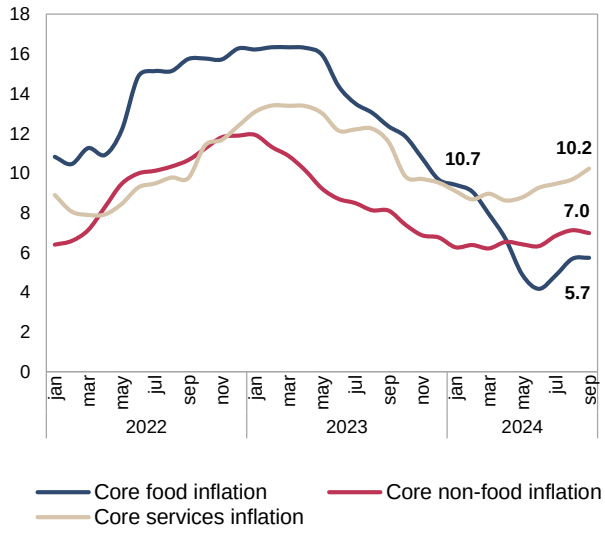
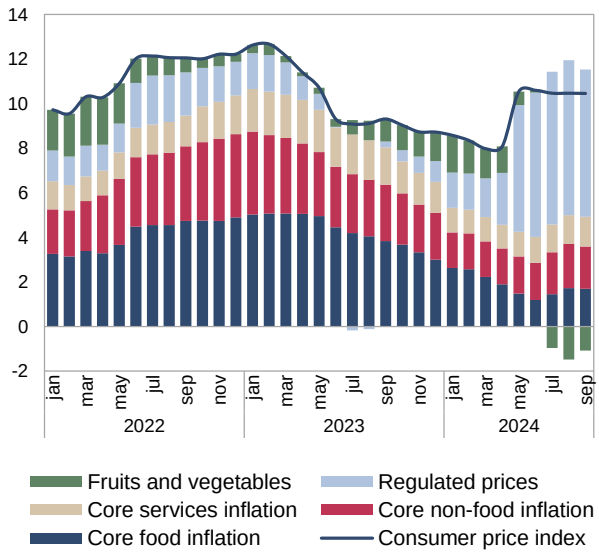


Figure 1.2.4. Core and non-core inflation components, *percentage points*



Source: CBU calculations based on data from Statistics Agency.

[3] Food inflation excluding fruit and vegetable prices.

Core non-food inflation[4] remained relatively stable, with a slight increase in recent months, reaching 7 percent year-on-year in September. Among non-food products, there was a higher price increase in pharmaceuticals and construction materials. On the other hand, clothing and hygiene products had a downward contribution to inflation.

Meanwhile, core services inflation had been rising since May and reached 10.1 percent year-on-year in September, mainly driven by a price increase for private education, housing, and leisure services. The upward trend and current high level of core services inflation indicate persisting inflationary pressures in the economy. Since this inflation component is generally persistent, more effective monetary tightening measures are required in order to reduce it.

Figure 1.2.5. Dynamics of alternative core inflation indicators, *percent*

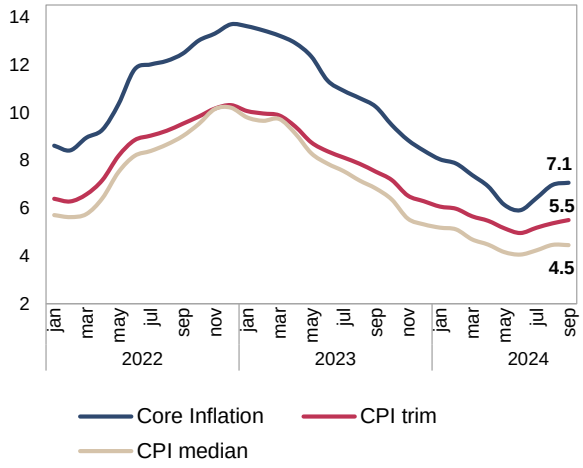
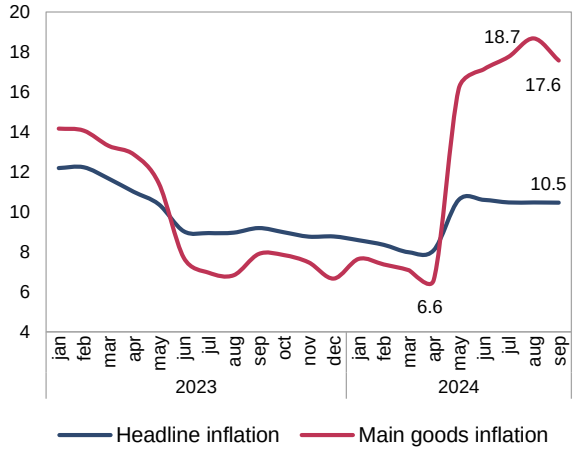


Figure 1.2.6. Inflation of 30 goods and services with the highest weight in CPI basket, *annual percentage*



Source: CBU calculations based on data from Statistics Agency.

Figure 1.2.7. Dynamics of alternative indicators of consumer price inflation, *percent*

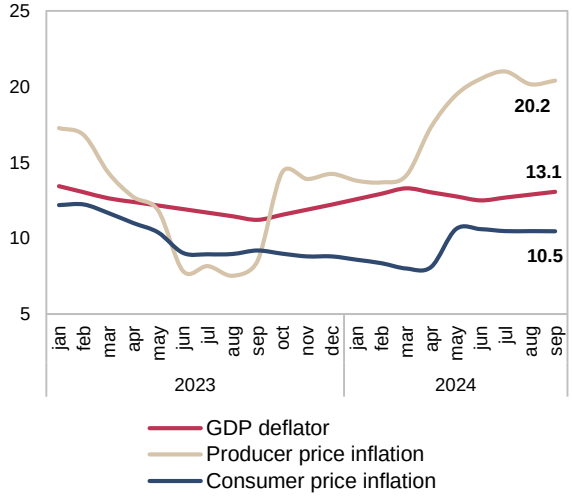
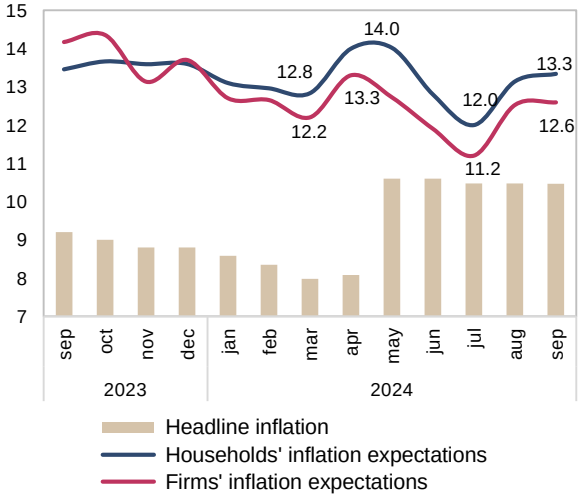


Figure 1.2.8. Inflation expectations of households and business entities for the next 12 months, *percent*



[4] Non-food inflation excluding regulated prices.

Source: CBU calculations based on data from Statistics Agency.

Alternative indicators of core inflation have also been increasing since July. Specifically, trimmed mean inflation rose by 0.5 percentage points from June, reaching 5.5 percent in September, while the CPI median went up by 0.4 percentage points, reaching 4.5 percent in September *(Figure 1.2.5).*

The liberalization of electricity and natural gas prices for households led to an inflation acceleration in the regulated goods and services component. Furthermore, there was a considerable price increase for automotive fuel during the summer months.

Annual deflation was observed in the fruit and vegetable component owing to higher crops this year, contributing to a reduction in headline inflation.

Having peaked at 18.7 percent in August, inflation for the 30 most frequently purchased goods and services in the consumer basket slightly decreased to 17.6 percent in September.

In the third quarter this year, GDP deflator increased by 0.6 percentage points compared to the second quarter, reaching 13.1 percent year-on-year. The GDP deflator growth is primarily attributed to price increases in the industrial, transportation, and logistic sectors *(Figure 1.2.7).*

Substantial price hikes in the electricity and gas supply sectors were reflected in the Producer Price Index *(PPI)*, which rose to 20.4 percent annually in September (*6.6 percentage points higher compared to January*).

Inflation Expectations

In the first quarter of 2024, inflation expectations of economic agents for the next 12 months showed a downward dynamic. In March, households expected an annual 12.8 percent inflation while business entities - 12.2 percent *(Figure 1.2.8).*

During the second quarter, inflation expectations of both households and business entities were volatile. Energy tariff increases resulted in a rise in inflation expectations. In particular, inflation expectations in April accelerated to 14.0 percent for households and 13.3 percent for business entities.

Owing to a gradual fading of the energy price liberalization effects on inflation expectations, stable exchange rate and prices for basic food products, inflation expectations in July returned to a downward trend, decreasing to 12.0 percent and 11.2 percent for households and businesses, respectively.

Figure 1.2.9. Factors of inflation expectations of households and business entities, *share of respondents*, *percent*

households

	2024								
	jan	feb	mar	apr	may	jun	jul	aug	sep
Changes in exchange rate	55	56	61	55	49	41	39	42	50
Increase in the price of fuel and energy resources	49	54	50	47	49	47	44	46	47
Increase in the price of utility services	39	39	42	55	57	54	51	49	45
Increase in wages and pentions	32	28	29	23	24	26	22	40	39
Monopoly and artificial increase in prices	32	30	35	29	30	28	28	27	29
Increase in transportation costs	29	33	29	28	28	28	26	26	28
Increase in the price of stable foods	24	22	26	25	22	21	20	23	25

business entities

	2024								
	jan	feb	mar	apr	may	jun	jul	aug	sep
Changes in exchange rate	59	57	61	60	52	42	38	42	51
Increase in the price of utility services	35	37	38	54	55	53	50	47	46
Increase in the price of fuel and energy resources	43	49	44	44	43	41	42	45	44
Increase in wages and pentions	28	26	26	22	21	22	17	38	38
Increase in transportation costs	33	35	33	31	33	29	31	31	31
Increase in the price of raw materials	28	28	28	27	26	26	25	26	27
High tax burden	24	27	25	31	35	31	28	27	27

Source: CBU calculations.

In the third quarter, inflation expectations of economic agents increased at a slower rate. According to the results of the September survey, households' expectations amounted to 13.3 percent while that of business entities equalled 12.6 percent.

Inflation expectations of households and business entities were primarily influenced by factors such as exchange rate fluctuations, increases in fuel-energy resource and utility prices, wage rises and higher transportation costs *(Figure 1.2.9).*

Monetary policy measures

Despite headline inflation decelerating during 2023 and during January-April of 2024, services inflation has been accelerating since November 2023. This, combined with expectations about the energy tariff liberalization, led the Central Bank to keep the policy rate unchanged at 14 percent per annum for a longer period.

As a result, the policy rate in real terms started rising, reaching 5.5 percent in April, ensuring tight monetary conditions *(Figure 1.2.10).*

Taking into account the lower-than-expected impact of energy tariff liberalization on headline inflation, inflation expectations of households, and projected inflation deceleration, the Central Bank cut the policy rate by 0.5 percentage points in July.

Figure 1.2.10. Central Bank's policy rate, *percent*

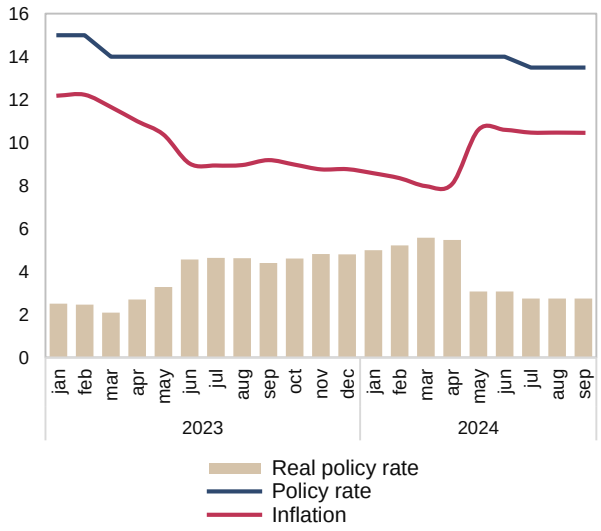
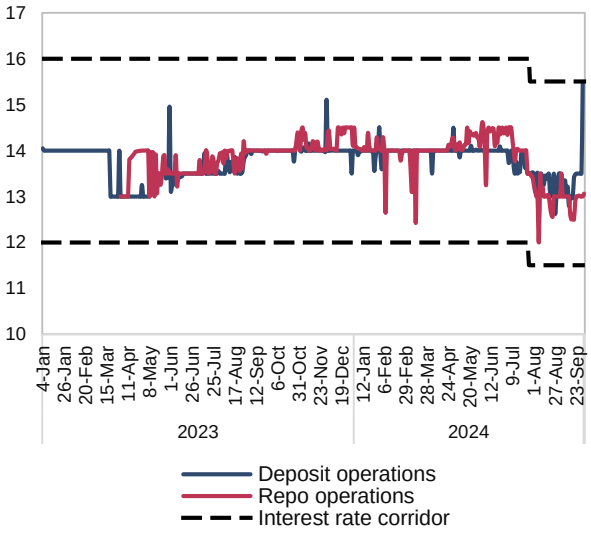


Figure 1.2.11. Benchmark interest rates in the money market, *percent*



Source: CBU calculations.

However, in August-September, due to a significant increase in certain food and fuel prices, headline inflation remained flat at 10.5 percent year-on-year. The absence of the expected inflation decline is the key factor behind the Central Bank's decisions to keep the policy rate unchanged at recent Board meetings. As a result, the real interest rate remained at around 3 percent contributing to relatively tight monetary conditions in the economy.

The Central Bank's decisions on the policy rate are being effectively transmitted to the money market rates. The average real interest rates for interbank deposits and repo operations continue to remain positive. Specifically, the UZONIA benchmark rate, the Central Bank's operational target, has been developing fully within the interest corridor, close to the policy rate throughout the year. Conditional UZONIA rates, a benchmark rate for REPO operations between banks, are also demonstrating similar dynamics *(Figure 1.2.11).*

In January-September 2024, the volume of money market operations amounted to a total of 358 trillion soums, 18.2 percent more than the same period last year. Nearly half (47 percent) of this volume consisted of REPO operations.

Interest rates and the volume of operations in the money market depend on the overall liquidity of the banking system. Having approached the neutral level in April-May, the volume of liquidity increased in recent months with monthly average surplus exceeding 12 trillion soums in September *(Figure 1.2.12).*

Figure 1.2.12. Net liquidity of the banking system and intraday credit facility, *trillion soum*

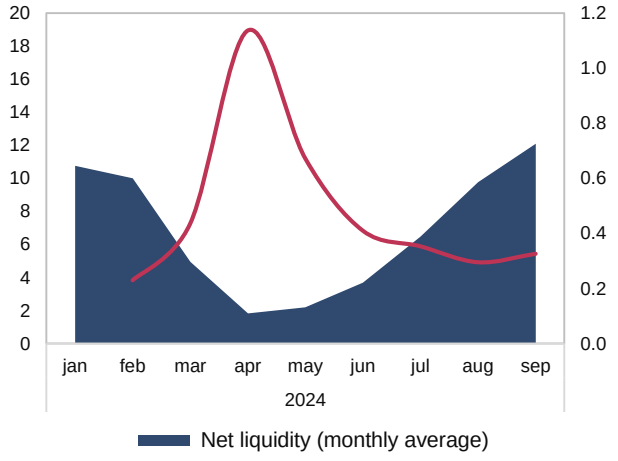
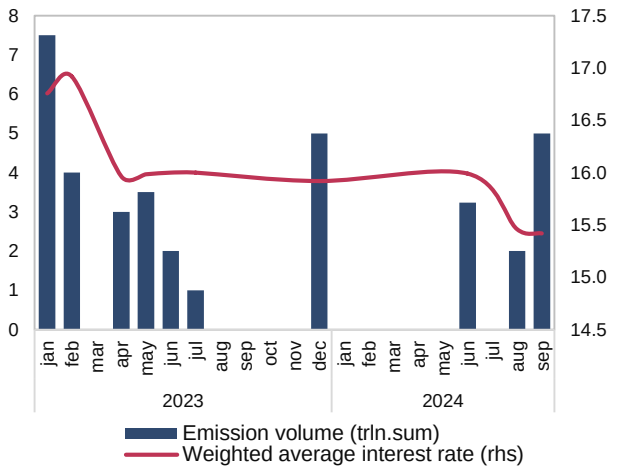


Figure 1.2.13. Central Bank obligations, *trillion soum*



Source: CBU calculations.

In order to effectively manage the liquidity of the banking system and interest rates in the money market, the Central Bank has introduced a number of modifications to the operational mechanism since the beginning of this year.

In particular, in order to facilitate commercial banks' liquidity management, a three-phase settlement system was introduced. This system allows commercial banks to redistribute available liquidity in the interbank money market within 30 minutes and to place orders for overnight transactions with the Central Bank within one hour after the end of the banking day.

Furthermore, in order to mitigate the impact of unexpected liquidity shocks and ensure uninterrupted payments, an “intraday credit facility” was established to provide interest-free liquidity to commercial banks.

Moreover, currency-collateralized lending operations were introduced and collateral discounts were established for all Central Bank liquidity operations.

Commercial banks are actively using the interest-free intraday credit facility. Daily volume of operations fluctuated in response to movements in the liquidity of the banking system and amounted to 325 billion soums on average in September.

Central Bank bonds were not issued until May of this year as the overall liquidity of the banking system was close to the neutral level; however, they were issued in June due to increased liquidity. Yields on these bonds are moving in line with the Central Bank's policy rate, near the upper bound of the interest rate corridor *(Figure 1.2.13).*

Figure 1.2.14. Interest rate on term deposits in the national currency, *percent*

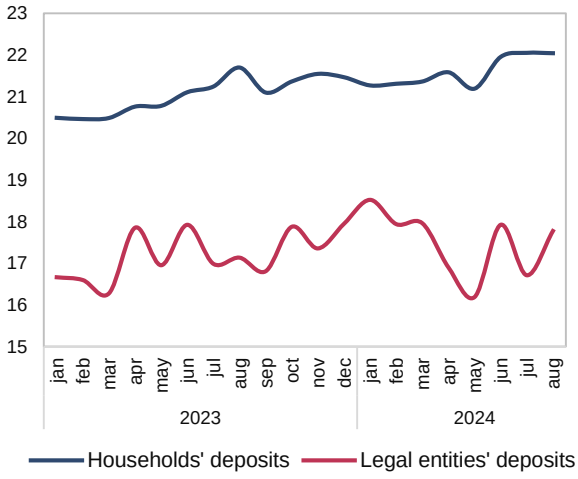
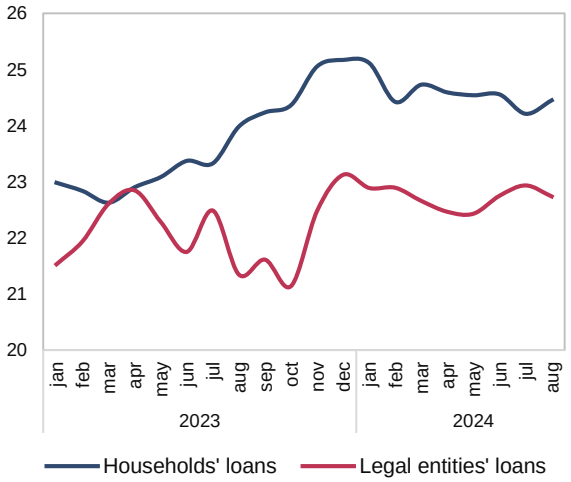


Figure 1.2.15. Interest rate on loans in the national currency, *percent*



Source: CBU calculations.

Transmission of interest rates in the money market to banks' deposit and loan rates has been mixed. For instance, the average interest rates on term deposits in soums for individuals have slightly increased since the beginning of the year, while those for legal entities, despite high volatility, have remained at the same level as in December of the previous year *(Figure 1.2.14).*

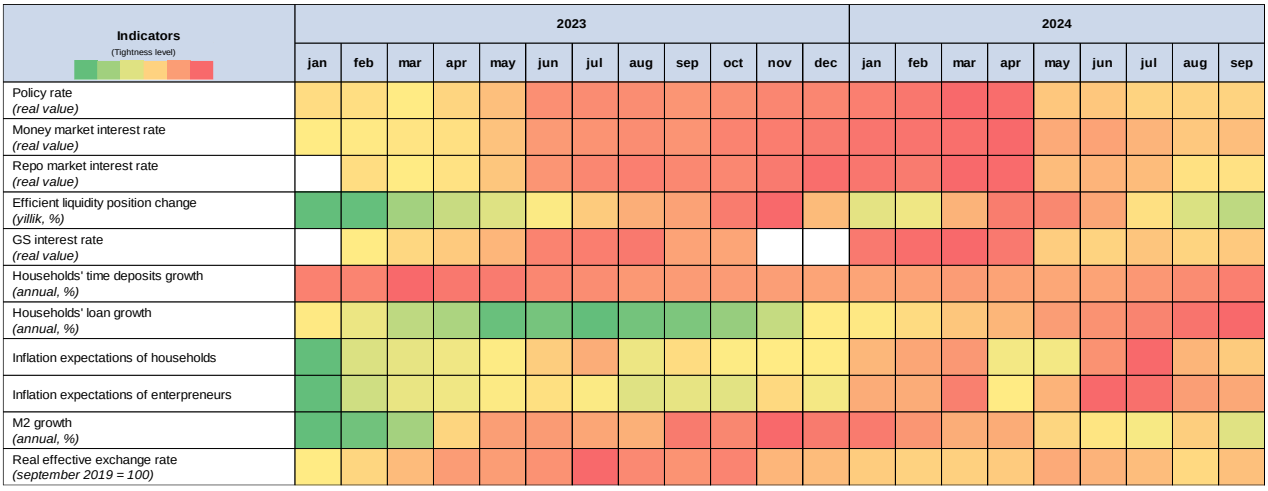
There was a slight decrease in the average interest rates on loans in the national currency compared to the beginning of the year, indicating a moderation in credit demand *(Figure 1.2.15).* Policy rate adjustment is expected to transmit to deposit and loan interest rates with a certain lag in the subsequent quarters.

Higher growth of retail loans and inflation expectations of economic agents in recent years have contributed to the relatively higher nominal interest rates on loans in local currency. However, as demand for loans from individuals' moderates and inflation expectations decline, interest rates on loans and deposits in the national currency are expected to decrease, thus narrowing the gap with the policy rate in the future.

Alternative indicators matrix, reflecting monetary stance in the economy, indicates that monetary conditions are still relatively tight *(Figure 1.2.16).*

Meanwhile, in the early months of this year, monetary conditions were maintained tight through unchanged high policy rate and decreasing liquidity in the banking system. In May, monetary stance shifted to a relatively tight phase as a result of headline inflation acceleration and liquidity surplus.

Figure 1.2.16. Indicators of monetary conditions



Source: CBU calculations.

According to alternative indicators, real interest rates and inflation expectations indicate relatively tight conditions, while liquidity volumes imply an easing of monetary conditions in recent months, and the dynamics of deposits and loans suggests moderating monetary conditions.

While higher real interest rates have resulted in an increase of public saving activity, as reflected by a 60% annual growth of term deposits, a decrease of credit demand caused deceleration in total credit to households.

