



# 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 2024 AND  
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## ABBREVIATIONS

GDP	–	gross domestic product
CPI	–	consumer price index
PPI	–	producer price index
ACPI	–	alternative consumer price index
UN	–	United Nations
FAO	–	Food and Agriculture Organization of the UN
IMF	–	International Monetary Fund
IFI	–	International financial institutes
EBRD	–	European Bank for Reconstruction and Development
WTO	–	World Trade Organization
VAT	–	value added tax
USP	–	unified social payment
STA	–	single treasury account
GS	–	government securities
OPM	–	online price monitoring

## INTRODUCTION

The Monetary Policy Guidelines include measures to respond to changes in external and internal economic conditions in the coming years, development of an operational framework and research on interconnections in the economy. The document generally represents the **views of the Central bank on the current and expected macroeconomic situation.**

The main objective of the Central bank in all scenarios of macroeconomic development is to **ensure price and financial stability.** In the course of activities aimed at achieving the target, measures will be taken to develop the operational mechanism and money markets, expand the set of monetary policy instruments, increase analytical, forecasting and communication potential.

Considering the economic situation in foreign trade partners, the prevalence of high uncertainties in the commodity and financial markets in the future, as well as the implementation pace of structural reforms, the guidelines for macroeconomic development for the upcoming years **were developed on a scenario basis.**

While the developments of the current external conditions **without drastic changes** as well as active continuation of structural reforms were established as the conditions of the **baseline scenario**, further intensification of uncertainties and the emergence of extreme shocks in external conditions were noted as assumptions **for alternative scenario.**

When developing the **baseline scenario**, the implementation of **macroeconomic adjustments** in the following years was envisaged, i.e. the

transition of **structural reforms** in the **energy, transport, agriculture and water sectors** to an active phase and the logical completion of some of them, the **beginning of fiscal consolidation** and reduction of the overall fiscal deficit compared to 2023, (*from 5.5 percent of GDP in 2023 to 4 percent in 2024 and 3 percent in 2025-2026*), the reduction of the state's share in the economy, high growth rates of private investment and exports are expected.

According to the revised projections under this scenario, reaching the **5 percent constant inflation target** occurs in the second half of 2025, taking into account the **impact of adjustments** in some regulated prices on general inflation, as well as the **longer persistence** of external supply-side pressures in 2022-2023.

Meanwhile, this decision does not mean that the permanent target of **5 percent** has been changed, but indicates that the period for reaching this target **has been extended.**

The extension of the target, on the one hand, is linked to the fact that **gross supply** in the economy **lags behind** and does not match domestic consumer **demand**, while on the other hand, economic **activity** and financial **stability** may be threatened by serious risks in case of taking decisive measures aimed at limiting gross demand.

This, in turn, means that in order to **effectively reduce inflation to its target**, it is **necessary to further strengthen** measures aimed at increasing gross supply, while reducing the impact of its monetary factors.

Under the baseline scenario of macroeconomic development, inflation is projected at around **8-9** percent in 2024. Monetary conditions will continue to be maintained at a **relatively tight level** in 2024 in order to keep the inflation within forecast range.

**The inflation forecast may be revised** to reflect the level of adjustment of administered prices in 2024, in turn **allowing for corresponding changes in monetary conditions**.

Given that the short-term incremental impact on **overall inflation** will be significant during the period of macroeconomic adjustment and structural reforms, monetary policy decisions next year will primarily focus on reducing **core inflation**.

On the other hand, a sufficient basis for maintaining **the downward trend** in core inflation will be formed in the coming years.

In the event that expected changes have a **sharp impact on inflation expectations**, monetary conditions will be modified and each measure will be communicated in detail to the public.

In order to improve the **effectiveness** of monetary policy, measures aimed at reducing the **level of dollarization** in the banking system, minimizing the practice of **preferential lending**, and shifting to interest rates formed on the basis of **market principles** will be carried on.

In the medium term, the dynamics of **overall liquidity** of the banking system will be formed on the basis of government operations and sources of their financing, the balance of supply and demand in the domestic foreign exchange market. At the same time, **the trend of liquidity reduction** observed in 2023 will continue in

2024 as well and contribute to the tight monetary conditions through its inflation-constraining feature.

In the context of declining liquidity in the banking system, the issue of **financial stability** may be put on the agenda and the Central Bank will consider measures through active use of liquidity management tools to **ensure the sustainability of the system**.