Positive developments in external economic conditions and currency inflows have contributed to relatively stable exchange rate, allowing the maintenance of tight monetary conditions.

Overall, maintaining current tight monetary stance is expected to serve to reduce inflationary pressures in the economy and bring inflation to projected year-end levels.

Box 1

Structural changes in outstanding loans and outlook.

In recent years, as a result of the structural reforms implemented in the economy, the popularization of banking services and the high demand for loans, the volume of loans to the economy continues to grow at a high rate. In particular, by the end of 2023, the balance of loans was 3.7 times higher than in 2018, and the average annual growth rate was 30.4 percent. The share of loans in relation to GDP increased from 23 percent in 2017 to the current 41 percent.

In 2019-2023, the volume of loans to households increased by an average of 48.2 percent per year and played a significant role in the growth of total loans to the economy. The rapid growth of household loans can be explained by the emergence of pent-up demand for retail loans that has accumulated over the years. In this regard, the expansion of the range of services aimed at meeting the high demand for retail loans by private and digital banks, which have been significantly active in recent years, is also an important factor.

In the composition of retail loans, from the second half of 2022, a high growth was observed in the volume of car loans and microloans. In particular, the share of these two types of loans in the total allocated loans increased from 41 percent in 2020 to 64 percent in 2023 *(Figure 1)*.

Figure 1. Share of loans allocated to the households by types, *percent*

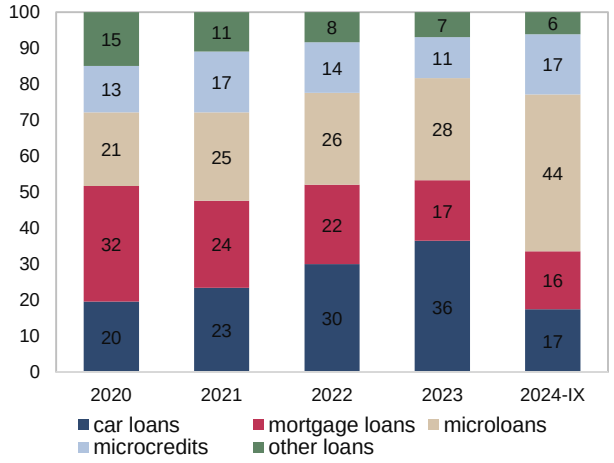
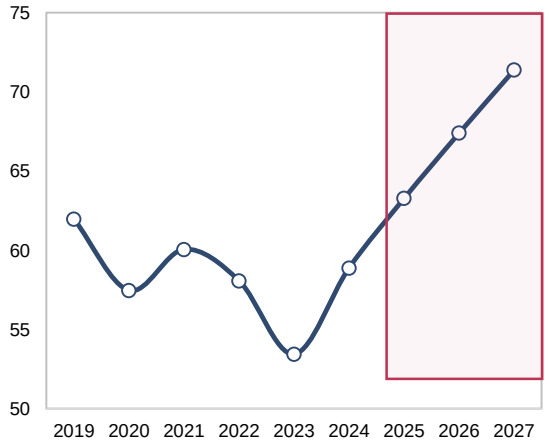


Figure 2. The ratio of household deposits to household loans, *percent*



Source: CBU calculations.

Under the influence of macroprudential measures aimed at mitigating the risks of rapid growth of car loans, the share of this type of loan in the first 9 months of 2024 decreased significantly *(to 17%)* while microloans comprised 44 percent of the loans allocated to the households. In this case, the amount of loans granted to the households remains at the same level as the corresponding period of the previous year.

The increase in the volume of consumer loans is one of the inflationary factors supporting the gross consumption demand. The continuation of the current year's balancing trend of retail loans in the coming years will allow reducing pressures on inflation from monetary factors.

The rapid growth of microloans is one of the monetary factors that increase the inflationary processes and adversely affects price stability in the economy. The Central Bank, in turn, may introduce additional macroprudential measures and restrictions in response to growth trends in microloans in order to prevent possible negative effects on inflation.

In recent years, high growth rates were observed in bank deposits as well as loans to the households. While the ratio of deposits to loans in the household segment decreased from 62 percent in 2019 to 53 percent in 2023, this ratio started to increase from this year. The ratio of deposits to loans is expected to grow to 59 percent by the end of this year and to 71 percent in the medium term due to the balancing of retail credit growth and high savings activity *(Figure 2)*.

This ratio is considered an alternative indicator of the households' debt burden, and its expected rise in the coming periods means that the debt burden will decrease, leading to a relative improvement of the financial situation of the households. At the same time, high real interest rates on soum deposits in the context of decreasing inflation and stability of the exchange rate are key factors for the stable attraction of the households' savings to banks.

Figure 3. Loans to GDP ratio, *percent*

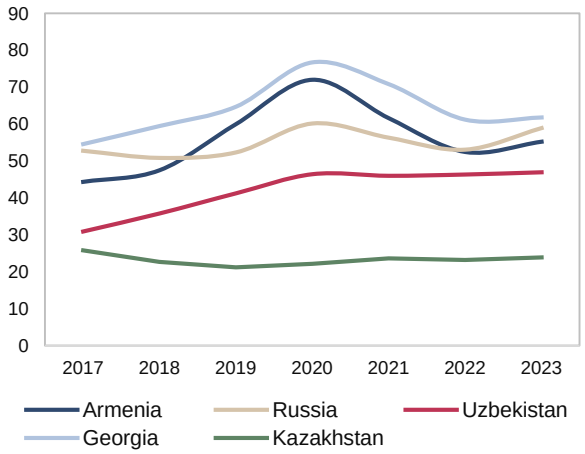
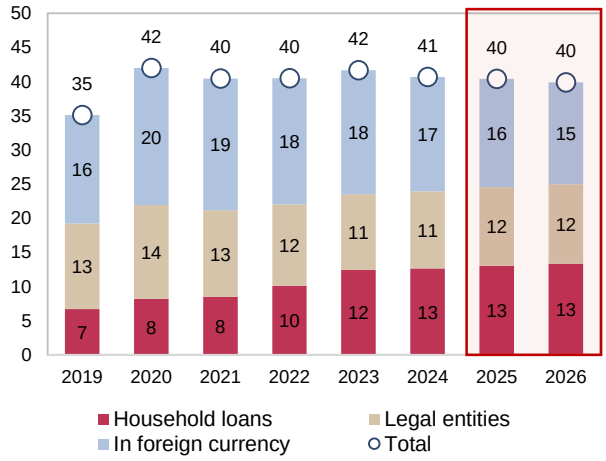


Figure 4. Composition of loans to GDP,[5] *percent*



Source: CBU calculations.

Although the loans-to-GDP ratio increased by 10 percentage points compared to 2017, it remains lower than most CIS countries with similar economies *(Figure 3)*.

This indicates the possibility of higher growth potential of loans in the future. The popularization of financial services due to the privatization of state banks, the opening of new private, digital and microfinance banks is expected to be one of the important factors in the growth of credit volume.

In terms of loans, the ratio of household loans to GDP is expected to increase from 7 percent in 2019 to 13 percent in 2024. At the same time, it is predicted that this indicator will remain unchanged in the coming years due to the expected balancing of retail loan growth.

Meanwhile, it is estimated that the downward trend in the level of loan dollarization will continue along with an increase in domestic savings. As a result, the foreign currency loans-to-GDP ratio is expected to decrease from 20 percent in 2020 to 15 percent in 2026 *(Figure 4)*.

The current levels of savings activity of economic agents in the national currency will help the banking system develop a stable resource base in soums, and expand the possibility of financing the economy in the national currency using domestic savings.

[5] Household loans and loans to legal entities are extended in national currency while loans in foreign currency are only extended to importers.

Box 2

Analysis of long-term trends in inflation expectations

The implementation of transparent communication on monetary policy, which is one of the main principles of the inflation targeting regime, has a positive effect on inflation expectations of the households and business entities, and helps to effectively anchor expectations in the medium and long term. A decrease in inflation expectations of economic agents will reduce inflationary pressure in the economy and have a positive effect on ensuring macroeconomic stability in the long term.

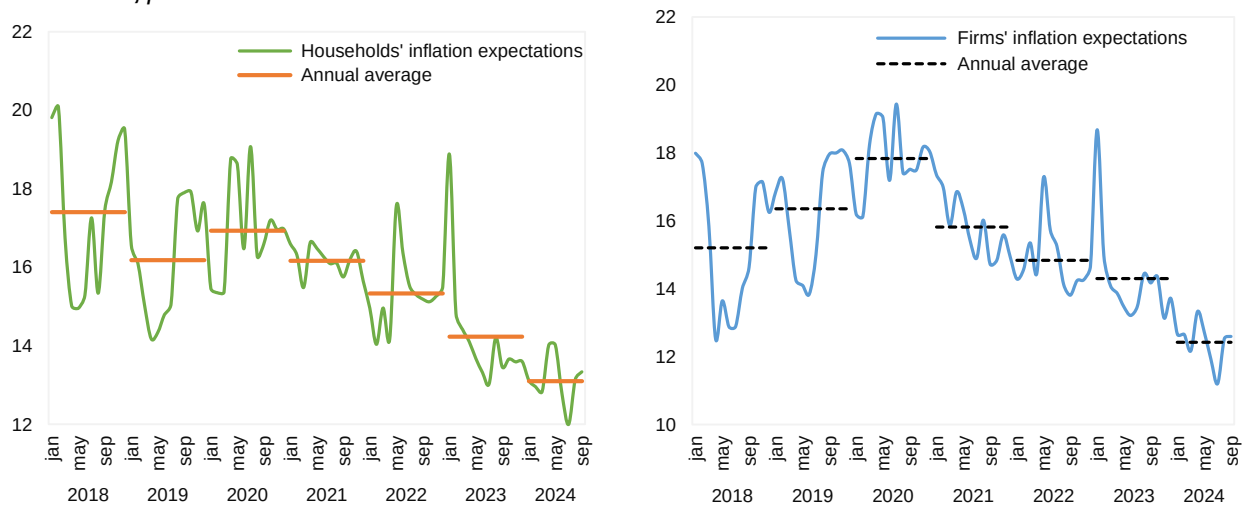
In the economies where the inflation targeting regime has been introduced and the target has been reached, the inflation expectations of the households and business entities exhibit low dispersion and align closely with the inflation target. On the contrary, in economies where the targeting regime has not been introduced and the inflation rate is changing rapidly, the dispersion of expectations is high.

In the process of effective transition to the inflation targeting regime, as confidence in price stability increases, expectations are formed within the target, dispersion level decreases, and sensitivity to temporary shocks diminishes.

At the same time, the decrease in dispersion level of inflation expectations and the accumulation of expectations in a certain percentage range are considered important in conducting an effective monetary policy by central banks, meaning that economic entities have similar expectations for future inflation, and the level of uncertainty in the economy is decreasing.

The analysis of the long-term trends observed in the inflation expectations of economic agents in our country resulted in the following important conclusions.

Figure 1. Dynamics of inflation expectations of households and business entities for 2018-2024, *percent*



Source: CBU calculations.

First of all, there is a downward trend in inflation expectations of households and entrepreneurs. This can be explained mainly by the decline in the current inflation rate in the economy, the introduction of the inflation targeting regime and the implemented communication policy.

In particular, the share of economic agents expecting inflation below 8 percent increased from 22 percent in 2018 to 36 percent in 2024, while the share of agents expecting inflation above 20 percent decreased from 28 percent to 16 percent, respectively.

Also, in 2018, the average annual inflation expectations were 17.4 percent for households and 15.2 percent for businesses, while in the first half of 2024, the expectations decreased to an average of 13.3 and 12.6 percent, respectively *(Figure 1)*.

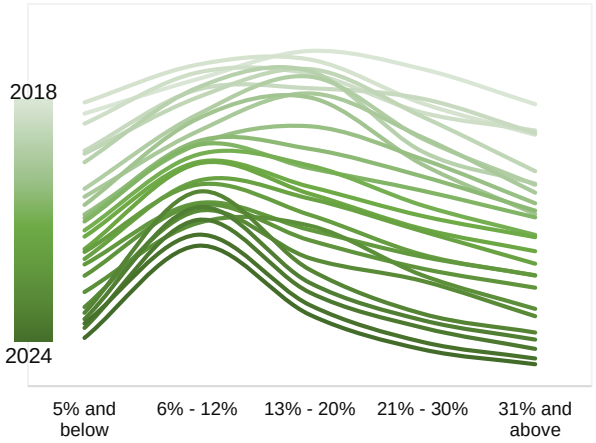
The downward trend in inflation expectations helps to slow down inflationary processes in the economy and is important in ensuring price stability in the future.

Secondly, in the period before the introduction of the inflation targeting regime, there was a high dispersion in the price expectations of economic agents. This can be mainly explained by the high inflation rate observed in the economy and the high sensitivity to price formation factors.

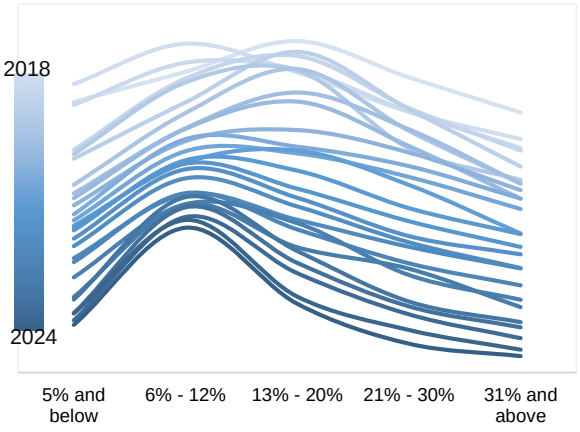
As a result of the implementation of the inflation targeting regime from 2020, measures to ensure a transparent communication policy have reduced the dispersion of inflation expectations among the households and business entities.

Figure 2. Distribution of responses on inflation expectations of the households and business entities in the period 2018-2024

households



business entities



Source: CBU calculations.

In particular, the average share of households and business entities who stated that prices will rise in the range of 6-16 percent increased from 47 percent in 2018-2019 to 59 percent in 2023-2024 *(Figure 2)*.

According to the results of the analysis, the Herfindahl-Hirschman Index (HHI)[6] of household expectations increased from 0.13 in the first quarter of 2018 to 0.16 in the second quarter of 2024, while for business entities, it increased from 0.14 to 0.18, respectively *(Figure 3).*

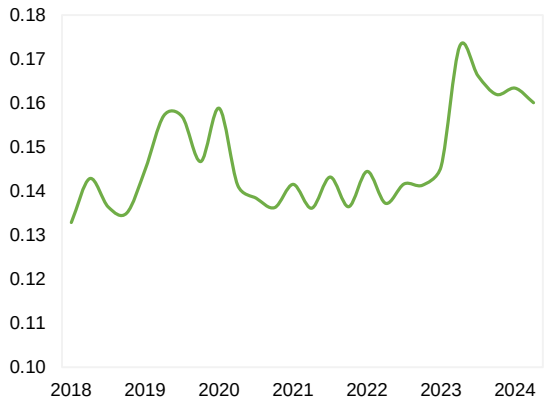
The increase in the HHI is explained by the decreasing level of dispersion in inflation expectations of the households and entrepreneurs. That is, more people are expecting the prices to rise by a particular degree, which is close to the mean value.

Thirdly, the sensitivity of inflation expectations to seasonal factors has decreased. This can be seen in the shrinking gap between inflation expectations and seasonally adjusted expectations. This situation shows that the sensitivity of economic agents' expectations to inflationary shocks is gradually decreasing *(Figure 4)*.

[6] Herfindahl - The Hirschman index ranges from 0 to 1. The closer the index to 0, the lower the concentration level, and the closer the index to 1, the higher the concentration level. Also, if this index is from 0 to 0.15 its is considered low, from 0.15 to 0.25 - average, above 0.25 means that there is a significant level of concentration.

Figure 3. The degree of concentration of responses in inflation expectations survey (Herfindahl-Hirschman Index)

households



business entities

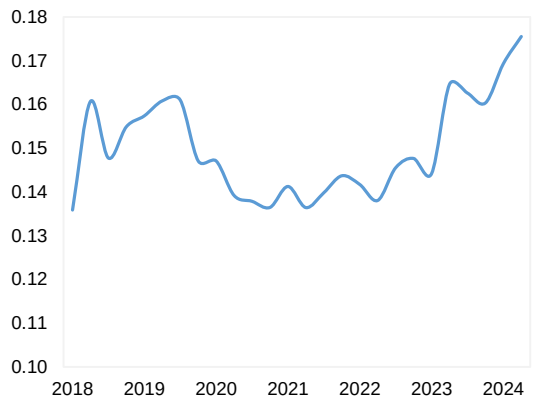
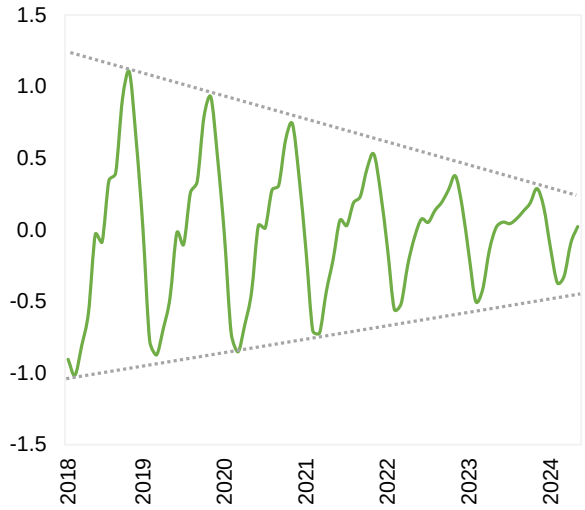
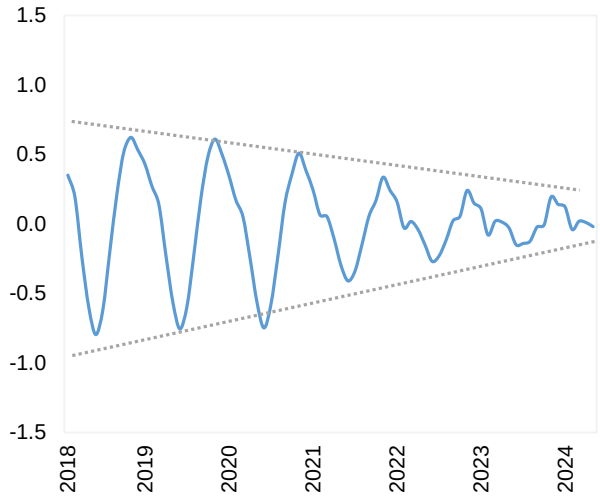


Figure 4. Difference between inflation expectations and seasonally adjusted expectations, percent

households



business entities



Source: CBU calculations.

The degree of seasonality and sensitivity of inflation expectations to key factors *(changes in exchange rates, prices of fruits and vegetables, basic food products, fuel and energy resources)* has decreased.

In particular, in September-October 2018, the average monthly devaluation of the exchange rate by 2.6 percent increased the inflation expectations of households and business entities by 2.4 percent. In August 2023, the devaluation of the exchange rate by 4.2 percent increased household inflation expectations by 1.2 percent and business entities by 1.0 percent.

Also, improved financial literacy among economic agents had a positive impact on the decrease of the sensitivity of expectations to seasonal factors.

In conclusion, despite some fluctuations, a downward trend in inflation expectations is observed in the long-term perspective. In the coming years, the decrease of inflation to the target level of 5 percent will increase confidence in the monetary policy of the Central Bank, help to further reduce inflation expectations and, consequently, lower the level of dispersion. Anchoring inflation expectations around the target level results in a significant reduction in inflationary pressures in the economy.

Box 3

Different indicators of inflation: the example of flexible and sticky prices

Prices in the economy have different degrees of volatility, depending on their characteristics. Some prices adjust more slowly to changing market conditions, while others adjust to changes more quickly. Sticky prices are usually formed by taking into account future inflation expectations.

In turn, sticky prices can be divided into two groups: administratively regulated prices and those stabilized by sufficient supply and high degree of competition.

Sticky prices generally remain unchanged for a period of time. Price-setting market participants tend to take into account the rate of inflation over the long term, knowing that changing prices frequently will incur significant costs. On the other hand, flexible prices are more sensitive to short-term economic shocks and more closely reflect the current state of the economy.

The fact that most prices in the economy are highly flexible means that inflation is sensitive to short-term shocks and inflationary environment is highly uncertain. This, in turn, may lead to elevated inflation expectations and difficulties in anchoring them.

On the contrary, a high share of sticky prices in the economy indicates that prices remain stable for a longer period of time, no sharp changes occur even under the influence of short-term shocks, and inflation expectations are anchored.

When conducting monetary policy, sticky prices are more important than flexible prices in terms of their impact on the economy. They reflect market participants' inflation expectations and signals about potential changes that could have a broad impact on the economy.

Central banks aim to manage inflation by keeping medium-term inflation at the target level, with analysis focusing on medium-term inflation dynamics.

They use the core inflation measure, which excludes food, energy and regulated prices. However, this indicator still includes other goods and services that are highly affected by changes in seasonal and external factors. Therefore, as an alternative approach, calculating separate inflation indicators for flexible and sticky prices enables more effective implementation of monetary policy measures.

In international practice, countries such as the USA, Armenia, and Georgia separately analyze goods and services with flexible and sticky price adjustments. According to estimates, goods and services with a weight of 30 percent in the US consumer basket are classified as flexible prices, while the remaining 70 percent constitute a sticky price group[7]. In Armenia, 74 percent of prices of goods and services[8] and in Georgia, 30 percent[9] fall into the sticky price group.

To conduct this type of analysis in Uzbekistan, two sub-indices were used from the components of the consumer price index: a flexible price index and a sticky price index.

The methodology of Mark Beals and Peter Klenow[10] was used in the classification of prices. They analyzed the rate of change in the prices of 350 types of goods and services

[7] https://www.atlantafed.org/research/inflationproject/stickyprice.
[8] https://www.cba.am/EN/panalyticalmaterialsresearches/Sticky_Facts_for_Armenian_Consumer_Prices.
[9] https://nbg.gov.ge/fm/wp/2024/wp-01-2024.pdf?v=41cc7.
[10] “Some Evidence in the Importance of Sticky Prices” - Mark Bils, Peter J. Klenow, 2004.

included in the US consumer price index. Their research shows that prices in the US changed at least once every 4.3 months on average.

Using this criterion, the prices of 510 goods and services of Uzbekistan's consumer basket were analyzed, divided into flexible and sticky price groups based on the rate of change over the period from January 2020 to August 2024 *(Table 1)*.

Table 1. The average duration of price adjustment of the main groups of goods and services, 2020-2024

Name	With regulated prices		Without regulated prices	
	Weight in the consumer basket *(percent)*	Average duration of price adjustment *(months)*	Weight in the consumer basket *(percent)*	Average duration of price adjustment *(months)*
Total goods and services	**100**	**4,06**	**100**	**1,26**
Food products	44,0	1,03	51,6	1,02
Non-food products	32,7	2,44	32,6	1,05
Services	23,2	12,09	15,7	2,49
Main groups				
Vegetables	4,7	1,00	5,6	1,00
Medicines and medical supplies	3,4	1,01	4,1	1,01
Construction materials	3,5	1,01	4,1	1,01
Cereals, flour and bakery products	8,8	1,05	9,7	1,02
Transport services	3,9	1,84	3,9	1,19
Educational services	3,3	10,79	1,7	2,26
Information and communication services	2,3	21,51	2,0	10,05
Utility services	6,4	27,04	0,0	0,00
Flexible prices	**88,2**	**1,10**	**93,8**	**1,04**
Sticky prices	**11,8**	**26,25**	**6,2**	**8,97**

Source: CBU calculations based on data from Statistics Agency.

According to the results of the analysis, the prices of consumer goods in Uzbekistan change at least once every 4.06 months. This indicator is considered relatively slow, and might initially suggest that prices in Uzbekistan are stable and adjust less frequently.

However, the presence of the administratively regulated prices of goods and services in the consumer basket, which have remained unchanged over the years has led to an artificially high duration of price flexibility. Regulated prices, which are not determined by economic conditions, or demand and supply factors, should therefore be excluded from calculations.

When recalculating the average duration of price adjustment of overall goods and services and structural groups without taking into account regulated prices, the results showed that prices in Uzbekistan change every 1.26 months on average.

Goods with prices changing more slowly than the average value were classified as sticky, comprising 6.2 percent of consumer basket, with an average duration of price adjustment of 8.97 months. On the contrary, products with faster price changes comprised 93.8 percent of the basket, classified as flexible, with an average price adjustment duration of 1.04 months. These findings indicate that consumer prices in Uzbekistan are significantly more flexible than in other countries and are more sensitive to short-term shocks.

Among structural groups, food and non-food products had the highest frequency of price changes, with an average duration of 1.02 and 1.05 months, respectively. Service prices adapt more slowy, with an average duration of 2.5 months between price changes.

In Uzbekistan, the flexible price index is mainly composed of services, including legal services, information and communication services, and private education services. The flexible price index includes fruits and vegetables, medicines, construction materials, clothes, household goods and services.

As of August, the annual inflation for flexible prices was 5.4 percent, while the inflation of sticky prices was 4.7 percent *(Figure 1)*.

Flexible price inflation closely aligned with headline inflation rate due to its higher weight in the consumer basket. In contrast, the sticky price index significantly deviated from the CPI.

Figure 1. Dynamics of flexible and sticky price inflation, *annual percentage change*

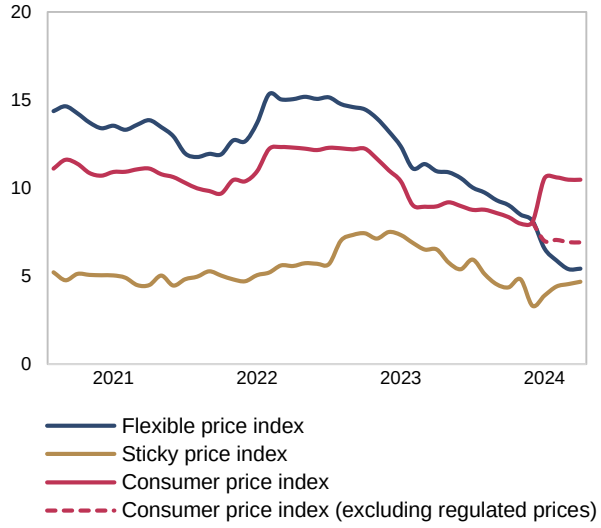
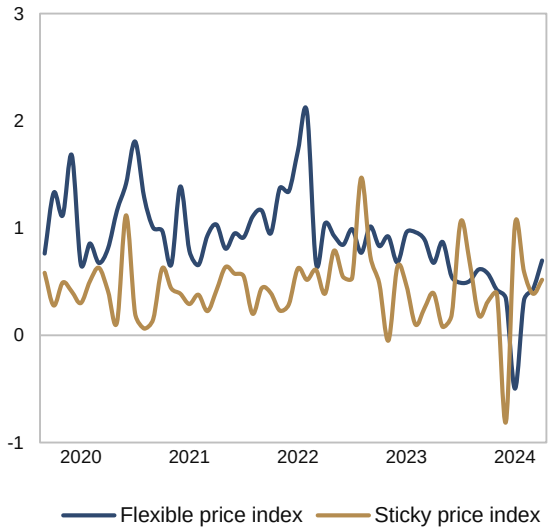


Figure 2. Dynamics of flexible and sticky price inflation, *seasonally adjusted, monthly percentage change*



Source: CBU calculations based on data from Statistics Agency.

Since May 2024, the consumer price index has become higher due to the increase in the prices of energy resources, and this trend is partially reflected in sticky prices. On the other hand, a continuous downward trend has been observed in the flexible price index.

Relatively similar trends are observed in seasonally adjusted monthly inflation indicators, and it is evident that both price indices exhibit high volatility *(Figure 2)*.

Also, the seasonality factor in flexible prices is shown to be stronger than in sticky prices *(0.60 and 0.27, respectively)*.

In general, the fact that the main part of consumer prices is flexible, and the share of sticky prices in the consumer basket is small indicate high inflationary pressures in the economy, inflation expectations are not well anchored, and prices are highly sensitive to current economic changes.

Increasing the share of sticky prices in the composition of consumer price basket and extending their flexibility period would enhance the effectiveness of monetary policy. Stabilizing price flexibility requires increasing economic agents' confidence in the monetary policy of the Central Bank through an open and transparent communication policy, thereby anchoring inflation expectations.

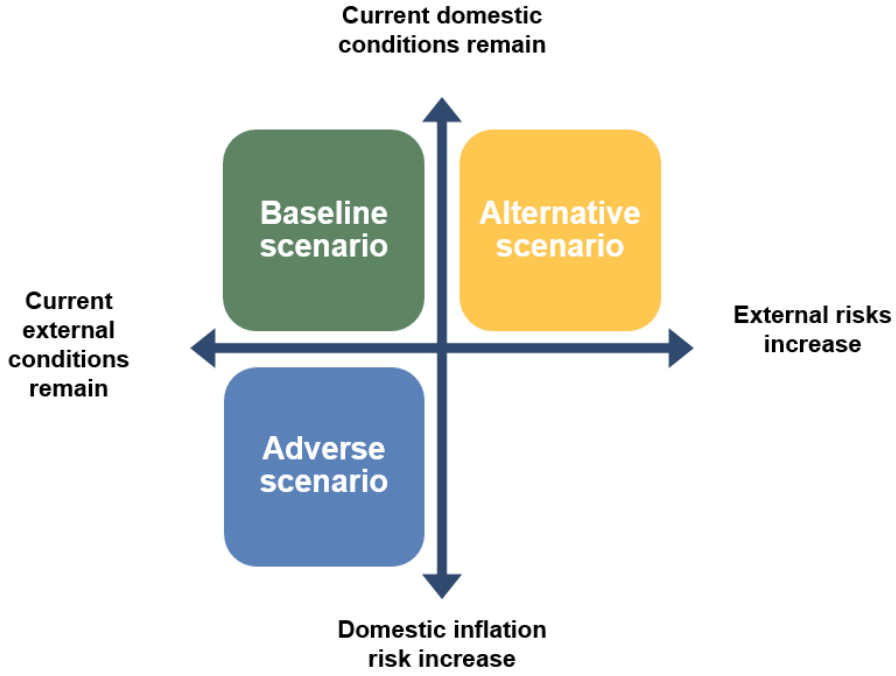
Fundamental macroeconomic factors such as stable supply, free trade and strong competitive environment in the economy are important in mitigating the sharp impact of current economic changes on prices.

II. MACROECONOMIC DEVELOPMENT SCENARIOS AND MONETARY POLICY IN 2025-2027

Monetary policy guidelines for the period from 2025-2027 were developed based on both **the baseline** and **alternative scenarios** of macroeconomic development, considering the medium-term prospects of external and internal conditions, existing uncertainties and risks, and their possible impact on inflation.

Also, **an adverse scenario,** which assumes an increase in internal inflation risks, was developed.

Scenarios of macroeconomic development



The baseline scenario assumes that internal and external conditions will continue developing at the current pace, global inflation will decline, economic growth in the world will remain positive, commodity prices in global markets will remain relatively high, domestic demand will increase, as well as structural reforms in the energy sector will be actively implemented.

The alternative scenario assumes that domestic conditions will remain stable, however, there will be some negative consequences stemming from increasing external risks including the persistence of high global inflation, a substantial decrease in economic activity in some major economies, and significant fragmentation of the global economy.

The adverse scenario includes the analysis of inflationary processes that may arise in case of increased domestic inflationary risks, as well as corresponding monetary policy measures.

Under any of the abovementioned scenarios, monetary policy measures will be aimed at achieving the inflation target of 5 percent. Monetary policy decisions and measures will depend on the economic environment in Uzbekistan, inflation dynamics and macroeconomic outlook.

Factors and channels affecting macroeconomic growth

External economic conditions		
	Baseline scenario	**Alternative scenario**
Global inflation and financial conditions	• Global inflation will continue to decline; • Energy prices and the labor market will be relatively stable; • Most countries will reach the inflation target by the end of 2025; • Interest rate cutting cycle will continue; • In 2026-2027, interest rates will reach their neutral levels.	• Services inflation will decrease more slowly than expected; • Wage growth in the labor market will remain at a higher rate; • Fragmentation of the world economy will increase and disruptions in international production and supply chains will continue; • As a result, deceleration of global inflation will slow and global financial conditions will remain tight for longer. The cost of the external funding will remain high.
Global economic activity	• Economic growth will be positive in most countries in the world; • Growth rates are expected to be lower in China and Europe.	• Global aggregate demand will decrease in the coming years due to the decrease in economic growth rates in China; • Tight financial conditions will have a negative impact on economic growth.
Main trading partners	• Economic activity in the main trading partners will decrease as the impact of sanctions increases; • Fiscal incentives to support economic growth will increase.	• The ruble will depreciate significantly due to the continued impact of sanctions and problems with cross-border settlements; • Inflation in key trading partners will accelerate and economic growth will be lower compared to the baseline scenario.
External trade and money transfers	• The volume of exports will increase due to stable foreign demand; • Remittances will increase by 10-15 percent annually; • The growth rate of imports will be slightly lower than that of exports.	• External demand will weaken, negatively affecting the volume of exports; • Remittances will decrease due to possible depreciation of trading partners' currencies; • Increased sanctions risks will negatively impact foreign trade and remittances through mutual settlement and delivery delays.
World commodity prices	• Gold price will stay at a relatively high level without sharp changes in the medium term; • Oil price will remain around its current level; • Global transition to green energy will support demand for copper; price will remain stable.	• A decrease in the prices of non-ferrous metals and textile products might be observed in the world market; • The decline in global economic growth is expected to have a downward effect on oil prices, while the conflict in the Middle East is expected to have an upward effect.

Internal economic conditions		
	Baseline scenario	**Alternative scenario**
Private consumption demand	• The volume of remittances will increase in 2025-2027; • Public sector wages will be indexed with the inflation rate; • The growth of credit to households will balance.	• Household income growth will slow down due to the decrease in the volume of remittances; • Sources of internal financing (wages and loans) will be among the main factors supporting consumption.
Private investment and loans	• Private investments will continue to increase due to the active implementation of privatization processes; • Easing of external financial conditions will have a positive effect on the flow of foreign investments; • Loans to the economy will continue to grow.	• Longer maintenance of tight external financial conditions may lead to a decrease in the flow of foreign investments. • Domestic investment and loan growth will be close to the baseline scenario indicators.
Fiscal policy	• Government consumption expenditure will continue to grow. • The general fiscal deficit will be around 3 percent in 2025-2027.	• A decrease in world commodity prices will lead to a decrease in government revenues; • The fiscal deficit may be higher than the forecast indicators set for 2025-2027; • As a result, the state debt will increase.
Supply factors	• The demand for energy sources in the economy will remain higher than their supply; • Natural gas and electricity prices will increase from April 2025 *(Decision No. 204 of April 16, 2024 of the Cabinet of Ministers of the Republic of Uzbekistan).*	• The demand for energy sources in the economy will remain higher than their supply.

2.1. Baseline scenario of macroeconomic development and monetary policy

External economic conditions

World economy. Under the baseline scenario of macroeconomic development, the current downward trend in global inflation is expected to continue and most countries are projected to reach their respective inflation target in 2025. In this regard, advanced economies are expected to achieve their inflation targets earlier, while developing countries are expected to reach inflation targets towards the end of the forecast horizon.

Inflation deceleration will allow the major central banks to start monetary easing in the coming years, with interest rates approaching neutral levels in 2026-2027.

Gradual easing of financial conditions will positively impact economic growth, and the global economy is projected to grow at the current pace in 2025-2027.

In turn, global interest rate cuts will enhance opportunities for Uzbek commercial banks and large enterprises to attract foreign financing, which will support investment demand in the economy.

Although global economic growth remains robust, it may be below the pre-pandemic potential. This is mainly attributed to lower potential growth in China and European countries, a slowdown in investment activity in developing countries due to global interest rates, which are still higher than pre-pandemic levels, disruptions in international trade, as well as risks associated with increased international economic fragmentation.

Furthermore, this scenario takes into account IMF forecasts on global growth and inflation. According to the IMF projections, the global economy is expected to grow by around 3.2 percent in 2025. In particular, economic growth in developed countries is projected to be 1.8 percent, while developing countries are expected to grow 4.2 percent *(Figure 2.1.1)*.

Global inflation is expected to be around 4.3 percent in 2025. Here, inflation is projected to be around 2.0 percent in advanced economies and 5.9 percent in developing countries *(Figure 2.1.2).*

Figure 2.1.1. IMF forecasts on global inflation, *percent*

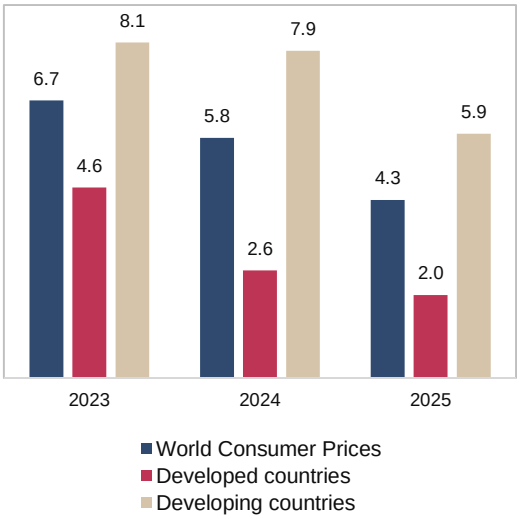
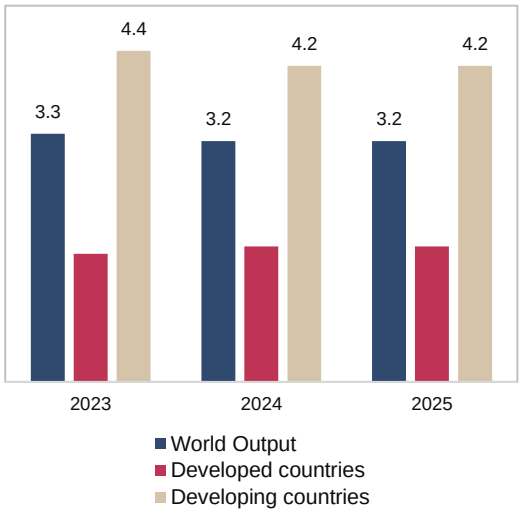


Figure 2.1.2. IMF forecasts on global growth, *percent*



Source: IMF, World Economic Outlook (October, 2024).

World commodity prices. Amid rising geopolitical tensions and global uncertainty, gold price is expected to stay relatively high without rapid movements over the medium-term horizon.

In the coming years, the expected growth of the global economy will support the demand for oil and its price at current stable levels. Moreover, global acceleration of green energy development is expected to boost demand for copper, putting upward pressure on copper prices.

Inflation in the major trading partners is projected to cool down in 2025, approaching the target levels in 2026-2027 *(Figure 2.1.3)*. Meanwhile, geopolitical situation and weak domestic demand are expected to reduce the potential output of trading partner economies, leading to a slower economic growth in the future *(Figure 2.1.4).*

Forecast of balance of payments. In 2025-2027, owing to a sustained economic growth in the major trading partners and the persistence of current price levels for commodities, external demand is expected to stay stable, contributing to an export increase.

As a result, the non-gold export growth is expected to stabilize at around 8-11 percent annually during 2025-2027 *(Table 2.1.5)*. The exports of chemical products (especially uranium and mineral fertilizers) are estimated to grow steadily. At the same time, food and service exports are expected to contribute positively to the trade balance *(Figure 2.1.5)*.

Imports to Uzbekistan are forecasted to grow by 8-10 percent on average over the coming years as the effect of the one-time large imports in 2023 fades out *(Figure 2.1.6)*.

Cross-border remittance inflows are projected to increase by 25-30 percent this year *(to 14.5-15.0 billion dollars)* and by 10-15 percent in 2025-2027, in line with the long-term trend *(Figures 2.1.7-2.1.8).*

Figure 2.1.3. Inflation forecast for the major trading partners *(end of period)*

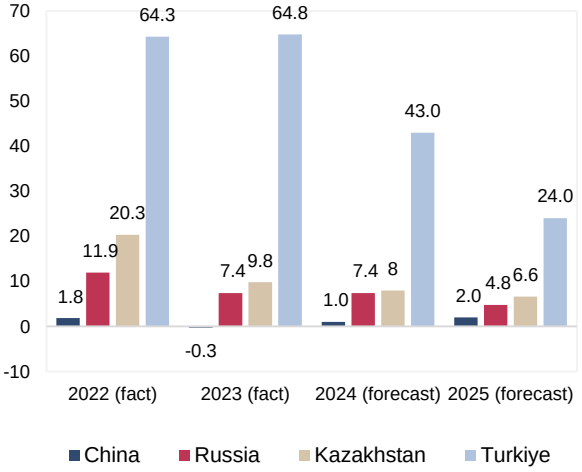
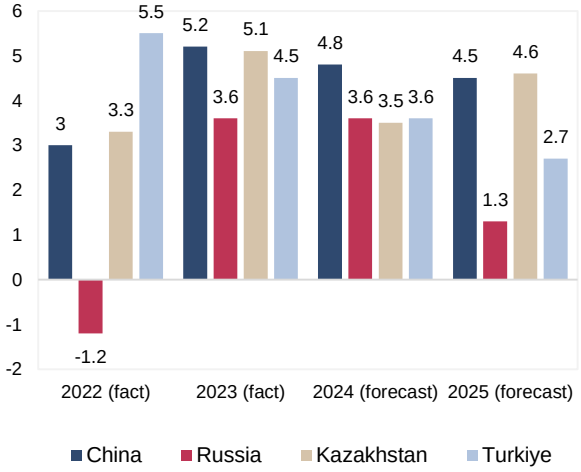


Figure 2.1.4. Real GDP growth forecast for the major trading partners



Source: IMF, World Economic Outlook (October, 2024).

Figure 2.1.5. Exports forecast for Uzbekistan, *percent*

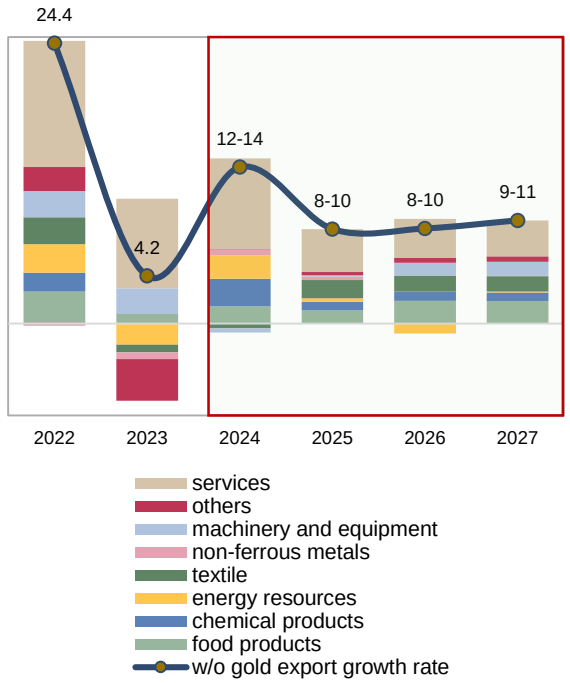
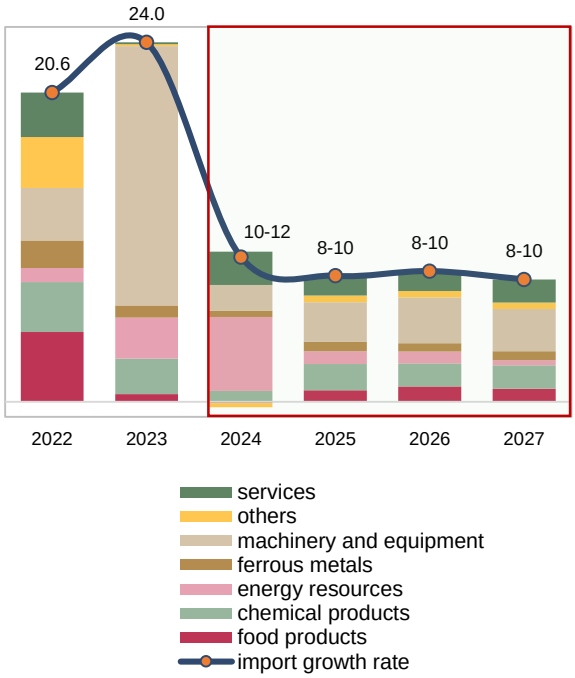


Figure 2.1.6. Imports forecast for Uzbekistan, *percent*



Source: CBU calculations.

Destinations for migrant workers will continue to diversify. In this context, as the share of higher-income countries increases, remittance inflow from these countries is expected to rise.

Figure 2.1.7. Forecast of cross-border remittances, *percent*

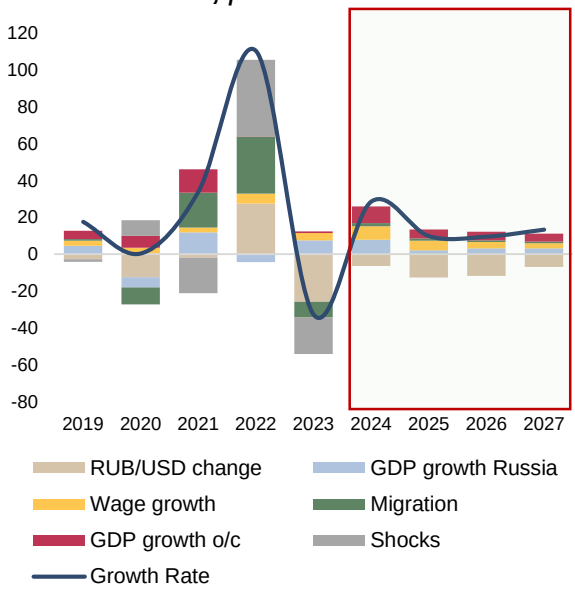
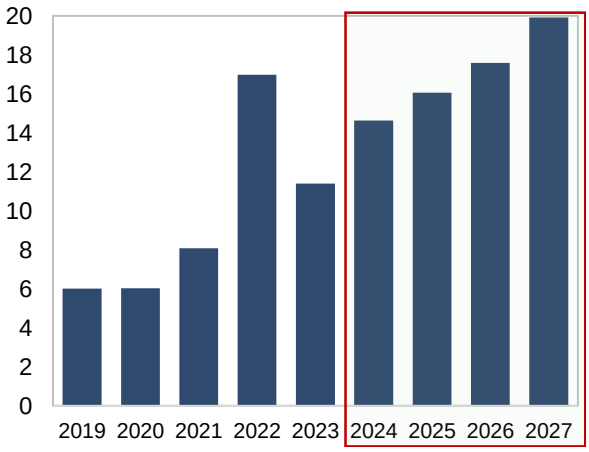


Figure 2.1.8. Forecast of cross-border remittances, *billion dollars*



Source: CBU calculations.