Real growth of **GDP** is expected to be at **5-5.7 percent** in 2024, around **5-6 percent** in 2025, and **about 5.5-6.5 percent** in 2026.

The factors supporting economic growth are expected to be an increase in the investment and production potential of the private sector, high growth rates of foreign and domestic direct investment, as well as exports.

The expected growth trends of foreign investment and exports will have a positive impact on the domestic foreign exchange market, in terms of increasing the volume of currency supply in the coming years. Together with the reduction of inflationary processes in trading partners, this factor will contribute to the formation of a relatively stable real effective exchange rate.

Under the conditions of the **alternative scenario**, the expected **inflation rate** in 2024 will be **9-10 percent**, taking into account the additional pressure on domestic prices stemming from a relatively unfavorable development of external conditions compared to the baseline scenario. In the meantime, **the period of achieving the permanent target will be delayed**, and inflation will reach about **7-8 percent** in 2025 and decline to **5 percent** by the end of 2026.

In this scenario, **fiscal stimulus** will be the main factor supporting economic activity. At the same time, in the medium term, real GDP growth might be **1.5-2 percentage points below** the forecasts in the **baseline** scenario.

If the conditions of the alternative scenario are realized, **measures will be taken to further tighten monetary conditions. Macprudential measures** will be widely applied to ensure **financial stability**.

In the coming years, **institutional development** will be carried out in the following directions:

***Monetary policy strategy:***

**a.** Announcing a conditional forecast of the policy rate from 2025 on and its discussion with market participants will be worked out in detail;

**b.** the main focus will be on expanding the volume of REPO operations in the money market;

**c.** measures will be taken to expand the volume of repo operations conducted in the money market and to form a yield curve based on the price of money at different maturities;

**d.** overnight interest rate swaps and the corresponding yield curve will be introduced.

***Macroeconomic analysis and forecasting:***

**a.** e-CPI forecasts will be developed based on the results of machine learning and online observations;

**b.** methods of survey coverage of inflation expectations, as well as the study of consumer and business sentiment will be improved;

**c.** inflation forecasts will be carried out based on the RLS and VECM models;

**d.** GDP forecast will be developed based on MIDAS and FAMIDAS models;

**e.** Studies are planned to quantify the equilibrium (neutral) real interest rate and the real exchange rate in the economy of Uzbekistan.

***Monetary policy communication:***

**a.** communication tools will be improved to match the interests and needs of the target audience as part of **developing overall monetary policy communication**;

**b.** directions for the development of multi-layer communication will be elaborated;

**c.** the rules of communication discipline will be introduced and unconditionally observed.



# I. ANALYSIS OF MACROECONOMIC CONDITIONS AND MONETARY POLICY IN 2023

## 1.1. Analysis of aggregate demand and aggregate supply factors

In 2023 economic development in our country has been largely influenced by tight global financial conditions, decelerating global inflation and weaker economic activity in most countries. Moreover, large fiscal incentives, stronger investment activity, higher growth in lending to the economy and a significant decrease in cross-border remittances compared to the previous year have been also reflected in the economic environment.

Thus, current conditions simultaneously correspond to the assumptions of both the baseline and alternative scenarios of macroeconomic development designed in the “Monetary Policy Guidelines for 2023 and the period of 2024-2025” in 2022.

### Final consumption dynamics

The effects of the geopolitical conflict that started last year on the domestic economy are gradually subsiding. In

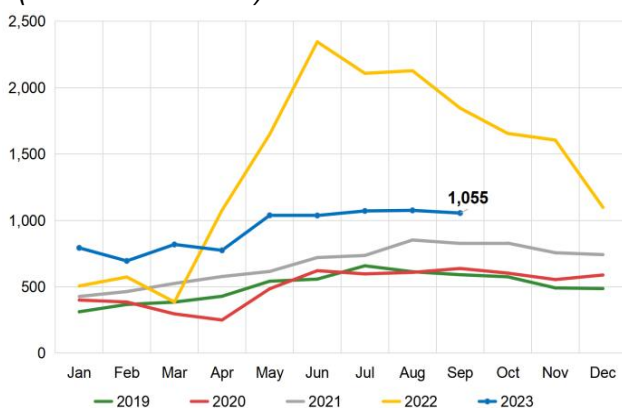
particular, despite a substantial drop this year compared to the previous year, the volume of remittance inflows has returned to its long-term trend (Figure 1.1.1).

Remittance inflows during January to September 2023 totalled \$8.4 billion, a decrease of 33.7 percent compared to the corresponding period of 2022. The figure, however, showed a 45.5 percent increase compared to the corresponding period of 2021.