Taking into account the outlook on trade and income dynamics and ongoing structural reforms in the economy, the current account deficit is expected to be around 5.5-6.5 percent in 2025-2027.

Financial account components, including foreign credit lines attracted by banks as well as direct and portfolio investments, will be the main sources financing the current account deficit.

Given the above factors as well as the external economic outlook, the real effective exchange rate of the Uzbek soum is projected to be in line with its long-term trend.

Domestic economic conditions

Amid strong investment activity, a significant increase in remittance inflows and high global price of commodities, **real GDP in 2024** is expected to grow by **6-6.5 percent**, higher than estimated in the previous forecasts.

According to the baseline scenario of macroeconomic development, considering relatively tight monetary conditions and fiscal consolidation, real GDP growth is projected to be around 5.5-6.0 percent in 2025, 5.5-6.5 percent in 2026, and 6-6.5 percent in 2027 *(Figure 2.1.9)*.

The key drivers of economic growth will be high private investments as a result of further transformation and privatization of the public sector, foreign investment growth due to easing of external financial conditions, as well as continued credit growth in the economy.

Figure 2.1.9. Real GDP growth forecast in the baseline scenario, *percent*

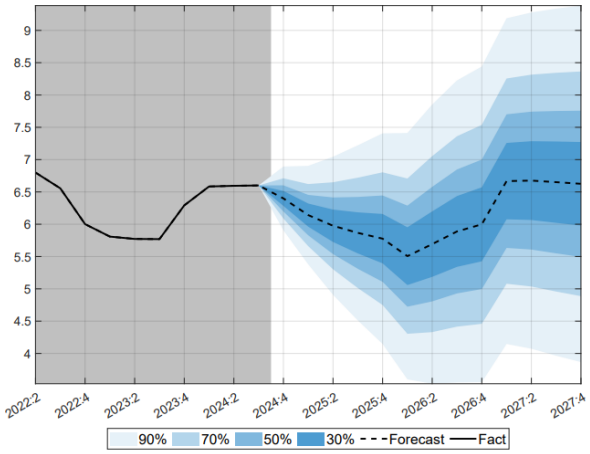
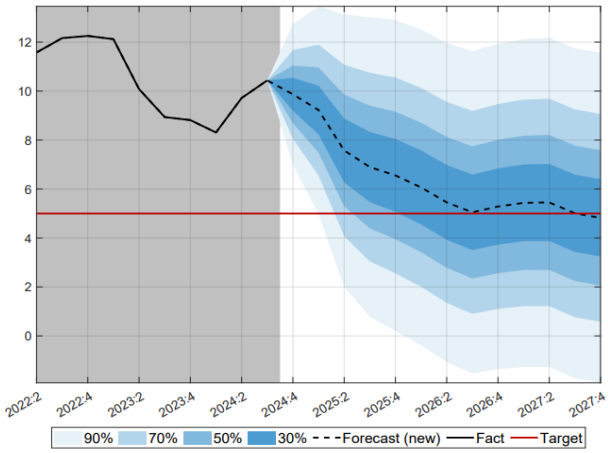


Figure 2.1.10. Inflation forecast in the baseline scenario, *percent*



Source: Central bank forecasts.

The relative slowdown in economic growth in 2025 is explained by the moderation of personal consumption growth due to tight monetary conditions aimed at reducing inflation. Starting from 2026, inflation approaching the target and easing of financial conditions will support economic growth, allowing to reach its potential growth levels.

High investment activity persisting in the country will continue to increase the demand for imports. It is predicted that the import growth will be around 8-10 percent in 2025-2027. Imports of machinery and equipment, energy sources, chemical products and services will be key contributors.

Rising wages in the private sector, driven by increased demand for skilled labor, as well as a surge in remittance inflows in 2024, are expected to push real income growth of households to around 9-11 percent in the coming years, approaching the potential level of 6-7 percent in 2025 and 5-6 percent in the medium term.

The continuation of tight financial conditions in the coming years will affect the volume of credit to the economy. However, demand for financial resources will continue to rise, being one of the key factors supporting economic growth.

Government spending will continue to grow thanks to the revenue from the active implementation of privatization process. At the same time, reductions in subsidies to the economy may slow the expenditure growth.

Table 2.1.1. 2025-2027 forecasts of macroeconomic development indicators of Uzbekistan according to the main scenario, *(annual change, percent)*

Indicators	2023 *(actual)*	2024 *(expected)*	Baseline forecast		
			2025	2026	2027
Inflation rate	**8,8**	**9,0-9,5**	**6,0-7,0**	**5,0**	**5,0**
Real GDP growth	**6,3**	**6,0-6,5**	**5,5-6,0**	**5,5-6,5**	**6,0-6,5**
Final consumption expenditure	5,3	6,0-6,5	5,5-6,0	5,0-5,5	5,0-6,0
- households	*6,2*	*7,0-7,5*	*6,0-6,5*	5,0-5,5	*4,5-5,5*
- state management bodies	*1,4*	*1,5-2,0*	*1,0-2,0*	*2,0-3,0*	*1,5-2,5*
General fiscal balance (% of GDP)	4,9	4,0	3,0	3,0	3,0
Exports (without gold)	4,2	12,0-14,0	8,0-10,0	8,0-10,0	9,0-11,0
Imports	24,0	10,0-12,0	8,0-10,0	8,0-10,0	8,0-10,0
Remittances	32,9	25,0-30,0	9,0-11,0	9,0-12,0	10,0-15,0
Credit to the economy	23,3	15,0-17,0	14,0-16,0	13,0-15,0	12,0-15,0

Source: CBU calculations.

It is expected that fiscal consolidation will be actively implemented in the coming years. In particular, it is planned to reduce the budget deficit to 4 percent of GDP in 2024 and to 3 percent in 2025-2027. Maintaining the level of budget deficit within these target indicators will reduce the additional demand through government spending in the economy, contributing to inflation deceleration.

The inflation rate is estimated to be around **9-9.5 percent at the end of the year**, based on the observed inflationary pressures since the beginning of 2024 and the expected factors in the fourth quarter.

Amid the next planned increase in prices for electricity and gas in April 2025, regulated prices will have an upward effect on headline inflation. At the same time, a significant decline in regulated price inflation is expected in the second half of 2025 due to the fading of high base effect from the liberalization of energy prices in 2024.

According to the updated baseline scenario forecasts, headline inflation will be 6-7 percent in 2025 and reach the 5 percent target in the second half of 2026 *(Figure 2.1.10)*.

Core inflation is expected to fall from 7-7.5 percent at the end of 2024 to 5 percent in 2025. The key factor in reducing core inflation is ensuring tight monetary conditions.

Monetary policy

In determining monetary conditions for the coming years, a range of factors were taken into account, including the inflation forecast and expectations, possible triggers of inflation as well as the goal of achieving the inflation target of 5 percent during the forecast period.

The secondary effects of supply-side factors *(liberalization of energy prices and the introduction of a value added tax on certain goods and services)* that created inflationary pressures this year will persist in the subsequent years. This combined with the next expected increase in energy prices as well as persisting high consumption demand require to keep monetary conditions at a relatively tight level.

In order to reduce inflation to the target level, monetary conditions will be maintained at a tight level, and positive real interest rates will be ensured in the money market at around 4-5 percent during 2025.

It is also important to ensure the gradual reduction in preferential lending programs to enhance the transmission of monetary policy measures.

According to the baseline scenario	
Inflation rate	In 2025, inflation is forecast to be around **6-7 percent.** In the second half of 2026, inflation will decrease **to the 5 percent target.**
Measures of monetary policy	
Monetary conditions	Considering the inflationary pressures in the economy, monetary conditions will be maintained at **a relatively tight** level during 2025-2026. They will be moved to **a neutral phase** once there is sufficient evidence on inflation forming close to the target level .
Money market interest rates	In 2024-2026, **the UZONIA rate** will be at the level of **4-5 percent** in real terms, and in 2027 it will be around **3-4 percent.**

With a reliably sustainable reduction in the inflation rate and its stable formation around the target level, the policy rate of the Central Bank will be lowered accordingly. Possible inflation risks and expectations in the future are regularly analyzed while maintaining a cautious approach in setting monetary conditions.

Once inflation reaches the target and stabilizes at this level, it will be possible to move monetary conditions to a neutral phase.

When determining monetary conditions in the medium term, the liquidity position of the banking system also plays an important role. The future dynamics of overall liquidity will depend on government operations, the balance of supply and demand in the domestic currency exchange market and the demand for cash. The banking system liquidity remaining at structural surplus for long periods will be one of the factors easing monetary conditions.

Therefore, the Central Bank’s liquidity management operations will be actively performed in the coming years and any excess liquidity will be effectively absorbed.

At the same time, when determining monetary conditions, the credit channel remains important. However, in the medium term, it is expected that the

demand for loans will remain at a relatively high level, with lending activity primarily focusing on financing businesses.

Macroprudential policy measures will continue to be actively used to balance the growth rates of consumer loans.

In the coming years, balancing credit growth rates and ensuring the stability of the banking system as a whole by harmonizing monetary and macroprudential policies will be one of the priorities of the Central bank.

2.2. Alternative scenario of macroeconomic development and monetary policy

External economic conditions

The alternative scenario of macroeconomic development assumes possible disruptions in global production and supply chains due to slower-than-expected deceleration of service inflation in advanced economies and increasing fragmentation of the global economy. As a result, global inflation is expected to take longer to reach the targets. Under this scenario, most countries are expected to reduce inflation to their target in 2026.

This, in turn, requires global financial conditions to remain tighter for a longer period and, coupled with ongoing geopolitical tensions worlwide and a high degree of uncertainty about the future outlook, will have a negative impact on global economic growth. As a result, growth rates are projected to be lower than those anticipated in the baseline scenario.

At the same time, the persistence of tight financial conditions in the world may reduce the availability of financing for the domestic economy using external resources and hinder the influx of foreign investment. As a result, growth rates are estimated to be lower than in the baseline case.

Under the alternative scenario, the outlook for key trading partners' economies remains highly uncertain and risky. In particular, in contrast to the baseline scenario, the real estate market issues in the Chinese economy will persist, combined with worsening external demand for Chinese exports due to increasing trade fragmentation, which could significantly reduce the potential for economic growth. This could result in lower prices for commodities.

A decrease in global demand for oil will have a negative impact on the economies of oil exporting trading partners. Consequently, fiscal stimulus can be implemented to support economic growth in these countries. This could result in inflationary pressure in these countries lasting longer and spilling over into our country through import prices.

The ruble could also depreciate significantly due to the stronger impact of ongoing sanctions. This, on the one hand, reduces the volume of remittance inflows from Uzbek migrant workers, and on the other hand, increases import inflation.

The volume of remittances under the alternative scenario is projected to decrease in 2025 and grow at a rate below the potential in 2026-2027. A decrease in the volume of remittances slows down the growth of household incomes, stabilizing aggregate consumer demand.

A decrease in economic growth in the main trading partners reduces the external demand for domestic goods and services. In this regard, the growth of export *(without gold)* is predicted to slow down to 5-7 percent in 2025, and to 6-8 percent in 2026-2027.

A slowdown in the global economy and persistence of high interest rates for longer period may affect the demand for gold, causing its price to fall.

Under the influence of the aforementioned factors, the current account deficit is expected to widen in comparison with the baseline scenario, reaching 6.5-7.5 percent of GDP in 2025-2026.

Domestic economic conditions

According to the alternative scenario, the negative impact of external risks on economic growth will be significant, and in 2025, strong fiscal stimulus and an increase in lending will be among the main factors supporting economic activity. As a result, GDP growth in 2025 is expected to be in the range of 5.0-5.5 percent.

With the relative easing of external risks and financial conditions expected from 2026, economic growth will recover to its potential levels. As a result, the growth is projected to be 5.0-6.0 percent in 2026 and 5.5-6.5 percent in 2027.

Figure 2.2.1. Forecast of real GDP growth under the alternative scenario

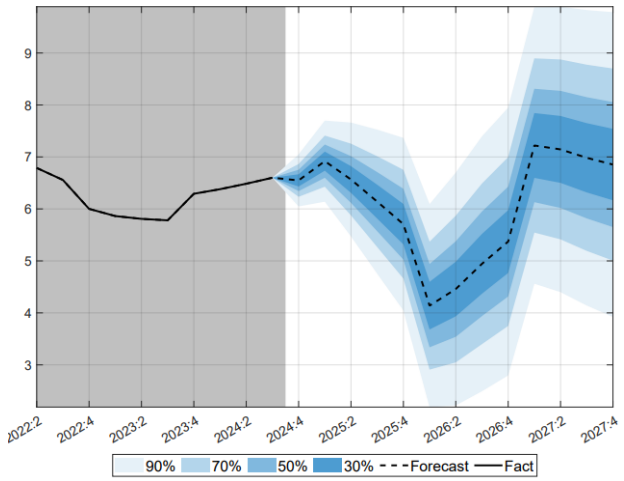
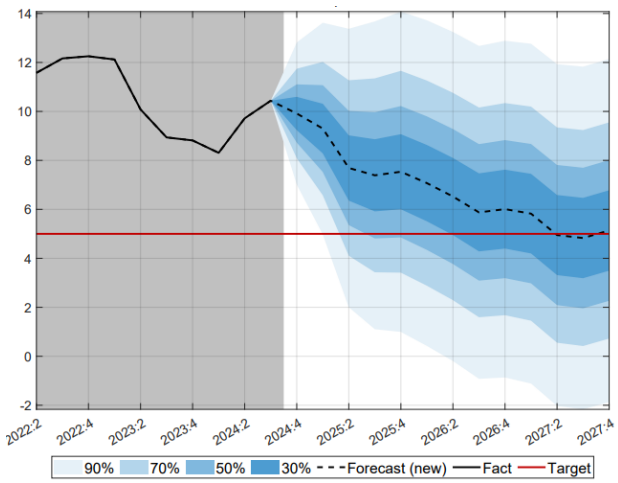


Figure 2.2.2. Inflation forecast under the alternative scenario



Source: CBU forecasts.

In this scenario, under the influence of external conditions, the country risk premium may widen, resulting in lower foreign investment inflows. As a result, the import is expected to grow at a slower rate than the baseline scenario *(by 7-9 percent on average in 2025-2026)* amid weaker economic activity and the stabilization of household income.

Table 2.2.1. Forecasts of macroeconomic development indicators of Uzbekistan in 2025-2027 under the alternative scenario, *(annual change, percent)*

Indicators	2023 *(actual)*	2024 *(expected)*	Alternative scenario forecast		
			2025	2026	2027
Inflation rate	**8,8**	**9,0-9,5**	**7,0-8,0**	**5,5-6,5**	**5,0**
Real GDP growth	**6,3**	**6,0-6,5**	**5,0-5,5**	**5,0-6,0**	**5,5-6,5**
Final consumption expenditure	5,3	6,0-6,5	3,5-4,5	4,0-5,0	4,5-5,5
- households	*6,2*	*7,0-7,5*	*4,0-5,0*	*4,5-5,5*	*5,0-6,0*
- state management bodies	*1,4*	*1,5-2,0*	*2,0-3,0*	*1,5-2,5*	*1,5-2,5*
General fiscal balance (% of GDP)	4,9	4,0	4,5	4,0	4,0
Exports (without gold)	4,2	12,0-14,0	5,0-7,0	6,0-8,0	7,0-9,0
Imports	24,0	8,0-10,0	7,0-9,0	7,0-9,0	8,0-10,0
Remittances	32,9	25,0-30,0	(-7,0)-(-10,0)	7,0-10,0	7,0-11,0
Credit to the economy	23,3	15,0-17,0	14,0-17,0	12,0-15,0	11,0-14,0

Source: CBU calculations.

In the forecast period, the real growth of final consumption expenditure will be around 3.5-4.5 percent, and its contribution to economic growth will be lower than in the baseline scenario.

In 2025-2026, the increase in government spending to support economic activity and a relative decrease in revenues amid lower commodity prices in global commodity markets may delay the fiscal consolidation for certain period.

It is expected that the total fiscal deficit will widen to 4.5 percent of GDP in 2025 and to 4 percent in 2026-2027. At the same time, increasing pressures on the inflation rate from fiscal factors may remain.

In the alternative scenario, headline inflation is estimated to be around 7-8 percent in 2025 and 5.5-6.5 percent in 2026, mainly due to import inflation and expansionary fiscal policy, while a reduction in remittances will stabilize consumption demand. In this scenario, inflation is expected to decrease to the target level of 5 percent in the first half of 2027 *(Figure 2.2.2)*. Core inflation will decrease from 7-7.5 percent at the end of 2024 to 4-5 percent in 2025.

Monetary policy

Even under alternative scenario conditions, the Central Bank will keep monetary conditions tight during 2025-2026, and will focus on reducing inflation to the target during the forecast period.

Structural measures aimed at addressing supply-side factors of inflation are implemented together with the government. In particular, ensuring sufficient supply of goods and services in the economy in order to achieve price stability will be one of the priority tasks.

Meanwhile, in order to reduce the impact of monetary factors on inflation and achieve a stable reduction of core inflation, tight monetary conditions will be maintained.

Under the alternative scenario, the banking system liquidity is also of great importance in determining monetary conditions. In this scenario, although a higher overall fiscal deficit compared to the baseline scenario would mean that more liquidity would be channeled into the system, the absolute impact of government operations on overall liquidity would depend on the sources of deficit financing.

Measures of monetary policy	
Monetary conditions	Considering the inflationary pressures in the economy, monetary conditions will be maintained at **a tight** level during 2025-2026. They will be moved to **a neutral phase** once there is sufficient evidence on inflation forming close to the target level
Money market interest rates	In 2025-2026, measures will be taken to maintain **the UZONIA** rate at the level of 4-5 percent in real terms, and **around 3-4 percent** in 2027**.**

Relatively high borrowing costs of attracting foreign funds increases the demand for domestic sources, including deposits in national currency, leading to higher real interest rates. This affects the price of assets in the national currency while stabilizing the demand for foreign currency.

In general, uncertainties about external conditions will remain elevated under the assumptions of the alternative scenario. In turn, monetary conditions may be tightened as a response to inflationary effects of the fiscal incentives aimed at supporting the weak economic activity.

Box 4

Inflationary risks scenario and monetary policy

In addition to the baseline and alternative scenarios of macroeconomic development, an **adverse scenario** based on an increase in inflationary risks was also considered. The Central bank analyzed monetary policy measures aimed at reducing inflation under these conditions.

In general, the possibility of inflationary risks is always present in a developing country that is gradually transitioning to a market economy, and the main attention should be paid to their correct assessment and adequate response through monetary policy measures.

Despite the easing of inflationary pressures in the economy and in the world as a whole, the probability of certain internal and external inflationary risks remains. This scenario of the medium-term macroeconomic development is based on the likelihood of **four key inflationary risks:**

1) Climate risk: changes in climate conditions observed in the region in recent years affect the economy in various ways. In particular, the anomalous cold weather at the beginning of 2022 had a negative impact on production indicators in the economy, and the volatile climate in 2023 had a negative impact on fruits and vegetables production. In 2024, on the contrary, favorable weather conditions served to increase agricultural production, and lower food prices contributed to lower inflation.

Therefore, when adverse weather or unexpected climate change occurs, these conditions can have an upward effect on inflation.

2) Pressure of non-monetary factors on inflation: the active implementation of liberalization process and structural changes in the economy may temporarily increase the effects of non-monetary factors on aggregate demand and supply. This, in turn, increases inflation expectations of the households and business entities, creating pressure on core inflation. Long-term persistence of inflationary pressures in the economy may reduce the chances of reaching the target level, requiring the tightening of the measures aimed at reducing inflation.

3) Increased fiscal stimulus: in the event of significant internal and external threats, the government will increase the likelihood of conducting an expansionary fiscal policy to support the economy. This, in turn, can have an upward effect on prices by increasing aggregate demand amid limited supply. Under these conditions, the possibilities of fiscal consolidation are reduced, meaning that fiscal deficit is likely to be higher than the specified target level.

The adverse scenario therefore assumes that the fiscal deficit will be close to the average deficit recorded over the past five years.

4) Level of energy provision in the economy: faster growth of demand than the ability to supply the economy with continuous energy resources can cause energy shortages and continued interruptions. This, in turn, increases the cost of goods and services and shrinks their supply due to production losses. The realization of this risk can increase the inflation rate and reduce the effectiveness of monetary policy instruments.

The inflationary effects of the abovementioned risks were quantitively assessed in the form of a possible shock by including them into the quarterly projection model. According to forecasts that considered the above-mentioned risks and uncertainties, headline inflation is expected to be around 8-9 percent in 2025, 6-7 percent in 2026, and reach the 5 percent target at the end of 2027 *(Figure 1)*. In this case, the probability of reaching the target depends on the level of restrictiveness and the effectiveness of monetary policy measures.

The growth in regulated prices component of inflation is assumed to be the same as in the baseline scenario, while the fruits and vegetables and core inflation figures are assumed to rise faster due to the abovementioned risks.

Figure 1. Inflation forecast

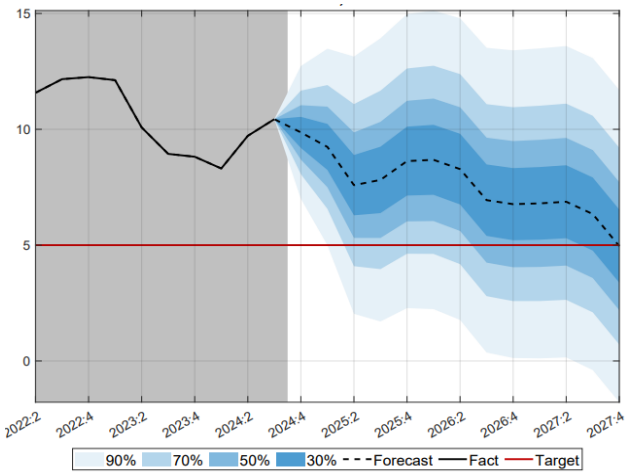
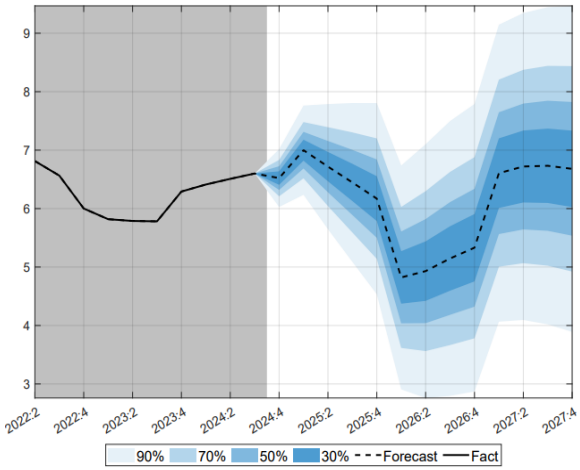


Figure 2. Economic growth forecast



Source: CBU calculations.

In the event of an adverse scenario, the Central Bank will take measures to tighten the monetary policy, including raising the policy rate, and will maintain tight conditions during 2025-2026. In this case, it is important to take collective measures with the government to eliminate non-monetary factors of inflation.

Due to the high fiscal deficit, real GDP growth will be within 6-6.5 percent in 2025, and due to the measures aimed at reducing inflation, economic growth is forecast to decrease to 5-5.5 percent in 2026 *(Figure 2)*.

In general, the likelihood of an adverse scenario remains low, and the rate of inflation will depend on the extent to which one or more of these risks materialize. In any case, the Central Bank will take measures to reduce the impact of inflationary pressures and prevent them from becoming spiral by sufficiently tightening the monetary policy. In the adverse scenario as well, all the measures will focus on reducing the inflation to its target as quickly as possible.

Box 5

The impact of exchange rate changes on economic development: based on the DSGE model

In some developing countries, there is an approach aimed at using the exchange rate as a tool to stimulate economic growth, that is, supporting external demand through a gradual currency devaluation. A number of empirical economic studies have been conducted in the scientific literature on the effectiveness of this tool.

The main idea behind this approach is to use currency devaluation to increase price competitiveness in international trade, stimulate exports and thereby achieve trade-led economic growth. While some studies have considered this proposal as a practical measure for developing countries, recent work emphasises that its effectiveness is limited and short-term. In the long run, devalued currency can result in serious consequences, such as disruption of macroeconomic stability.

Currency devaluation as a tool for economic growth is based on an export-led growth strategy. Proponents of such a policy argue that by making a country's goods cheaper in international markets through currency devaluation, the policymakers can increase exports and lead to economic growth. According to Dani Rodrik (2008)[11], this approach is seen as an attractive option in countries with inefficient state institutions and low technological productivity in production.

Judith A. Giles and Cara L. Williams (2000)[12] point out that it is difficult to draw a firm conclusion about the positive relationship between currency devaluation and economic growth due to the variability in the methodologies used in the studies, the countries in the sample, and the time periods. In addition, the omission of some necessary variables further complicates the conclusions of the empirical analysis. This makes it difficult to establish a clear cause-and-effect relationship between currency devaluation and economic growth.

Despite its short-term benefits, continued downward adjustment to a national currency can have dangerous consequences for the economy. According to Aaditya Mattoo and Arvind Subramanian (2008)[13], devaluation of the national currency is comparable to subsidizing exports and imposing tariffs on imports.

In response, trading partners also adjust their foreign trade policies, which leads to the loss of short-term price advantage gained previously (Freund and Pierola 2008)[14]. In turn, these bilateral actions will have a negative impact on the volume and effectiveness of foreign trade. This can harm the trading environment in the medium and long term (Henry, 2008). These policies can lead to trade disputes, damage international relations, and lead to tariffs

[11] Rodrik, D., 2008. The real exchange rate and economic growth: theory and evidence. Brookings Pap. Econ. Act. 365–412.
[12] Giles, Judith A., and Cara L. Williams. 2000. “Export-led Growth: A Survey of the Empirical Literature and Some Non-Causality Results, Part 1.” Journal of International Trade and Economic Development, 9(3): 261-337.
[13] Mattoo, Aaditya, and Arvind Subramanian. 2008. “Currency Undervaluation and Sovereign Wealth Funds: A New Role for the World Trade Organization.” Peterson Institute for International Economics Working Paper 08-2.
[14] Freund, Caroline, and Martga D. Pierola. 2008. “Export Surges: The Power of a Competitive Currency.” World Bank Policy Research Working Paper 4750.

or other trade barriers. Over time, these conflicts can destabilize the global trading system and undermine the overall effectiveness of export-led growth strategies.

In addition, devaluing the national currency creates inflationary pressures in the domestic economy. These inflationary pressures are transmitted not only to imported final goods, but also to domestic prices through the imported intermediate goods such as raw materials, equipment, and other factors used in production. The resulting high inflation reduces real incomes and, in turn, the purchasing power of consumers, which causes the resources available for long-term investment to become constrained. This phenomenon can destabilize the economy and reduce long-term growth potential.

It is important to note that the real exchange rate is formed by a variety of fundamental factors that cannot be controlled. As a result, attempts to devalue the exchange rate become more difficult over time and may lead to unintended consequences (Rodrick, 2006).

Rafael and Ribeiro (2020)[15] also argue that the direct impact of downward currency adjustment on economic growth is statistically insignificant when factors such as income distribution and technological opportunities are taken into account. Empirical evidence from Marcel Schröde (2013)[16] also supports the view that currency devaluation is neither a reliable nor a long-term development policy.

The impact of exchange rate adjustment shock on economic indicators

This analysis uses a DSGE model developed for the Uzbek economy to simulate a one-time 10 percent devaluation shock of the national currency, with the impact of the shock lasting for five years. Through impulse response functions, it is examined how various macroeconomic variables change over time relative to their initial state under this shock.

Inflation. Exchange rate devaluation has a direct and indirect upward pressure on headline inflation through imported inflation. In this case, the direct effect is manifested through the prices of imported final goods and services in the consumer basket, and the scale of this effect is formed in accordance with the share of imported goods. The indirect effect is formed through the prices of imported raw materials and equipment related to the production of domestic goods and services. In this case, the scope of the indirect effect of the depreciation of the national currency on inflation is formed depending on the degree of availability of alternative domestic factors of production that can replace imports. At the same time, constant depreciation of the national currency leads to high inflation expectations, which, in turn, leads to high inflationary pressures in the long term.

Key rate. In response to the high inflationary pressure resulting from devaluation, the Central Bank tightens financial conditions in the economy by raising the key rate, which in turn leads to a decrease in aggregate demand and a decrease in economic activity.

Real exchange rate and exports. The real exchange rate initially depreciates due to the nominal exchange rate. The devaluation of the national currency leads to the acceleration of export growth, which allegedly improves export competitiveness and increases economic

[15] Rafael S.M. Ribeiro 2020. “Does real exchange rate undervaluation really promote economic growth?” Structural Change and Economic Dynamics 52 (2020) 408–417.
[16] Marcel Schröde. 2013. “Should developing countries undervalue their currencies?” Journal of Development Economics 105 (2013) 140–151.

activity. However, as the effect of devaluation passes through to other prices and eventually to headline inflation, the real exchange rate returns to its original state, and the effect of the artificially gained price advantage in the external market fades away.

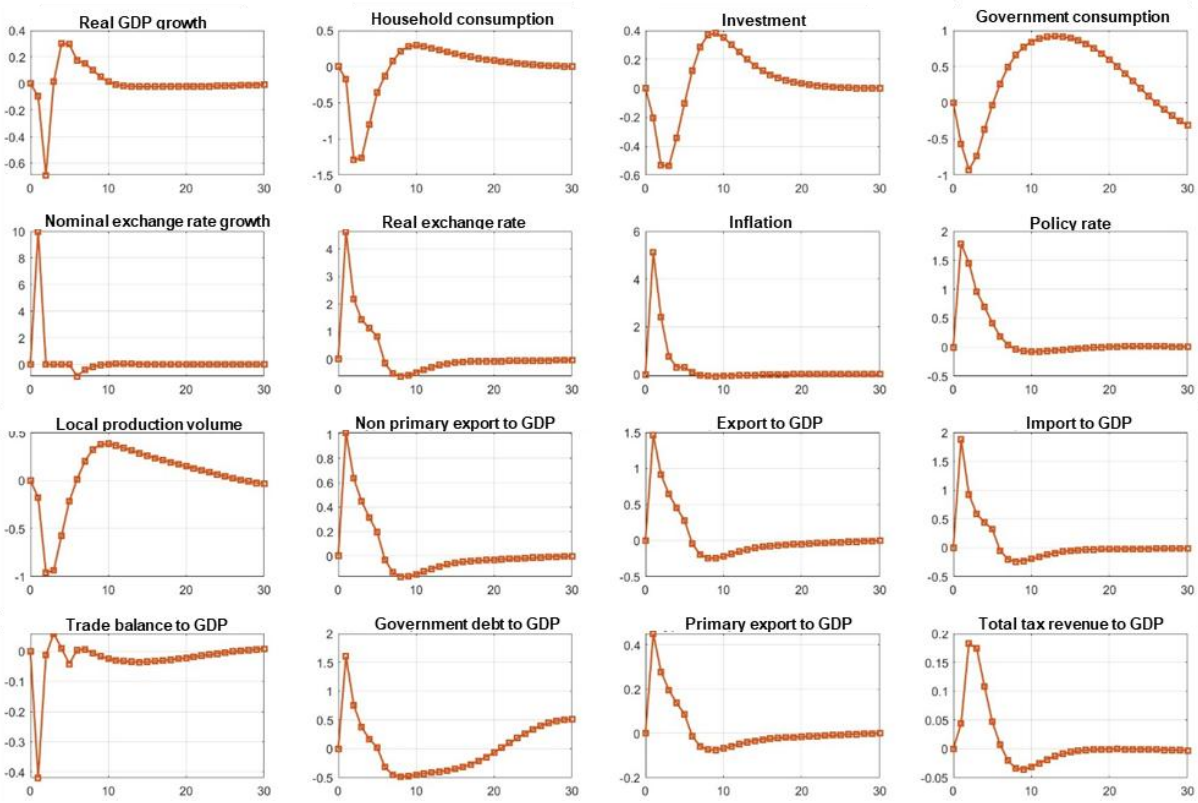
Imports. Despite high import prices, import-to-GDP ratio increases. On the one hand, the lack of domestic substitutes and technologies and the low elasticity of demand for consumer goods increase import spending. On the other hand, import spending grows faster than GDP as more imported raw materials are required to produce additional export goods.

Trade balance. The initial decline and the subsequent increase in the trade balance as a share of GDP reflects a normal adjustment period. Initially, high import spending and a possible lag in export growth can worsen the trade balance.

Afterwards, the trade balance improves relative to GDP as exports increase and import spending stabilizes. Over time, the trade balance returns to its pre-shock level.

Household consumption. While high inflation reduces the real income of households and reduces their purchasing power, the increase in the cost of borrowing as a result of the increase in the policy rate leads to a decrease in consumption. In the long run, provided that inflation and interest rates stabilize, household consumption will also begin to recover.

Figure 1. The impact of a devaluation shock on the economy



Source: Model Results

Investment. Investments shrinks due to uncertainty and high borrowing costs resulting from high inflation. Firms are less likely to invest in new projects as financing sources become more expensive. Foreign investment flows will also decrease due to the highly volatile exchange rate. This situation will continue until inflation is brought under control and economic stability is achieved as the monetary conditions ease.

Local production volume. Local producers face higher costs for imported raw materials and equipment due to devaluation, leading to a corresponding reduction in local production. Consequently, firms adjust higher production costs and potential disruptions in the supply chain.

Real GDP growth. The decline in consumption, investment, and the trade balance leads to a slowdown in real GDP growth. Initially, the decline in domestic demand slows economic activity. Due to the depreciated national currency, external demand temporarily increases, but in the long run it returns to its original state.

Total tax revenue. As exports increase, so do export earnings in the national currency. This, in turn, leads to an increase in tax revenues. Similarly, the subsequent growth of imports results in higher tax revenue from imports. In addition, as inflation rises, other taxes decrease in real terms due to lower real household income and consumption levels. The increase in overall tax revenues relative to GDP is a result of both increased tax revenues from exports and a rise in foreign trade, given that the tax base remains strong despite a decrease in household consumption.

Government consumption. The rise in inflation and a decline in government consumption due to the reduction in the real government revenue necessitate fiscal adjustments. The depreciation of the national currency and an increase in the policy rate raise the costs of servicing existing external and domestic debt. As a result, a significant portion of additional resources generated through tax payments is directed toward debt servicing. This, in turn, causes a reduction in government consumption.

Government external debt. The value of GDP in foreign currency decreases due to depreciation, which is one of the main reasons for the increase in the external debt-to-GDP ratio. The rise in the external debt-to-GDP ratio increases the risk premium for the country, thereby creating upward pressure on interest rates for new borrowings.

While an exchange rate depreciation may provide a temporary boost to economic growth by making exports more competitive, its positive effects are short-lived, limited in nature, and have serious drawbacks.

The initial benefits of a devaluation of the national currency are eventually offset by higher inflation and a corresponding tightening of monetary conditions, which in turn leads to lower economic growth, lower investment, higher import costs, and higher public debt. The cumulative macroeconomic effects in the long run are negative and create a number of imbalances.

Moreover, the endogenous nature of the real exchange rate and empirical evidence suggest that relying on currency depreciation as the primary instrument for economic development is a risky approach. Structural reforms aimed at improving institutional efficiency and fostering innovation are essential to achieving long-term sustainable economic prosperity.

Box 6

Macroeconomic consequences of fiscal dominance

Persistent high fiscal deficits require central banks to make difficult choices. For example, an increase in the policy rate to reduce inflationary pressures caused by a high fiscal deficit leads to higher debt service and investment costs through higher public debt and interest rates. This can lead to an increase in pressure on the budget balance and a decrease in economic activity. In this context, it is important to understand the macroeconomic implications of fiscal dominance.

There are different views on the concept of fiscal dominance (FD), and no specific consensus has been reached. In some literature, FD is understood as the financing of the government[17] by the central bank beyond the limits established by law, while in others, FD is defined as a set of measures that prevent the effective implementation of monetary policy aimed at controlling inflation[18]. Impeding the effective implementation of monetary policy means not only the limitation of the central bank's ability to freely use monetary policy instruments to achieve price stability, but also the fact that monetary policy is forced to constantly counter the influence of fiscal policy.

In general, fiscal dominance means that any fiscal policy action is supported by monetary policy.

In international practice, studies on the macroeconomic consequences of FD differ from each other based on methodological aspects, variables included and the nature of the countries covered. Nevertheless, most studies have reached similar conclusions regarding the macroeconomic consequences of FD. In particular, it is noted that the interaction of the main economic indicators in the conditions of FD is higher than that observed in the conditions of monetary dominance[19] (MD). In other words, economies with a monetary dominant will be more protected and stable against internal and external shocks.

For example, Ryan Banerjee et al. [20] (2023) studied the risks associated with inflation in the case of developed economies under different fiscal and monetary policy regimes and concluded that the sensitivity of inflation to GDP growth under FD conditions is three times higher than under MD conditions. Also, the correlation between inflation and high budget deficit is found to be significantly higher in the case of FD. In this study, the importance of the independence of the central bank is emphasized, and it is determined that the budget deficit does not lead to high inflation due to effective measures taken by an independent central bank.

The inflationary consequences of economic policy measures under the dominance of fiscal policy, that is when the government pays insufficient attention to debt stability and monetary policy is not focused on controlling inflation, are much worse.

[17] Hooley, J. et al. 2021. “Fiscal Dominance in Sub-Saharan Africa Revisited.” IMF Working Paper, January: 5.
[18] Mercedes Da Costa and Víctor Olivo. 2008. “Constraints on the Design and Implementation of Monetary Policy in Oil Economies: The Case of Venezuela.” IMF Working Paper, June: 4-5.
[19] The monetary policy dominance is observed when "the organization implementing the monetary policy is the first to implement its actions and can freely use its instruments to achieve its goals." In this case, fiscal policy determines the expected deficit or surplus in the future, taking into account the ability to pay.
[20] Banerjee, R. et al. 2023. “Fiscal deficits and inflation risks: the role of fiscal and monetary regimes.” BIS Working Papers, July: 15-19.

Under the fiscal dominance, the central bank's ability to freely use monetary policy instruments is limited, especially with growing public debt and high budget deficits. For example, raising the policy rate reduces inflationary pressure by making borrowing more expensive and reducing consumption, but at the same time it increases debt servicing costs, which widens the deficit.

In the conditions of FD, the central bank's ability to freely use monetary policy instruments is limited. This is mainly observed in the conditions of high or constant growth of public debt and budget deficit in the economy. For example, an increase in the policy rate cuts bank lending and consumption through interest rates rise, decreasing inflationary pressure in the economy.

At the same time, higher interest rates may lead to higher debt service costs, which in turn could further expand the budget deficit. If the cause of inflation is related to the budget deficit and the monetary policy is limited due to FD, the central bank will be forced to artificially keep interest rates low. This can exacerbate the inflationary spiral.

Given the positive correlation between budget deficits and inflation, Sargent's (2013)[21] argument that "Persistent high inflation is always and everywhere a fiscal phenomenon" grows in importance. Therefore, the dominance of fiscal policy is considered a serious threat to economic stability and requires a mutually coordination between fiscal and monetary authorities.

Some studies have also noted that FD leads to the depreciation of the national currency.[18] In particular, in the case of African countries, an increase in central bank loans to the government by one percentage point relative to GDP or five percentage points relative to average budget revenues leads to a one percent depreciation of the exchange rate.

It is also noted that positive shocks in expenditures financed by long-term debt have a stronger impact on GDP growth under the FD conditions, and over time lead to higher inflation and interest rates[22]. Under the FD, the reaction of interest rates to the increase in inflation is observed a slightly later and weaker[23]. This creates the basis for a stronger impact of the expenditure shock on GDP and a lower ratio of public debt to GDP. Nevertheless, these changes may erode the credibility of the central bank over time and increase risks of surge in the future inflationary expectations.

In the conditions of Uzbekistan, financing of the government budget by the Central Bank is prohibited by law. However, the high fiscal deficit observed in recent years has a negative impact on inflation and the trade balance. The task of ensuring long-term macroeconomic stability requires a disciplined fiscal policy and a significant reduction of the fiscal deficit.

[21] Sargent, T. J. 2013. Rational Expectations and Inflation. New Jersey: Princeton University Press.
[22] Bonam, D. et al. 2024. “Challenges for monetary and fiscal policy interactions in the post-pandemic era.” ECB Occasional Paper Series, February: 38-39.
[23] Бу асосан ФСУ сабабли марказий банк ҳаракатларининг чекланганлиги билан боғлиқ.

III. GUIDELINES FOR IMPROVING THE EFFECTIVENESS OF MONETARY POLICY

3.1. Prospects for improving monetary policy instruments

In the medium-term perspective, the Central Bank will actively continue to work on the transition of monetary policy to the inflation targeting regime, take measures to improve monetary policy instruments and align the operational mechanism with advanced international experience. The main focus is on increasing the effectiveness of the monetary policy transmission mechanism, including **the interest rate channel**. The measures to be implemented include several important directions.

Securitization of the main liquidity absorption instrument. In the case of excess liquidity of the banking system, the Central Bank controls money market interest rates by effectively absorbing (sterilizing) this additional liquidity. In this case, **1-week deposit auctions** are the main instrument for absorbing liquidity. In order to increase the effectiveness of this instrument, in 2022 it was transferred to the "**fixed rate – full allotment**" mechanism. Through deposit auctions, the Central Bank sterilizes the excess liquidity in the banking system for a short-term period and creates the basis for the formation of the money market rates for these term deposits at the level of the policy rate.

However, the fact that the instrument **is not backed by collateral** is the reason for the low demand for it. Commercial banks manage their excess liquidity mainly through **Central Bank bonds** and **overnight deposit operations**. This behavior is explained by the preference of banks to take collateral when placing excess liquidity.

Securitization *(backing with securities)* is planned in order to increase the demand for deposit auctions and ensure its functioning as the main instrument of absorbing liquidity.

In this case, there are a number of collateral mechanisms and based on international experience, it is planned to issue **Central Bank bonds with a term of up to 1 year** *(without placing them in interbank market)*. These issued bonds are then held in the Central Bank's balance sheet and used to organize deposit auctions in the form of a **reverse REPO auction**.

The advantage of this mechanism over the current deposit auction is explained by the possibility of **selling collateralized Central Bank bonds** or raising funds through **secondary REPO** when a commercial bank needs liquidity during the 1-week period. A reverse REPO auction is similar to the Central Bank's current deposit operations and is conducted as a fixed rate

tender will full allotment *(no limits),* with the interest rate set equal to the **policy rate**.

Securitization of deposit auctions helps to improve the transmission of monetary policy due to the increase in the efficiency of monetary operations, the expansion of the collateral base of commercial banks amid structural liquidity surplus, and the increase of the share of secured transactions in the interbank money market.

Increase the emission of Central Bank bonds. The abovementioned **securitization of deposit auctions** and the weekly calculation of the **yield curve on government securities** starting from September 1 of this year, require **the continuous issuance** of Central Bank bonds.

Central bank bonds issued for reverse REPO auctions are issued in the form of **benchmark bonds** in order **to ensure high liquidity** and expand the possibility of **secondary use of collateral**. This means, in particular, issuing a **large amount** of bonds at once, keeping them in the Central Bank's balance sheet, and conducting reverse REPO auctions according to demand.

The issuance of Central Bank bonds aimed at developing **the short-term segment** of the yield curve also implies the continuous issuance **of low-volume bonds of various maturities**.

In the practice of most foreign countries, the short-term segment of the yield curve is formed by the yield of Central Bank bonds while the long-term segment is formed by the yield of government bonds.

Regular circulation of small-volume Central Bank bonds based on a predetermined schedule serves to create sufficient demand for them. As a result, there will no longer be a need **to apply the upper limit on the yield** of these bonds and ensure that the yield is fully formed based on the expectations of market participants.

Improvement of rules for implementation of monetary policy operations and regulations on money and REPO markets.

In this regard, with the participation of technical assistance missions of the International Monetary Fund and the European Bank for Reconstruction and Development as well as foreign experts, regulatory documents will be subjected to **a legal audit** and necessary changes will be made.

Regulations on interbank money and REPO markets were adopted before the start of active monetary policy transition to the inflation targeting regime. Therefore, they are intended to be revised from the point of view of further

increasing the activity of the markets by aligning them with the standards of this regime, including creating sufficient facilities for market participants.

Revision of the benchmark interest rate on money market operations and expansion of the calculation base. The methodology for calculating and announcing the UZONIA benchmark interest rate of the money market was approved in July 2022. As the interbank REPO market was inactive during this time, UZONIA has been calculated only on the basis of **unsecured deposit transactions**.

However, since the spring of 2023, a sharp increase in the volume of REPO operations among banks has been observed, and today the share of REPO operations in the total money market is **about 60 percent**. In this situation, there is a need to take into account secured operations when calculating the benchmark interest rate of the money market.

Considering that the main users of the benchmark interest rate are commercial banks, it is planned to discuss the issue of improving the UZONIA calculation methodology and adding REPO operations to the calculation base **at the quarterly meetings of the "Money Market Working Group"** with the participation of experts from the European Bank for Reconstruction and Development.

Improving reserve requirement framewrok. To continue the measures aimed at reducing the level of dollarization of the banking system's liabilities and improve the standard of reserve requirement for commercial banks based on international practice, it is planned to gradually increase the level of coverage of commercial banks liabilities with the reserve requirement **in 2025-2030.** Also, to reduce the additional burden on commercial banks, it is planned to lower the reserve requirement ratio for foreign currency liabilities and allow banks to hold the required reserves for foreign currency liabilities in either national or foreign currency.

Detailed analytical information on the application of the reqired reserve instrument in the implementation of monetary policy is presented in Appendix 9.

Emergency liquidity assistance for the banking system. In order to create **a regulatory framework** for the Central Bank's **last-resort function** of providing liquidity, with the support of the International Monetary Fund, **the Regulation "On the procedure for emergency liquidity assistance of commercial banks of the Central Bank of the Republic of Uzbekistan"** will be developed.