In the second quarter of 2023, the average monthly wage in the economy reached 4.4 million soums, increasing by 18.1 percent compared to the same period last year. During this period, real aggregate income of the population rose by 3.5 percent year-on-year (Figure 1.1.2).

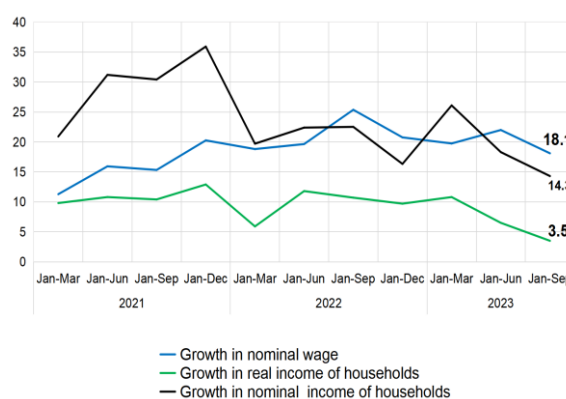
Consequently, sustained positive trend in the real income dynamics since the beginning of the year serves to support the consumer activity of the population.

**Figure 1.1.1. Volume of cross-border remittances, (million US dollars)**

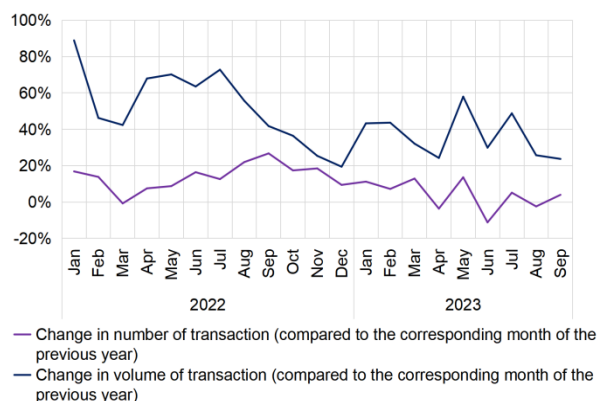


Source: Central Bank.

**Figure 1.1.2. Wage dynamics, (in percent)**



Source: Statistics Agency.

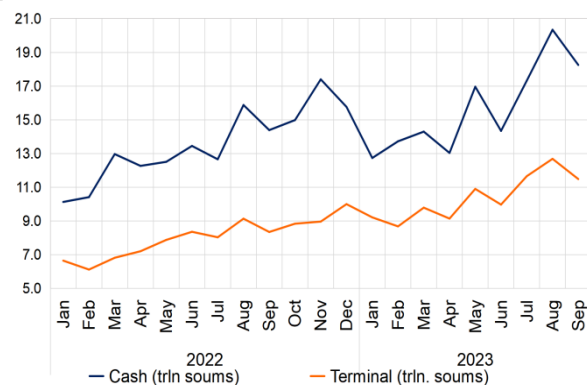
**Figure 1.1.3. Interbank transactions**


Source: Central Bank.

Strong economic activity was reflected in an annual increase in interbank transactions by 35.8 percent during the first 9 months this year (*Figure 1.1.3*).

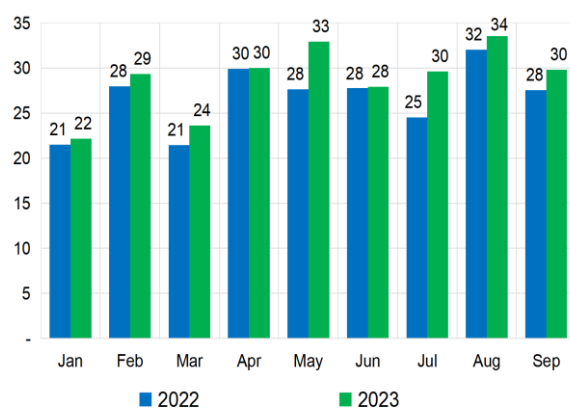
In January-September 2023, revenue from trade and paid services grew by 27.8 percent year-on-year, with positive growth indicators for all the months (*Figure 1.1.4*).

In addition, the number of real estate transactions during the observed period amounted to 259 thousand, increasing by

**Figure 1.1.4. Revenue from trade and paid services**


7.7 percent compared to the corresponding period of last year. Meanwhile, mortgage loans to households rose by 17.8 percent, and demand in the real estate market remained high (*Figure 1.1.5*).