Based on this Regulation, **solvent and stable** commercial banks with a **temporary liquidity deficit** will have the opportunity to attract short-term liquidity from the Central Bank backed by asset collateral in order to ensure the continuity of payments. Although it is considered **an instrument of financial stability**, the establishment of this mechanism serves to increase the confidence of banks in attracting liquidity from the Central Bank in any situation. As a result, it serves **to reduce the "liquidity premium"** and **lower interest rates** in the formation of the price of short-term funds in the money market.

In the next stage of this technical assistance program from the IMF, it is planned to develop the **"Collateral mechanism"**, which is not only an emergency liquidity instrument, but also determines the procedure for attracting collateral and applying haircuts for monetary policy operations.

Enhancing monetary policy communication. Continuous improvement of monetary policy instruments and operations, as well as the scale of measures taken for the development of interbank money markets require their timely and understandable communication to market participants and the general public. In the medium term, it is intended **to increase the transparency of communication** and **expand the scope of published data and statistical indicators.**

In this case, permanent communication channels will be established with commercial banks, which are the main market participants, and detailed information on the changes being implemented will be provided through **seminars and trainings**. The main goal is **to increase the effectiveness of monetary policy transmission** by communicating the goals and tasks of monetary operations to market participants and ensuring their active use of these instruments.

Box 7

Risk management approach in monetary policy

In recent years, the increase in uncertainty in the global economy *(global economic shocks, geopolitical tensions, financial crises and technological progress)* creates certain difficulties in making decisions on monetary policy.

As a result, some central banks are developing a risk management approach based on the minimization[24] of negative consequences even in the conditions of an optional scenario, rather than the most likely scenario (usually the baseline scenario) when making decisions on policy rates.

Identifying risks that may affect the achievement of the Central Bank's goals, assessing their impact and taking measures to reduce their negative consequences is an important and integral part of this approach.

At the same time, incorrect assessment of possible risks and uncertainties and decision-making based on this can derail macroeconomic stability. In particular, most of the leading countries emphasized that the inflationary processes occurring in 2021 will be of a short-term nature and delayed increase of interest rates, which subsequently led to the long-term retention of the inflation rate and the deepening of the scale of losses in economic development.

Reliable and timely information is very important in ***identifying risks***, and their deficiency or a disruption of the fundamental direction of macroeconomic indicators can negatively affect the accuracy and effectiveness of decisions in the field of monetary policy, and subsequently lead to a disruption of economic balance.

Various econometric models, macro stress tests and scenario-based analysis are used in ***risk assessment***. Scenario-based analysis involves the formulation of multiple, equally likely scenarios to analyze the interdependence of various factors and their likely impact on macroeconomic stability. Stress testing is also a specific form of scenario analysis in which central banks assess the resilience of the financial system under extreme but potentially unstable conditions. This helps to understand potential vulnerabilities and prepare for worst-case scenarios.

In particular, the **US Federal Reserve System (US Fed), the European Central Bank, the central banks of New Zealand and Canada** use *the loss function* in their models to balance monetary policy decisions and manage economic risks.

These functions may vary depending on the objectives of central banks, the specific priorities and economic conditions of each country, but the common elements are inflation, the GDP gap and changes in interest rates $(L=(\pi_t-\pi^*)^2+\lambda(y_t-y^*)^2+\mu(i_t-i_{t-1})^2)$.

The loss function is used to quantify the balance between various economic objectives *(e.g., low inflation and economic growth)* and to optimize monetary policy decisions. If the value of the loss function decreases, it indicates that the selected rate change *(value)* brings the economy closer to the target levels.

As part of the implementation of the new generation of the Forecasting and Policy Analysis System (FPAS Mark II), **the Central Bank of Armenia** abandons the concept of a

[24] In scientific research, this situation is called "avoid the dark corners" and the main goal is to minimize losses.

baseline scenario in making monetary policy decisions and establishes a mechanism for using several equally likely scenarios.

In this case, the risks in the supply and demand side that can cause inflation to be higher than the target are included in the conditions of one scenario, while the other scenario is based on the risks that can cause inflation to fall below the target. In the end, although monetary policy decisions are based on one of these scenarios, other scenarios still have certain probability of occurence and are widely promoted to the public.

Along with the development of the baseline scenario of macroeconomic development, **the National Bank of Georgia** details several risks associated with the baseline scenario forecasts and how the direction of monetary policy will change if they materialize. In this case, a risk with a higher probability of realization or higher impact on inflation is chosen, and the resulting deviation from the baseline scenario is considered as an alternative scenario. Macroeconomic development within each scenario is considered equally likely. As part of the risk management approach, the National Bank of Georgia states that it is intolerant of the rise of inflation expectations, and that it will fight by tightening the monetary policy and using additional instruments if necessary.

The National Bank of Hungary publishes the baseline scenario forecasts and the effects of several risk-based alternative scenarios on these forecasts (mainly inflation and economic growth). This allows for a more accurate assessment of possible economic changes and making comprehensive decisions on monetary policy.

Minimizing risks. Once risks are identified and assessed, central banks develop strategies to mitigate them. For example, if the policy rate and other monetary policy instruments are used by central banks to manage inflation, macroprudential measures, such as changing capital requirements or introducing countercyclical buffers, can be taken to eliminate systemic risks in the financial sector.

In these circumstances, central bank decisions should be based not only on the source of risks, but also on the extent and duration of their impact. In particular, in case of stronger and more persistent shocks, inflationary processes, regardless of stemming from demand or supply factors, can destabilize inflation expectations and, as a result, cause inflation to deviate from its target in the long term.

Therefore, effective risk management requires central banks to have a high degree of independence in order to take timely and effective measures based on unbiased analysis without any interference.

Communication and transparency. An integral part of this approach is that central banks regularly make their risk management mechanisms and policy measures publicly available. This allows market participants to manage their expectations and strengthens credibility of the central bank.

According to central banks that have implemented a risk management approach, forecasting the probable outlook of macroeconomic development in a certain scenario and failing to take into account possible errors may increase the forecast errors during the high uncertainty period. The increase in repeated errors in forecasts causes a decrease in credibility to the central banks and a decrease in the effectiveness of the policy being conducted.

It is appropriate not to give priority to one particular scenario, taking into account all the risks that have a high probability and impact on inflation, and to inform the public about the negative consequences that may occur in the event of their occurrence and how the monetary policy will respond to them.

In addition, public awareness of potential risks will allow central banks to adapt their decisions to any scenario, as well as strengthen credibility of the ongoing monetary policy.

Box 8

Banking system total liquidity dynamics and its forecast

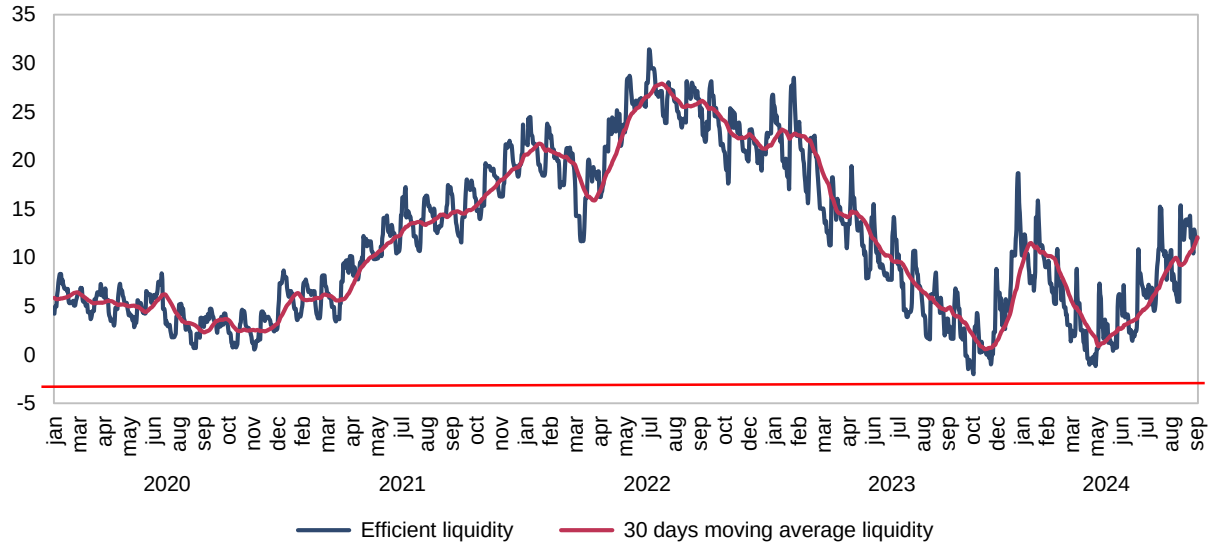
The operational goal of the monetary policy, in the inflation targeting regime, is to ensure the formation of short-term money market interest rates at a level close to the policy rate. In order to achieve this goal, the Central Bank will implement the practice of effective management of liquidity in the system. In this case, if the average requirement of mandatory reserves determines the normative liquidity that must be maintained by banks, monetary operations allow to manage the difference (gap) of total liquidity from the established norm.

Short-term and long-term forecasting of banking system liquidity, its effective management with monetary operations, and correct signaling of interest rates play an important role in ensuring the formation of money market rates within the operational target of monetary policy. Money market rates formed close to the policy rate ensures the transmission of monetary policy to the prices of securities, deposits and loans.

In recent years, the net liquidity position of the banking system has been in the state of surplus. It approached the neutral level twice - in November 2023 and April 2024, and due to the increasing influence of autonomous factors, this process gained short-term importance *(Figure 1)*.

The central bank's purchase of precious metals, FX interventions aimed at sterilizing this purchase and budget operations are the main factors affecting the total liquidity.

Figure 1. Net liquidity position of the banking system



Source: CBU calculations.

During the period of analysis, due to the relatively high supply in the domestic FX market, additional liquidity, which was not sterilized by FX interventions, was effectively absorbed by the Central Bank through monetary operations *(Central Bank bonds and deposit instruments)*.

The impact of government operations is mainly caused by the difference between revenue and expenditure, while the part of the deficit financed by domestic debt does not affect the overall liquidity. Government expenditures financed by external debt are usually considered as factors that increase bank liquidity in soums.

The forecast of liquidity of the banking system in 2025-2026 shows that the current state of surplus will be maintained. When analyzed in terms of factors, it is estimated that the purchase of precious metals by the Central Bank will have a high liquidity-increasing effect due to the price of gold remaining at the current high level and the expectation of a gradual increase in the volume of gold production.

In turn, the Central Bank's interventions in the domestic foreign exchange market will be carried out on the basis of the “neutrality principle”, which implies that additional liquidity in soums, directed to the economy through the purchase of gold, will be completely sterilized. Also, in case of high currency inflow due to favorable external situation or in case when the ability to make interventions is limited, sterilization (absorption) of additional liquidity will be performed through monetary operations.

The positive impact of government operations on overall liquidity will continue in the future, but this effect will be reduced through the implementation of fiscal consolidation and gradual increase in the share of domestic debt in deficit financing. The reduction of the overall budget deficit to 4 percent by the end of 2024 and no more than 3 percent in the coming years is considered as the main prerequisite.

The influence of other factors on liquidity is relatively small, and, according to estimates, they will not have a significant impact on the liquidity of the banking system in the coming quarters. Due to expectations of high growth rates of deposits in the banking system, the volume of reserves allocated under reserve requirement will increase, and the liquidity held on its basis will be important in ensuring the continuity of payments.

With the overall liquidity surplus persisting, the issuance of Central Bank bonds will be increased and deposit operations will be actively used. In this regard, it is planned to conduct future deposit auctions on the basis of reverse repo auctions, which is expected to reduce the volume of bonds in absorbing additional liquidity and increase the effectiveness of policy rate signals.

3.2. Guidelines for the development of macroeconomic analysis and forecasting capacity

A crucial condition for the effective implementation of monetary policy is decision-making based on reliable and relevant data. The effectiveness of monetary policy depends not only on the pace of taking measures, but also on the appropriate direction of inflation and economic expectations. From this perspective, analysis and timely forecasting of economic processes allow to make well-informed decisions in a changing macroeconomic environment.

At present, all the key elements of the Forecasting and Policy Analysis System (FPAS) have been fully introduced at the Central Bank. The main model of the Central Bank is the Quarterly Projection Model (QPM). Moreover, there are a number of satellite models designed for more in-depth analysis and forecasting of some indicators. In particular, the ARIMA and BVAR models are applied to forecast inflation. For GDP projections, there are macroeconomic models based on FPP, DFM, FAVAR and MIDAS.

In order for the FPAS system to comprehensively reflect the structure and conditions in the economy, it is essential to regularly update the model parameters. Thus, next year parameters of the QPM model are planned to be completely revised and readjusted to changing macroeconomic conditions and structure of the economy. For a more accurate assessment of the economic cycle, the model functionality will be expanded by introducing a labor market block.

In order to improve the system of satellite models, the implementation of “nowcasting” methods will be broadened. In particular, complex models for forecasting GDP and inflation in real time are planned to be developed based on a combination of BRIDGE, BVAR, and DFM methods.

These models are built on forecasting individual components of GDP and inflation using high-frequency, continuously updated data and aggregating the resulting projections into corresponding indicators.

In the future, the set of current models will be expanded by using machine learning methods. In particular, a number of tools for analyzing inflation expectations of the population and consumer sentiment will be increased.

Machine learning methods for analyzing text information from news articles and social media are also being explored. This will allow a broader assessment of market sentiment and its impact on the economy. Sentiment

analysis will enable us to assess market reaction to policy decisions and to increase our understanding of market expectations in decision-making.

Furthermore, a set of “gradient boosting” and “random forest” models for forecasting inflation is planned to be introduced. In addition, to forecast liquidity of the banking system, a range of modern models, including machine learning methods, will be introduced.

Applying machine learning models will allow to process and analyze data sets from various sources such as financial reports, macroeconomic indicators, transaction data, market indices and newscasts, thus improving the accuracy of liquidity forecasts.

Currently, various machine learning methods including tools such as recurrent neural networks (RNN) and long short-term memory (LSTM) are being explored for liquidity forecasting. These methods allow to effectively capture dynamics of liquidity in the banking system and respond to unexpected changes in the market.

Moreover, machine learning provides opportunities for scenario modeling. In particular, the experience of employing “decision tree” and “random forest” models to assess the impact of different economic measures and external conditions on macroeconomic indicators will be studied.

The work on developing the DSGE model is almost completed, and this model will allow to comprehensively analyse implications of structural changes and certain macroeconomic shocks in the economy, as well as to assess the long-term effects of monetary policy scenarios.

For effective use of this model, monetary and fiscal policy blocks will be incorporated, and special emphasis will be placed on improving the expertise and skills of model operators.

APPENDICES

Appendix 1

Schedule of the Board meetings of the Central Bank of the Republic of Uzbekistan to revise the policy rate in 2025

In 2025, the meetings of the Central Bank Board regarding the review of the policy rate will be held based on the following schedule:

January 23;

March 13;

April 24;

June 12;

July 24;

September 11;

October 23;

December 11.

Following each Board meeting, a press release of the Central Bank is published on the official website of the Central Bank.

Also, a press conference will be held with the Central Bank management on the results of the main meetings on January 23, April 24, July 24 and October 23, and the “Monetary Policy Report” will be announced.

Appendix 2

Calendar of monetary policy publications of the Central Bank of the Republic of Uzbekistan for 2025

Publications	Frequency	Publication dates
Press release of a decision of the Central Bank Board on the policy rate	8 times a year	After each Board meeting of the Central Bank on the policy rate review: January 23; March 13; April 24; June 12; July 24; September 11; October 23; December 11.
Presentation at the press conference on the results of a Board meeting to review the policy rate and statement of the Chairman of the Central Bank	4 times a year	Within 3 days after each main meeting of the Central Bank Board to review the policy rate: by January 26; by April 27; by July 27; by October 26.
Monetary Policy Report	quarterly	Within 20 days after each main meeting of the Central Bank Board to review the policy rate: by February 15; by May 15; by August 15; by November 15.
Conceptual Project of Monetary Policy Guidelines for 2026 and the period of 2027-2028	annual	Within 1 week after the last main meeting of the Central Bank Board to review the policy rate: by October 30.
Money Market and Liquidity Report	quarterly	In the first half of a month after each quarter: January; April; July; October.

Infographics on inflation expectations and perceived inflation	monthly	In the first half of the following month of the corresponding period
Consumer Sentiment Report	quarterly	In the first half of the following months: February; May; August; November.
Business Sentiment Report	quarterly	In the first half of the following months: February; May; August; November.
Analysis of the Real Estate Market	quarterly	In the second half of the month after each quarter: January; April; July; October.
Labour Market Report	quarterly	In the second half of the month after each quarter: January; April; July; October.

Appendix 3

The goal of the monetary policy and its main principles

Development and implementation of monetary policy in accordance with the Law "On the Central Bank of the Republic of Uzbekistan" is one of the main tasks of the Central Bank.

The Central Bank develops and implements monetary policy based on the goal of ensuring price stability. Price stability means a low and stable inflation rate.

According to the Decree of the President of the Republic of Uzbekistan "On the improvement of the monetary policy through the gradual transition to the inflation targeting regime", the permanent inflation target is set at 5 percent, and the task of achieving this target is assigned to the Central Bank.

Provision of the inflation target by the Central Bank preserves the purchasing power of incomes and savings of the population and entrepreneurs, allows them to plan their long-term expenses, and creates favorable conditions for stable and inclusive economic growth.

At the same time, constant low inflation serves to bring stable investments into the country, to reduce interest rates due to the reduction of inflation premium, and to reduce the vulnerability of the economy to external risks in the context of increased credibility of the national currency.

Effective monetary policy creates opportunities to prevent a sharp and persistent deviation of the economy from its potential and take measures to mitigate negative effects, but it cannot directly ensure an increase in economic potential. Effective implementation of fundamental and structural reforms aimed at developing the competitive environment, increasing labor and capital productivity, improving energy efficiency indicators, and creating a favorable business environment and infrastructure are important for expanding the production capabilities of the economy.

Starting from 2020, the Central Bank of the Republic of Uzbekistan conducts its monetary policy within the inflation targeting regime based on the following principles:

The inflation target is set and all monetary policy measures are aimed at achieving this target. In our country, the medium-term level of inflation that must be ensured is 5 percent. The inflation target was announced to the general public so that the population, economic agents and financial market participants could consider it in planning their activities and making decisions. This target determines the annual growth rate of consumer prices, that is, the target level of the total change in the price of goods and services purchased by the population over 12 months.

In the activities of the Central Bank, the task of achieving the inflation target is considered superior to other tasks, and all measures and decisions within monetary policy are aimed at achieving the inflation target. Achieving the inflation target is the main criterion for evaluating the activities of the Central Bank by economic agents and forming credibility of the ongoing monetary policy. From this point of view, it is required that all decisions in the macroeconomic sphere are made in accordance with inflation target.

The policy rate of the Central Bank is the main instrument of monetary policy. The policy rate is the main instrument of the monetary policy and determines the monetary conditions necessary to ensure the formation of inflation within the 5 percent target. In this case, the policy rate of the Central Bank affects the dynamics of interest rates in the economy and thereby the domestic demand. The inflation target is achieved by balancing domestic demand. Meetings of the Central Bank Board to review the policy rate are held 8 times a year based on a predetermined schedule.

The operational mechanism of the monetary policy is developed and improved by the Central Bank independently. Article 151 of the Constitution of the Republic of Uzbekistan establishes the independence of the Central Bank of Uzbekistan in the development and implementation of monetary policy. Based on this, the Central Bank has the right to independently choose monetary policy instruments and approaches to achieve the inflation target. This may include managing interest rates, conducting open market operations, changing reserve requirements, and other measures based on economic conditions. The operational mechanism of the ongoing monetary policy works on the basis of the policy rate and interest corridor. The operational goal of the monetary policy is to ensure the formation of short-term *(overnight)* interest rates in the money market at a level close to the policy rate. The Central Bank manages the overall liquidity of the banking system by actively using monetary instruments, thereby influencing money market interest rates.

Monetary policy decisions are based on comprehensive macroeconomic analysis and forecasts. Monetary policy affects price dynamics in a certain period of time, through a series of relationships. Therefore, the central bank's management relies on macroeconomic analysis and forecasts to assess its impact on inflation and the economy when making policy rate decisions.

Today, the Central Bank mainly uses the Quarterly projection model *(QPM)* in the development of macroeconomic forecasts. In addition, a number of econometric and structural models are used to compare forecast results and conduct research. It is worth noting that decisions on the policy rate are made under conditions of a certain degree of uncertainty. The reason is that macroeconomic forecasts are formed based on possible economic outlook, expected changes in global commodity and financial markets, and other factors. For this reason, the Central Bank makes decisions on monetary policy based on the relatively stable trends of factors and their impact on the inflation rate. The Central Bank is constantly improving its analytical and forecasting potential, taking into account the changes and uncertainties in the country and the global economy.

The Central Bank implements exchange rate policy according to floating regime. A floating exchange rate is one of the necessary conditions for conducting an effective monetary policy within inflation targeting framework. The participation of the Central Bank in the domestic currency market is based on the principle of neutrality. That is, the interventions of the Central Bank are carried out within the volume of monetary gold purchased during the year and do not affect the fundamental trend of the exchange rate. The soum exchange rate is determined in relation to the ratio of supply and demand for foreign currency in the domestic currency market. The Central Bank does not set any target for the soum exchange rate. The freely formed exchange rate based on demand and supply in the market performs the function of limiting the transfer of external risks to

the domestic economy ("shock absorber") and is one of the important conditions for ensuring macroeconomic stability.

Monetary policy is conducted transparently and every decision is explained in detail to the general public. One of the main elements of the inflation targeting regime is the openness and transparency of monetary policy decisions. Timely and clear communication of the monetary policy decisions to the general public is important in the formation of inflation expectations of households and business entities. Ensuring stable level of inflation within the target and increasing communication transparency will help to increase the credibility of the Central bank among the population and, ultimately, improve the effectiveness of the implemented monetary policy measures.

Appendix 4

Alternative methodologies for estimating the real effective exchange rate

The real effective exchange rate (REER) is the most widely used indicator for assessing the country's price competitiveness in foreign trade.

The generally accepted approach to determining the REER is based on evaluating the average exchange rate of a basket of currencies of trading partner countries, taking into account their inflation rate. At the same time, in international practice, there is a wide range of statistical forms of this indicator, and calculation methods differ, depending on the criteria used for determining the weight of trading partners and relative prices.

The REER index is calculated by the Central Bank on the basis of changes in consumer prices and exchange rates in the basket of main trading partner countries, annual fixed weights of the volume of trade turnover except for gold (core REER).

For a more in-depth analysis of the state of price competitiveness, alternative indicators of REER are also calculated. REER indicators are estimated by taking into account the producer price index (PPI), labor costs, competition in third markets and gold exports.

REER based on producer price index

According to preliminary estimates, in 2019-2023, about 67 percent of the total export composition corresponded to goods of the industrial sector *(Figure 1)*. Due to the high share of raw materials and industrial products, REER calculated on the basis of the consumer price index may not accurately and completely reflect the indicators of competitiveness from the point of view of exports.

In this regard, the calculation of the alternative REER based on the producer price index (PPI) more accurately reflects the export competitiveness of countries with a high share of industrial and raw goods in total production and exports.

The real effective exchange rate (REER) index for Uzbekistan, calculated on the basis of PPI, appreciated by 10 percent at the end of July 2024 compared to September 2019 *(Figure 2)*. This appreciation indicates that the prices and costs of local producers were much higher in the context of the depreciation of the national currency against the currencies of trading partners *(the nominal effective exchange rate weakened by 4 percent)*. The increase in producer prices, in turn, is related to the volatility of commodity prices, the increase in costs and wages for third-party services.

In general, despite the high volatility of the REER index according to PPI, the dynamics of the core REER and this indicator have the same trend in the long-term perspective *(Figure 3)*.

The significant divergence between the depreciation of the PPI-based REER and the strengthening of the core REER in 2021-22 can be explained by the significant acceleration in consumer price growth driven by a faster recovery in domestic consumer demand following the pandemic.

Figure 1. The share of export products in production sectors in the total export of goods, *average for 2019-2023, percent*

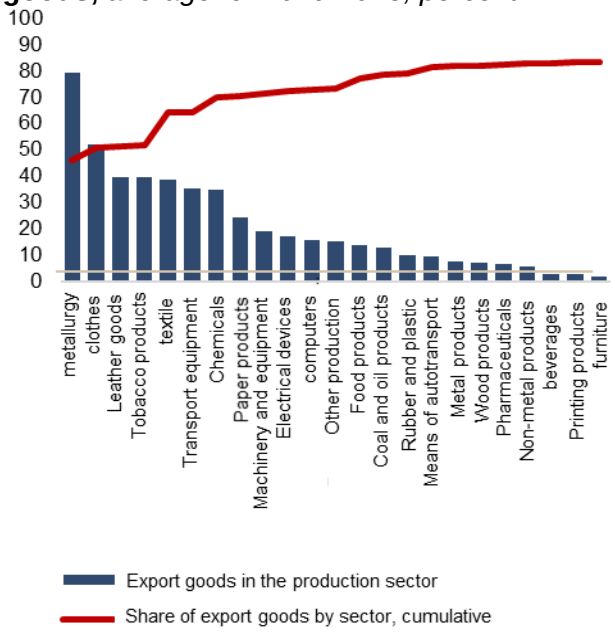
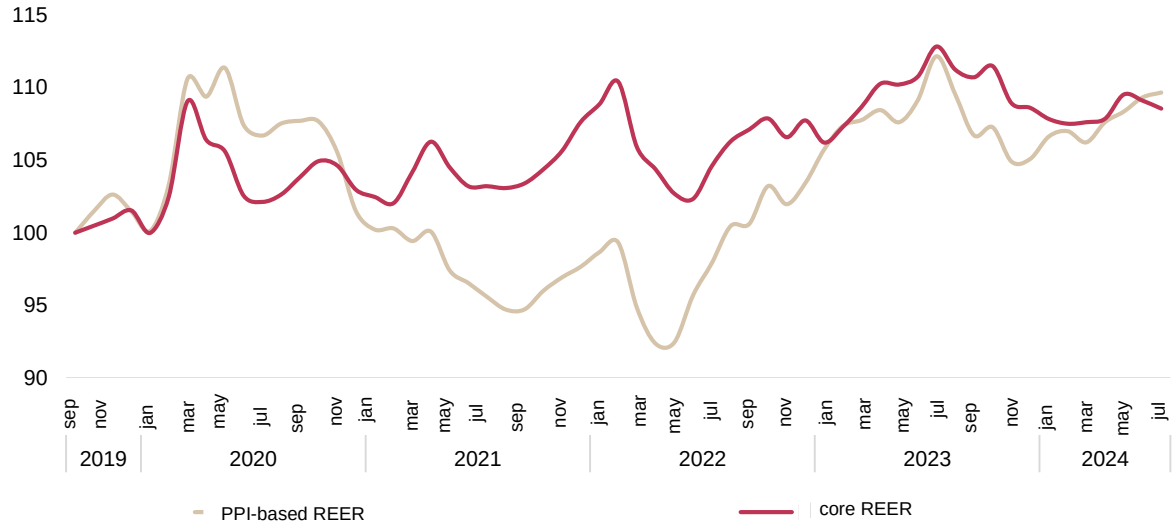


Figure 2. PPI-based REER index, *September, 2019 = 100 percent*

Source: CBU calculations based on statistics from trading partner countries.

Figure 3. Comparative dynamics of core and PPI-based REER.



Source: CBU calculations.

ER based on labor costs

Unit labor cost *(ULC – unit labor cost)* is also used as an alternative indicator of consumer inflation when calculating REER. Inflation is correlated with ULC through the mechanisms of supply shocks *(cost-push shocks)* and wage-price spirals.

ULC serves as an alternative leading indicator of inflationary processes in the economy. The growth of ULC above the inflation rate is indicative of existing inflationary pressures in the economy and the possibility of future declines in competitiveness.

In general, the dynamics of REER calculated according to ULC and the core REER index coincided with each other, and it was observed that one appreciated slightly more

than the other. This is due to the faster growth of wages in production compared to the growth rate of consumer prices.

Figure 4. Unit labor costs and inflation, *percent*

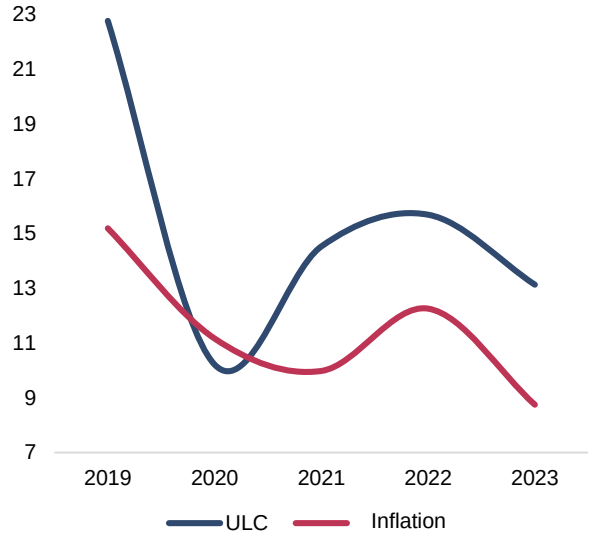
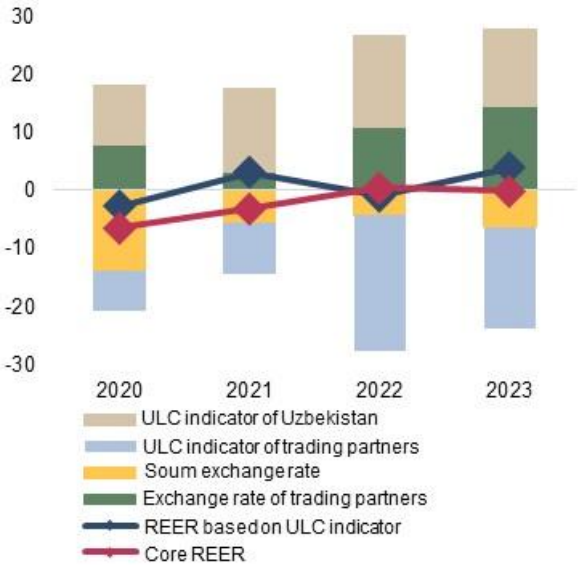


Figure 5. REER decomposition calculated on the basis of ULC, *percent*



Source: CBU calculations

REER based on competition in third markets

Based on this approach, the weights in the calculation of REER are derived from goods trade flows, covering direct bilateral trade and indirect competition in the third market.

Figure 6. Comparative dynamics of REER based on competition in third markets with key indicators

Source: CBU calculations.

A basket of five main trading partner countries was taken in calculating REER for Uzbekistan on the basis of competition in third markets. In general, when compared to the main index, the indicators have similar dynamics.

REER calculated taking into account gold exports

As the sale of gold in the country is carried out in an international exchange, the range of gold exporting countries changes, the monitoring of which is difficult and therefore the calculation of the real exchange rate is made without taking into account gold exports.

In this regard, an alternative approach to calculating REER has been developed, taking into account gold exports, which includes the dynamics of gold prices in domestic inflation indicators.

According to preliminary results, when taking into account gold, there was no significant appreciation of REER in 2022-2023, which can be explained by higher dynamics of domestic inflation compared to changes in world gold prices.

In general, the results of alternative indicators indicate a certain appreciation of REER relative to the base period. However, given the nominal depreciation of the national currency against a basket of currencies of trading partners, the main appreciation is associated with high domestic inflation. Achieving inflation targets and ensuring price stability in the future is a key factor in further strengthening competitiveness.

Appendix 5

Effects of Central Bank Digital Currency on Monetary Policy Transmission

With the development of digital transformation in the banking and financial system, the economic agents' interest in digital currencies is increasing. In response, central banks are pushing initiatives to create a central bank digital currency (CBDC) as opposed to unregulated and decentralized cryptocurrencies.

CBDC is the digital representation of the official currency issued by the central bank. This currency is intended to be used as legal tender for payment and transaction purposes.

The successful implementation[25] of CBDC will create an opportunity for the general public to use a safe form of money as the economy becomes digital. This, in turn, will encourage the diversity of payment services, make money transfers and payments faster and cheaper, increase financial inclusion and popularity. Moreover, the opportunity to track CBDC movements will help prevent them from being diverted to illegal and other purposes.

The issuance of CBDC does not change the objectives or operational mechanisms of monetary policy. On the contrary, it serves to improve its transmission to the economy. However, by increasing the velocity of money circulation, it may cause difficulties to manage liquidity in the economy.

Effects on money supply and liquidity. The issuance of digital currency does not technically represent a direct expansion of the money supply, but a structural change in central bank liabilities (cash and accounts). In other words, the partial replacement of cash in circulation with digital currency affects only the composition of the central bank's liabilities: the share of cash decreases and the share of digital currencies increases. When deposits are exchanged for CBDC, the balance sheets of credit organizations do not change either: the balances on customer accounts decrease, and the funds on representative accounts of banks also decrease.

This, in turn, affects the liquidity of the banking sector. In particular, it can lead to a decrease in the size of the structural surplus and even a liquidity deficit. The current system of monetary policy instruments ensures the level of liquidity required by banks and creates conditions for the formation of money market rates close to the policy rate.

In order to reduce liquidity risks, restrictions on operations with CBDC may be introduced. In particular, the regulator will be able to regulate by setting the maximum amount of CBDC ownership for one account, limits on the total daily transaction volume, increased requirements for setting upper limits, or setting negative interest rates for CBDC balances.

[25] There are retail and wholesale types of CBDC. Retail type is used by individuals in all payments and transfers, and wholesale type is used for money market settlements between financial institutions.

Retail CBDC is issued by commercial banks in the usual two-tier system. However, the CBDC obligation is reflected directly on the central bank's balance sheet, while commercial banks, as central bank agents, ensure compliance with KYC and Anti-Money Laundering (AML-FT) requirements. On the contrary, the circulation of CBDC directly by the central bank through a one-step system will lead to a disruption of the architecture of the payment system.

Effects on monetary policy transmission. The introduction of CBDC may affect the transmission of monetary policy in the following ways:

1. CBDC increases competition for deposits among banks. CBDC's ability to outpace deposits by keeping funds safe and offering efficient means of payment results in less deposit funds for banks. This, in turn, requires banks to raise interest rates on deposits to remain attractive. In this situation, the transmission of the base rate to deposit interest rates increases and the effectiveness of the interest channel increases.

2. The share of wholesale financing in banks will increase. Commercial banks try to cover the part of funds transferred from deposits to CBDC through wholesale financing. Due to the high sensitivity of wholesale financing to the policy rate of the central bank compared to retail deposits, the increase in the share of wholesale financing serves to increase the efficiency of the interest channel.

3. It reduces the profit of banks. As competition increases, interest rates on deposits increase, or banks' costs increase as a result of switching to wholesale financing, which leads to a decrease in profits. In this case, banks can take two different paths: tighten lending requirements or finance risky projects in pursuit of high profits. If the first situation leads to a tightening of financial conditions, a risky approach may endanger the stability of the banking system.

4. It increases financial inclusion and popularity. This will stimulate the development of digital technologies in the financial sector, increase the diversity of financial services and attract non-bank savings into the system. Also, CBDC's transaction history feature allows determining the customer's credit risk level and reducing interest rates accordingly. All this serves to soften the financial conditions. In addition, the increase in popularity will lead to the inclusion of a wide segment of the population in the sphere of influence of the monetary policy, and the level of their financial literacy will increase, leading to the rationalization of their decisions. As a result, this helps improve the efficiency of the interest rate channel and the financial asset channel.

5. It reduces the level of dollarization or "cryptoization". In economies with a high level of dollarization, the introduction of CBDC will encourage more use of the national currency in circulation by making it a more attractive means of payment.

A decrease in the level of dollarization has a positive impact on the effectiveness of all channels of monetary policy.

Risks of introducing CBDC into circulation. At the same time, in the initial period, CBDC may cause certain risks in conducting monetary policy by causing changes in retail, wholesale and cross-border payments.

Retail CBDCs are an alternative to bank deposits, whether or not interest is paid on them, and their level of monetary policy risk is higher than wholesale CBDCs. In particular, the determination of interest payment to CBDC will further increase the possibility of intermediation and will cause reduction of credit sources as CBDC can substitute for all types of deposits. On the other hand, interest-free CBDC is more attractive compared to demand deposits. In turn, retail CBDCs increase the volatility of the liquidity of commercial banks in the central bank by affecting the speed of money circulation by causing changes in cash and deposits of the population. This volatility can weaken the credit and interest channels for monetary policy transmission, reducing the central bank's ability to forecast

liquidity and conduct effective open market operations. Also, wholesale CBDC can encourage the segmentation of financial markets.

The use of CBDC in cross-border payments can increase the risk of currency substitution in receiving countries and accelerate capital flows in times of crisis. This weakens the ability to control monetary and currency policy.

In general, the gradual introduction of CBDC into circulation following a large-scale research and testing, developing an appropriate CBDC ecosystem considering economic and financial conditions of the country and the characteristics of existing payment systems, will help to prevent the impact of risks on the economy and monetary policy.

Appendix 6

The impact of the development of artificial intelligence on economic processes

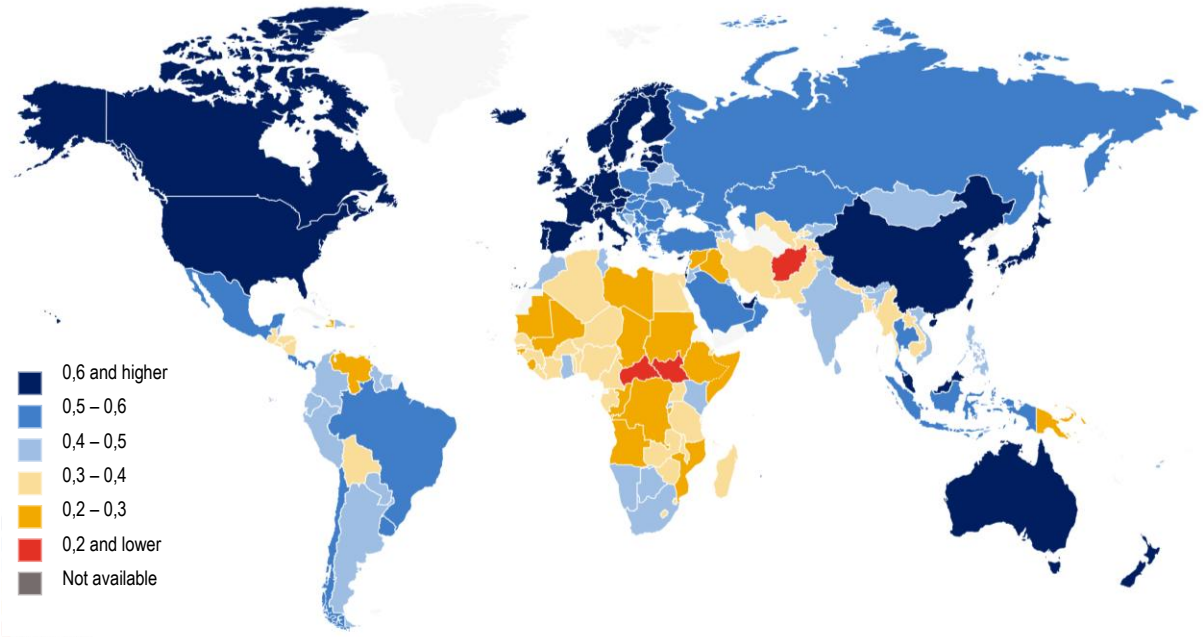
Artificial intelligence (AI) has become a central topic of modern economic discussions, and its importance is compared to the industrial revolution. It is expected that the widespread implementation of artificial intelligence technologies will affect macroeconomic processes and lead to qualitative and structural changes in the economy. In particular, the impact of artificial intelligence on economic processes is manifested primarily in the labor market and labor productivity.

The impact of artificial intelligence on the labor market

According to research, as a result of the widespread use of AI in practice, about 40 percent[26] of jobs worldwide may be affected by it. Due to the prevalence of intellectual occupations in developed economies, the proportion of jobs potentially affected by AI is higher — 60 percent, 40 percent in developing countries, and 26 percent in low-income countries. This effect will take the form of full or partial automation or redistribution of tasks.

Although the impact of AI is high in developed countries, well-developed infrastructure and highly skilled personnel allow for faster and more efficient adaptation to changes.

Figure 1. AI Readiness Index



Source: IMF, AI Readiness Index.

At the same time, in developing and low-income countries, if the digital infrastructure is sufficiently formed, artificial intelligence can be used as an instrument to accelerate economic development by training relevant qualified personnel. However, countries with

[26] Cazzaniga and others. 2024. “Gen-AI: Artificial Intelligence and the Future of Work.” IMF Staff Discussion Note SDN2024/001, International Monetary Fund, Washington, DC.

insufficient digital infrastructure cannot take advantage of the benefits of AI. This can widen the income gap between countries and increase inequality.

Global GDP growth is expected to accelerate as a result of labor productivity and cost efficiency. In particular, according to the estimates of the Goldman Sachs[27], AI technologies can increase the global GDP by 7 percent in the next decade.

The impact of AI on the labor market also showed mixed results. On the one hand, automation may lead to job losses in some industries and occupations. On the other hand, the creation of new types of professions, especially in areas that require strong experience and advanced technology skills, may create new opportunities. This, in turn, creates the possibility of increased structural unemployment and social inequality. In reducing inequality, it is important that workers develop new skills and adaptability to new demands.

AI can affect the distribution of income in different ways. While the initial waves of automation covered mostly middle-skilled occupations, this technology is also going to affect high-skilled occupations. The impact on revenues will depend on whether AI can replace employees or improve their productivity. In this case, on the one hand, the possibility that AI completely replaces a person in a certain profession will lead to widening income inequality of the population while the opportunity of raising the efficiency of specialists can lead to a more equal distribution of the income of the population.

Macroeconomic Implications and Forecasts

According to research[28], the direct impact of AI on productivity over the next decade is projected to be relatively modest, totaling 0.53–0.66 percent. This forecast is explained by cost efficiency and increased labor productivity through artificial intelligence-assisted automation or staffing.

Implementing artificial intelligence requires significant investment in technology, infrastructure and human capital. Timely implementation of appropriate investments is estimated to increase global GDP by an additional 0.93–1.16 percent over the next decade.

In the scenario of more active introduction of investments and large-scale introduction of AI, the impact on global GDP growth may reach 1.4-1.6 percent. However, if the ratio of capital to output increases with productivity growth, it can cause GDP to grow faster than productivity.

At the same time, with the widespread introduction of AI, the risk of negative social consequences is also increasing. In particular, these include the spread of false information, fraud, manipulation or negative effects on mental health through social media. It is important to regulate data protection, prevent the spread of incorrect information and ensure the transparency of algorithmic decisions on the basis of regulatory legal documents.

A balanced approach is needed to effectively integrate AI into economic processes and ensure sustainable and inclusive development. Such an approach includes increasing investment in education, improving retraining programs, and developing the

[27] https://www.goldmansachs.com/insights/articles/generative-ai-could-raise-global-gdp-by-7-percent.
[28] Daron Acemoglu, The Simple Macroeconomics of AI, NBER Working Paper No. 32487, May 2024.

skills required as the integration of AI. In this regard, special attention should be paid to the segment of the population that may be weakened by artificial intelligence, including workers without higher education and older professionals, and social support policies should be consistently implemented.

Appendix 7

The yield curve and its importance in macroeconomic analysis

In the inflation targeting regime, the main instrument of the Central Bank's monetary policy is the policy rate, through which the degree of tightening of monetary conditions is determined. Decisions on the policy rate initially affect short-term interest rates in the money market. Then, the influence of interest rates shifts from the money market to financial markets, including the government securities market.

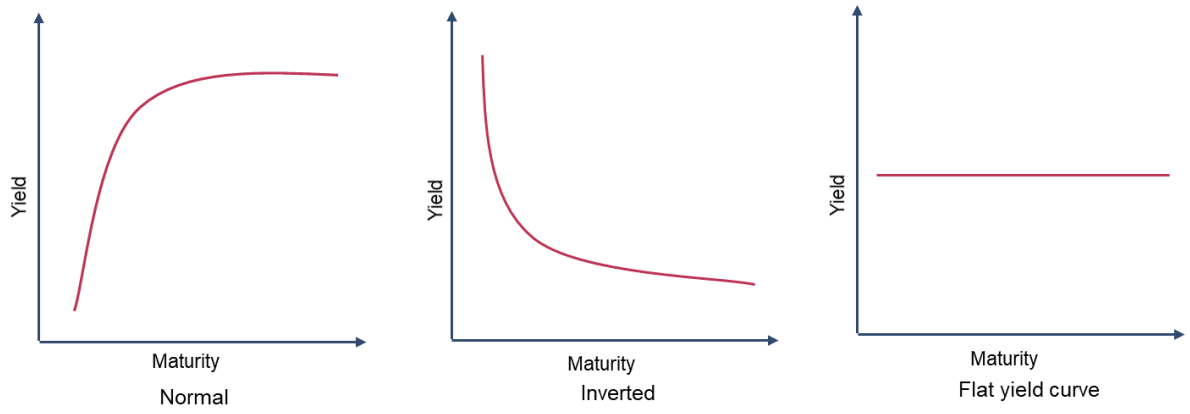
The relationship between the policy rate and the interest rates of financial instruments is reflected in the yield curve. The yield curve is a graph showing the relationship between the prices and terms of debt funds attracted in local currency.

The yield curve is important in macroeconomic analysis and reflects the expectations of market participants regarding the future economic situation, inflation, monetary policy, including interest rate. Also, the long-term segment of the yield curve helps to assess the borrowing potential and investment activity in the economy. The Central Bank will be able to assess the effectiveness of monetary policy and, if necessary, adjust it through continuous analysis of the yield curve.

Depending on the current and future situation in the economy, inflationary processes and their forecasts, and market participants' expectations of interest rates, the yield curve may take different shapes *(Figure 1)*.

The normal shape of the curve expresses higher long-term yields of bonds than short-term ones, which indicates that market participants expect stable economic growth and moderate inflation in the future.

Figure 1. Shapes of the yield curve



Source: Mishkin F., The Economics of Money, Banking, and Financial Markets, p.184.

When the short-term yields are higher than long-term yields, the curve displays an **inverted shape**, which means market participants expect slower economic growth, lower inflation and interest rates cuts by the Central Bank in the coming periods. Usually an inverted curve is formed prior to the slowdown of economic growth, signaling about a possible recession.

Flat yield curve shows similar short-term and long-term yields, which indicates existing uncertainties in the economy or the transition of the economic cycle from one phase to another.