Moreover, a 7.0 percent and 10.5 percent increment in retail and wholesale turnover over this period, respectively, also indicates that there is a strong aggregate consumer demand in the economy (*Figure 1.1.6*).

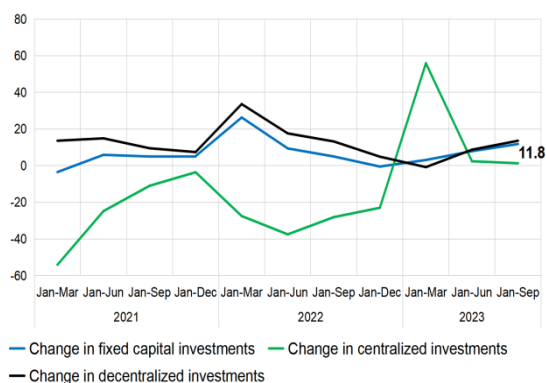
**Figure 1.1.5. Number of real estate transactions, thousand**


Source: e-notarius.

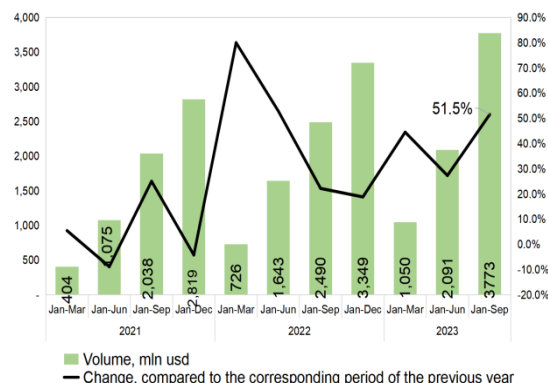
**Figure 1.1.6. Change in retail and wholesale trade turnover, cumulative percent**


Source: Statistics Agency.

**Figure 1.1.7. Dynamics of investment in fixed capital, in percent**



**Figure 1.1.8. Dynamics of foreign direct investment**



Source: Statistics Agency.

### Investment activity

In January-September 2023, a real growth in investment in fixed assets amounted to 11.8 percent annually.

Private investment during this period increased by 13.6 percent, contributing to the total investment growth by 11.6 percentage points (Figure 1.1.7).

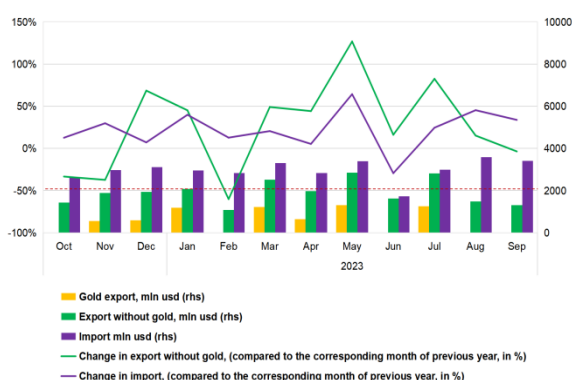
Additionally, there was about 3.8 billion dollars of FDI inflow over the first nine months of this year, which is 51.5 percent more than in the respective period of the last year (Figure 1.1.8).

### Foreign trade transactions

In January-September this year, the volume of exports (excluding gold) rose by 6.2 percent year-on-year. During this period, there was a 21.2 percent increase in imports, and the negative foreign trade balance excluding gold amounted to 14.9 billion dollars.

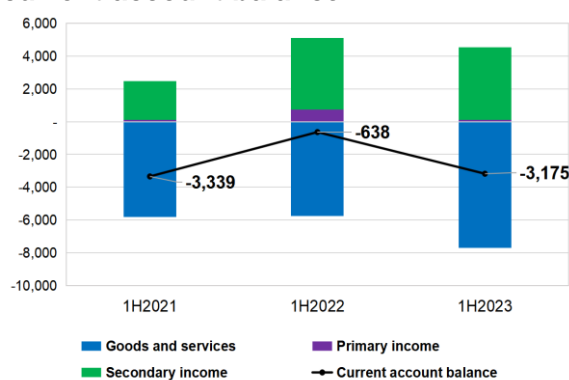
Due to a drop in cross-border remittances and a considerable growth of imports, in the first half of 2023 there was a negative current account balance of 3.2 billion dollars.

**Figure 1.1.9. Export and import dynamics**



Source: Statistics Agency.

**Figure 1.1.10. Decomposition of the current account balance**



Source: Central Bank.

## Supply side factors

Higher economic activity and increased incomes of the population contributed to the GDP growth. According to calculations by the Statistics Agency, real GDP growth for 9 months of 2023 amounted to 5.8 percent (Figure 1.1.11).

Meanwhile, industrial production rose by 5.7 percent (contributing 1.4 p.p. to GDP growth), market services increased by 12.3

percent (2.8 p.p.), and a growth of agriculture and construction amounted to 4.1 percent (0.9 p.p.) and 5.6 percent (0.3 p.p.), respectively (Figure 1.1.12).

Adverse effects of short-term abnormal weather conditions on the economy observed in early 2023 diminished in the first half of the year, and economic activity is currently at a stable level.

Figure 1.1.11. Real GDP growth

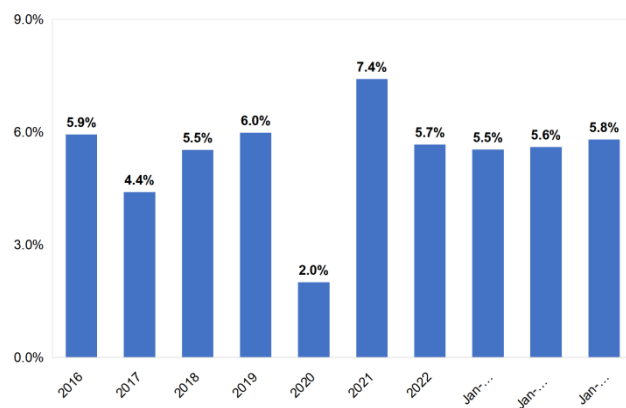
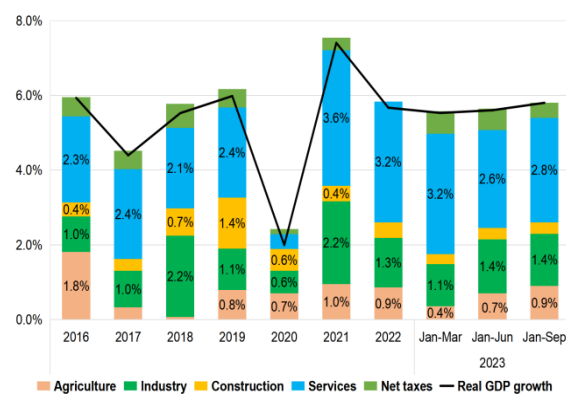


Figure 1.1.12. GDP decomposition



Source: Statistics Agency.

## 1.2. Impact of external economic developments on domestic economy

In recent years, influence of external economic shocks on domestic macroeconomic processes, including inflation, has significantly increased. In 2022, supply-side shocks, higher food and energy prices led to an acceleration of inflation in almost all countries of the world, including Uzbekistan.

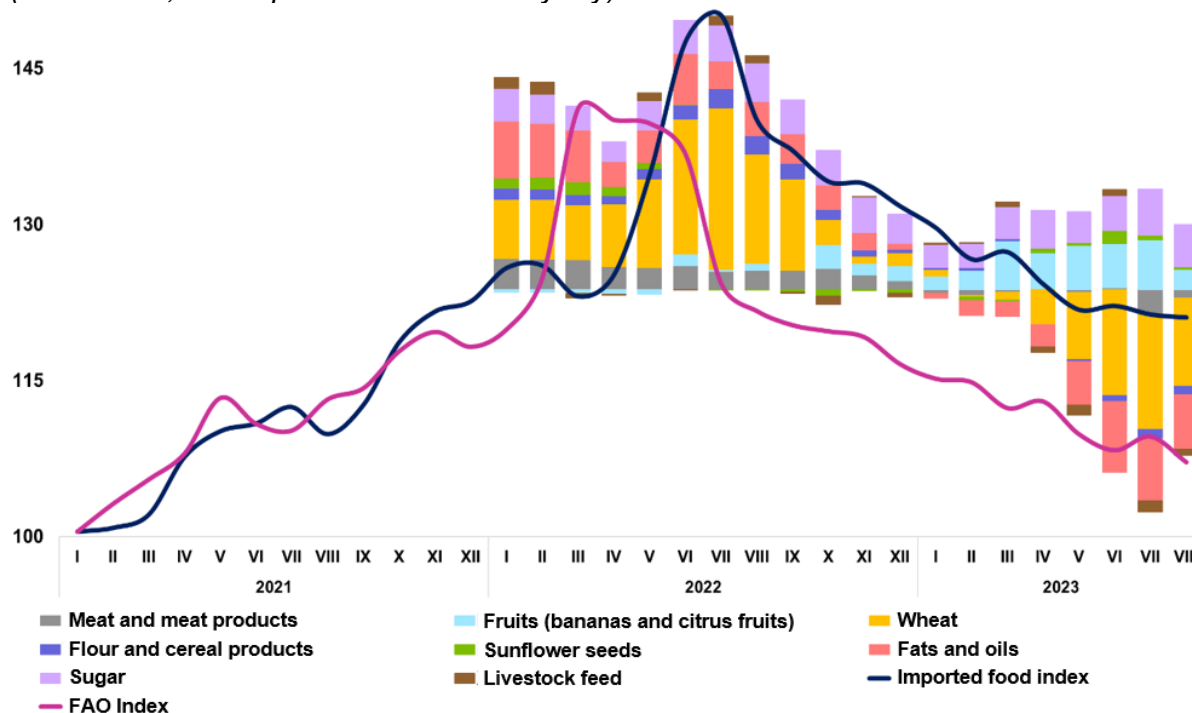
This year, food and energy prices have started to decline owing to supply recovery and elimination of logistical bottlenecks.