The influence of monetary and fiscal policies on the formation of the yield curve is significant. At the same time, the shape of the yield curve, in particular, its formation in accordance with the trajectory of the Central Bank's medium-term interest rate forecast, indicates high efficiency of the monetary policy in the economy.

The effectiveness of monetary policy is assessed by the ability to manage not only short-term interest rates of the money market, but also long-term bond yields. In this case, the yield curve management mechanism can be used as a non-traditional instrument of monetary policy to affect the long-term expectations of economic agents. In particular, during the prolonged period of inflation forming below the target rate following the Great Financial Crisis, Bank of Japan actively used the instrument of managing (keeping at a low level) 10-year government bond yields.

In turn, fiscal policy also has a certain impact on the yield curve depending on the degree of its restrictiveness. In particular, expansionary fiscal policy leads to heating of the economy and subsequent increase in inflation expectations due to demand side support of economic growth. As a result, yields of long-term securities by market participants will increase under the influence of expectations about future increase in interest rates of the Central Bank.

Also, financing the budget deficit by issuing government securities causes a decrease in their price, i.e. an increase in yields, due to an increase in supply on the market. On the contrary, the implementation of fiscal consolidation can reduce inflation expectations and lead to a decline in the long-run segment of the yield curve.

In the formation of the yield curve, the mutual harmony of monetary and fiscal policies is considered important. In particular, the implementation of a long-term stimulative fiscal policy will cause the yield curve to adopt the inverted shape as the central bank responds to fiscal policy by increasing interest rates to ensure tight monetary conditions.

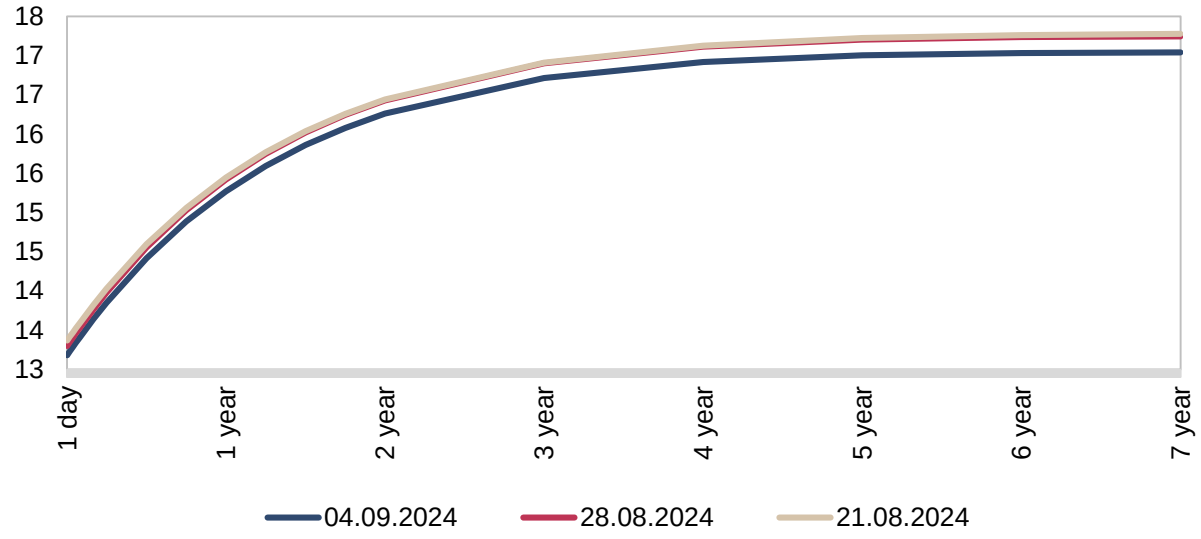
In the case of Uzbekistan, in order to help economic entities, make investment decisions by analyzing interest rates and macroeconomic expectations of financial market participants and providing information on the relationship between terms and interest rates of debt instruments, the Central Bank developed the methodology for calculating the yield curve of government securities.

When calculating the curve, the money market overnight rate, the Central Bank's deposit auctions and repos, as well as CBU notes and government bond yields (formed in the primary and secondary markets) are taken into account.

The weekly calculation and publication of the yield curve of government securities has been launched since September 1, 2024 *(Figure 2)*. The curve has a normal shape and expresses the expectations of market participants regarding economic growth rates remaining high in the future, moderate formation of inflation and long-term preservation of interest rates at their current level to reduce inflation.

In particular, in the short-term segment of the curve, interest rates are formed around the policy rate, and yields for a term of more than one year start from 15 percent. Also, the reduction of the Central Bank's policy rate to 13.5 percent in July led to a slight decrease in the yields on government securities.

Figure 2. Yield curve of government securities



Source: CBU calculations.

To ensure the representativeness of the yield curve of market participants' expectations, it is important to continuously issue government securities for the main benchmark periods *(1, 2, 3, 5 and 10 years)*.

Appendix 8

Use of the reserve requirements instrument in the implementation of monetary policy

Mandatory reserve requirements have historically been used to create a certain reserve buffer for bank deposits. At the same time, there are instances in some countries where required reserves have been used as a macroprudential or capital flow management tool.

In most countries with the inflation targeting regime, this instrument is used as banking system liquidity managing tool in order to ensure the operational target of monetary policy. In the process of shifting monetary policy to the inflation targeting regime, changes were made to the mandatory reserve requirements instrument in Uzbekistan.

In particular, starting from 2018, the same mandatory reserve requirement for deposits of all types and maturities was set at the rate of 4 percent for deposits in the national currency and 14 percent for deposits in foreign currency *(Figure 1)*. The establishment of differentiated normative requirements is aimed at improving the effectiveness of monetary policy by reducing the dollarization of deposits in the banking system.

Also in 2018, the practice of averaging was applied for the first time in the test mode and an averaging coefficient of 10 percent was set. This practice enables banks to hold a certain portion of claims put in the Central Bank's “mandatory reserve” account in their correspondent account and use these funds during the reporting period.

Taking into account that the right of averaging brings additional opportunities for banks, based on the overall liquidity situation in the banking system, this ratio was gradually increased and set at 100 percent as of July 1, 2024 *(Figure 2)*.

Figure 1. Reserve requirements ratios, *percent*

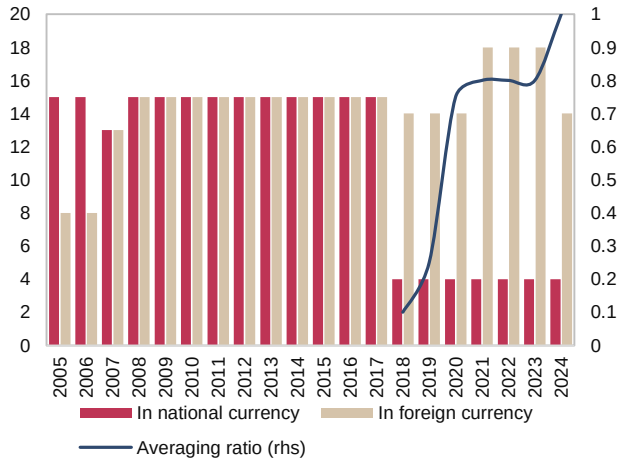
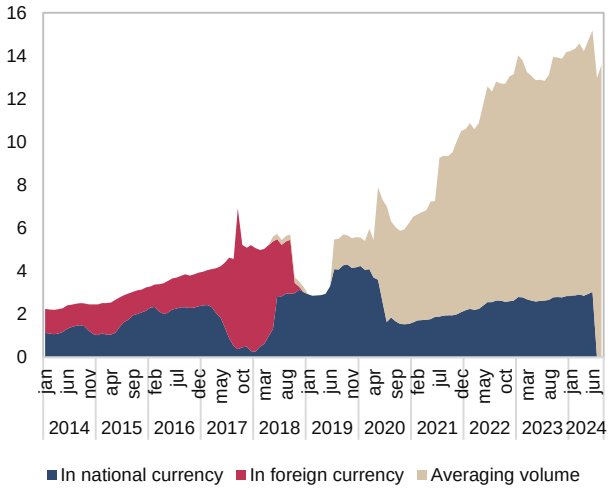


Figure 2. Volume of required reserves, *trln.soum*



Source: CBU calculations.

At the moment, funds under the mandatory reserve requirements are fully formed on the correspondent account of banks, which have high importance for ensuring continuity of payments in the banking system.

At the same time, since December 2018, the practice of forming mandatory reserves only in the national currency has been adopted, which means that this instrument is actively used in the monetary policy for liquidity management.

In international practice, whether to keep the required reserves in national currency or foreign currency is a controversial issue, and decisions in this direction are made based on the liquidity of the banking system and the state of dollarization in the bank balance sheet. In the current situation, creating mandatory reserves in foreign currency leads to a sharp decrease in the demand for mandatory reserves in national currency and reduces the ability to effectively manage the liquidity of the banking system.

In recent years, due to growing confidence in the banking system, rapid growth of household incomes, and convenience of remote banking infrastructure, a significant increase in deposit volumes was observed. This, in turn, required a corresponding increase in the demand for the volume of required reserves. In particular, the mandatory reserve requirements on banks' deposits have increased 2.5 times over the last 5 years to 13.6 trillion soums and are formed in sufficient volume to ensure continuity of payments in the banking system.

Deposit dollarization in the banking system has remained high over a prolonged period of time. In particular, in 2018-2021, the average monthly dollarization of deposits amounted to 41.2 percent *(Figure 3)*. In order to reduce the level of deposit dollarization, the required reserves ratio for foreign currency deposits was increased to 18 percent in 2021.

Figure 3. Deposit dollarization level

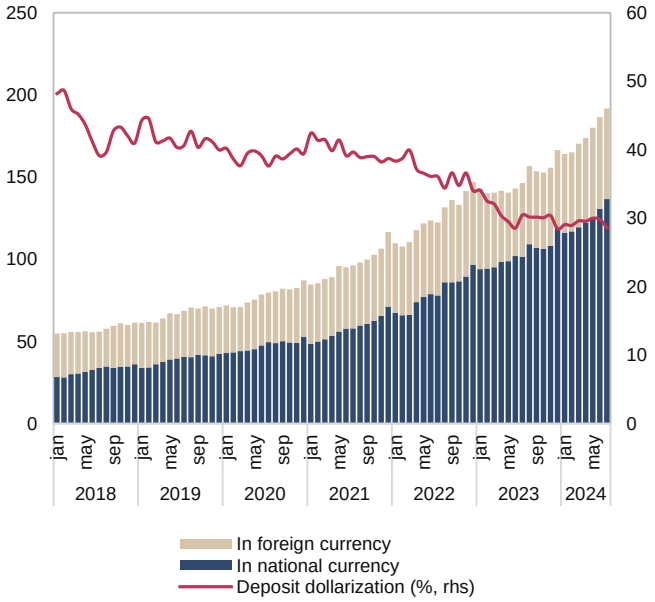
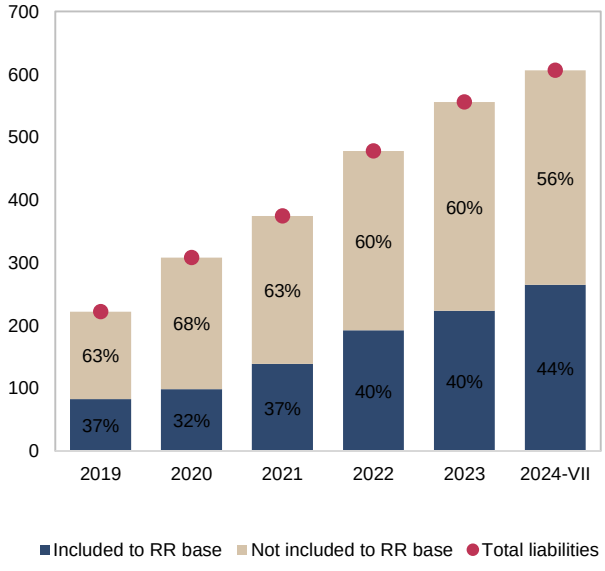


Figure 4. Banking system liabilities and reserve requirement coverage



Source: CBU calculations based on data from Statistics Agency.

In conjunction with this measure, due to lower inflation and high interest rates on national currency (soum) deposits, the level of deposit dollarization decreased from 38.9 percent at the end of 2021 to 28.8 percent in July 2024. At the same time, the level of dollarization of households' deposits decreased to 20 percent, which is explained by the

fact that about 80 percent of households' bank savings are kept in soums and credibility of the national currency is growing.

Given the significant reduction in the dollarization of deposits, the reserve requirements for foreign currency deposits were reduced to 14 percent in July 1, 2024.

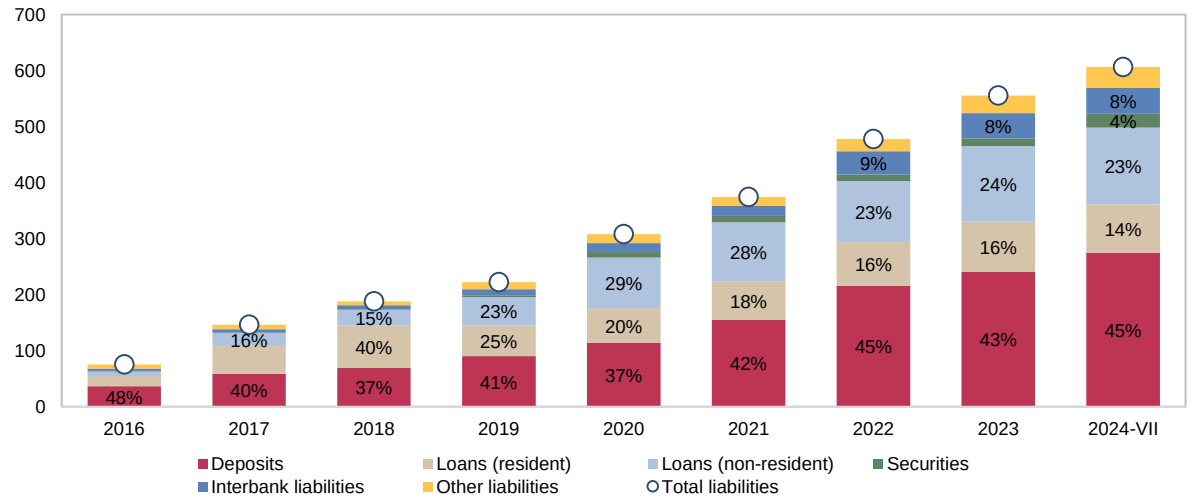
It should be noted that while the reserve requirement for foreign currency deposits is high, the fact that only deposits are included in the required reserve base and other bank liabilities are left out reduces the effectiveness of this instrument.

In particular, in international practice, all types of banks' liabilities (except for liabilities to the Central Bank and resident commercial banks) are subject to mandatory reserves. In our case, currently 44 percent of banks' liabilities are included in the required reserves base, and the remaining 56 percent are non-deposit liabilities, so the mandatory reserve requirement does not apply to them *(Figure 4).*

Also, 23.4 percent of the banking system's foreign currency liabilities are subject to the mandatory reserve requirement. As a result, the effective required reserve ratio on all banks' foreign currency liabilities is 6 percent. In other words, the inclusion of banks' all foreign curency liabilities in the required reserves base makes it possible to reduce the required reserve ratio on FX liabilities to 6 percent, while maintaining the required reserves volume at the current level.

Today the Central Bank, together with experts from international financial institutions and foreign central banks, is working on measures to develop the reserve requirement instrument in accordance with international standards. These measures include expansion of the required reserves base, appropriate reduction of norms and gradual transition to the practice of forming demand for foreign currency liabilities in foreign currency.

Figure 5. Decomposition of banking system liabilities



Source: CBU calculations.

The revision of the practice of required reserves, on the one hand, also depends on structural changes in the liabilities of the banking system. In particular, in recent years, there has been an active attraction of external credit lines by banks and a redirection of centralized resources by the government *(Figure 5)*. These two types of liabilities are considered relatively unstable, with centralized resources being limited by the capacity of

the government budget and external resources being considered dependent on global financial conditions.

In order to ensure stable formation of the banking system's liabilities, prevent currency imbalances in banks' liabilities and avoid giving a comparative advantage to non-deposit liabilities, it is planned to implement the above-mentioned amendments to the reserve requirements framewrok.

GLOSSARY

Administratively regulated prices	are prices for certain types of products (goods, services), which are not determined by market mechanisms (supply and demand), but rather are administratively regulated through government agencies, organizations and enterprises.
Anchoring inflation expectations	is linking inflation expectations of the population and business entities for the next medium term period to a certain quantitative indicator (inflation target).
Balance of payments	is statistical report which reflects all economic transactions between residents and non-residents for a certain period of time.
Consumer demand	is a part of the aggregate demand related to consumer goods and services in the economy.
Consumer Price Index (CPI)	is an indicator of the change in the general level of prices for goods and services purchased by the population for consumption. The CPI is calculated as the ratio of the sum of prices of these goods and services in the current period to the prices of the previous (base) period.
Core inflation	is inflation calculated without taking into account changes in the prices of certain goods and services (fruits and vegetables, fuel, some types of passenger transport, communication services, housing and communal services, etc.) which are under the influence of seasonal and administrative factors.
Cross-border money transfer	is transfer of funds to or from the country through international money transfer systems.
Currency intervention of the Central Bank	is the participation of the Central Bank in the foreign exchange market by selling and purchasing foreign currency in order to sterilize the excess liquidity in the banking system caused by the purchase of monetary gold by the Central Bank, as well as to prevent sharp fluctuations in the exchange rate of the national currency.
Current account	is a section of the balance of payments of the country which reflects the flow of goods, services, primary and secondary income (wages of employees, return on investments and others) between residents and non-residents.
Deposit auctions	are operations of the Central Bank to attract funds from the correspondent account of commercial banks into deposits at auction interest rates (usually for one or two weeks) to manage the overall liquidity of the banking system and to temporarily withdraw excess liquidity from the banking system in conditions of structural liquidity surplus.
Economic cycle	is a natural form of economic development, in which the increase in production, employment, GDP growth is replaced by periods of recession.
Financial market	is a system of economic relations arising in the process of the exchange of economic resources.

Financial stability	is a state of the financial system, in which it is capable of effectively performing its functions of ensuring the redistribution of resources and managing financial risks, characterized by absence of excessive volatility in the financial market (and its segments), continuity of settlements, as well as the ability to eliminate the effects of negative shocks and recover from stress.
Inflation expectations	are assumptions of the population and economic entities regarding the inflation rate for the nearest period. On the basis of inflation expectations, producers and consumers, sellers and buyers determine their future investment, credit, financial and pricing policies, estimate income, expenditure and expected profits.
Financial system	is a totality of financial organizations and financial markets, providing the formation and use of funds from the state, organizations, and the population through various financial instruments. In this system, financial institutions (markets and financial organizations) redistribute limited financial resources from one economic entity to another.
Gross domestic product deflator	is a change in the overall level of prices for goods and services produced and consumed in a country over a period of time.
Inflation inertia	is a tendency of inflation to return slowly to its long-term (equilibrium) level after the shock, which deviated it from its long-term level.
Inflation target	is a pre-announced target of inflation that provides the basis for longterm economic growth and price stability.
Inflation targeting regime	is the monetary policy regime, in which the Central Bank declares medium-term target for the inflation rate and focuses all its efforts on bringing current inflation to the target by applying monetary instruments.
Interbank money market	is a system of organizing and conducting short-term (usually up to one year) exchange trades for placing and raising funds in the national and foreign currencies.
Interest rate corridor	is a system of bringing short-term interest rates in the money market closer to the Central Bank’s policy rate (target interest rate); the upper bound of the interest rate corridor is the Central Bank's lending rate to commercial banks (usually the overnight rate) while the lower limit is the Central Bank's deposit rate for commercial banks.
Investment demand	is the demand of business entities for physical capital objects (cars, equipment) and services used to maintain or expand their activities. Investment demand is a part of the aggregate demand in the economy.
Liquidity of the banking system	is balance of funds on correspondent accounts of commercial banks in national currency opened with the Central Bank of the Republic of Uzbekistan.
Machine learning	Machine learning is a branch of artificial intelligence (AI) and computer science which focuses on the use of data and algorithms to imitate the way that humans learn, gradually improving its accuracy. This method has the advantage of providing a relatively accurate forecast using a large database.

Macroprudential policy	is a set of proactive measures aimed at minimizing systemic risk in the financial sector or specific segments thereof.
Monetary policy	is a part of macroeconomic policy conducted in order to ensure price stability in the domestic market. Monetary policy is implemented to maintain the volume of liquidity in the banking system, interest rates and other monetary indicators at a target level using monetary instruments.
Monetary factors of inflation	are inflationary factors that can be directly influenced by the Central Bank's monetary policy instruments in the medium term.
Open foreign currency position	is quantitative inequality between foreign currency assets and foreign currency liabilities of credit organization
Output gap (GDP gap)	is a difference between actual GDP and potential GDP. A positive GDP gap is referred to as an inflationary gap. This means that the growth rate of aggregate demand exceeds that of aggregate supply, which can cause inflationary pressure. In contrast, a negative GDP gap leading to deflation is called a recessionary gap.
Phillips curve	is a curve representing the relationship between unemployment rate and inflation. The Phillips curve states that inflation and unemployment have an inverse relationship. Higher inflation is associated with lower unemployment and vice versa.
Policy rate	is the interest rate that determines the borrowing interest rate for commercial banks and the cost of loans for borrowers; changes in the policy rate affect interest rates in the interbank money market.
Recession	is a sharp decrease in production in the economy or a significant slowdown in economic growth.
REPO operations	are transactions of selling government securities by commercial banks to the Central Bank under a repurchase agreement for short-term borrowing or transactions of selling securities to commercial banks for the purpose of managing the Central Bank's money supply and bank reserves *(with the government securities serving as collateral).*
Reserve requirements of commercial banks	are funds deposited by commercial banks at the Central Bank to comply with the mandatory reserve requirements of the Central Bank. The minimum level of mandatory reserves maintained the Central Bank is determined by the regulations of the Central Bank, taking into account the objectives of monetary policy, the type and term of deposits and other liabilities of banks. Mandatory reserves for each category of funds are equal for all banks.
Stagflation	is high inflation coupled with low economic growth.
Systemic risk	unlike the risks associated with the single financial market or group of participants, it is the risk of collapse of the entire financial system or financial market activity.
Time lag	is a measure of the impact of one of economic event on another dependent economic event with a specific time lag; the time interval between the occurrence of two or more related events

Transmission channels of the monetary policy	are the channels through which monetary policy decisions influence price dynamics and the economy. The process of gradual transmission of the policy rate change and a signalling of its future trajectory from financial market segments to the real economy, and eventually to the inflation rate. Interest rate changes are transmitted to the economy through the following main channels: interest rate, credit, currency, asset prices and expectations.
Trend	is the main tendency of the change in an indicator. Trends can be represented by various equations – linear, logarithmic, power, etc. The actual type of trend is determined by statistical methods or by smoothing the time series of its functional model.
Trimmed inflation	is inflation calculated by excluding the 10 groups of goods (services) with the highest and lowest price increases respectively.
Yield curve	in economics and finance, is a curve showing how interest rates (yields) on a particular debt instrument (such as government securities) change over time. The yield curve is considered an important economic indicator and plays a central role in communicating monetary policy decisions to the economy. It is a source of information expressing investors' expectations regarding macroeconomic indicators such as future interest rates, economic growth and inflation.