The index of imported food prices calculated by the Central Bank (includes main groups of imported food products - about 60 percent of the total food imports:

meat, fruit, wheat, sugar, fats and vegetable oils, livestock fodder) has shifted to a consistently declining trajectory this year, and upward pressure of this component on overall inflation has declined (Figure 1.2.1).

This index is strongly correlated with the FAO index, and the world price changes have their effects through the import channel with a small lag (2-3 months on average). Therefore, in the short term, the risks of a sharp rise in imported food prices are estimated to be relatively unlikely.

**Figure 1.2.1 Dynamics of the imported food index and FAO index**  
(2021 = 100, decomposition of the index y-o-y)

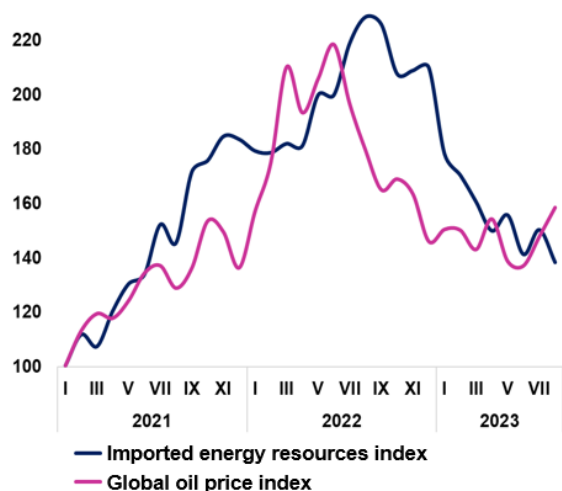


Source: CBU calculations based on the Statistics Agency data.

The Index of energy prices, which mainly reflects price dynamics for oil and oil products, fell by 34 percent from January to August of this year. Changes in the world oil price also influence domestic prices with a certain lag (about 3 months) (Figure 1.2.2).

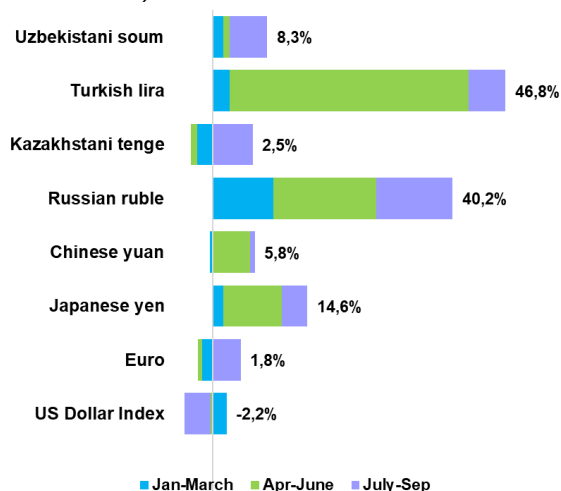
Oil production cuts by OPEC+ countries have affected global supply and served as one of the main factors behind the price increases in recent months. This, in turn, causes further risks to domestic price stability putting pressure on inflation.

**Figure 1.2.2 World and imported energy prices**



Source: Central Bank calculations based on the Statistics Agency data.

**Figure 1.2.3 Exchange rate dynamics of major trading partner countries**  
(2023 = 100)



Source: Central Bank calculations based on data of the respective CBs.

### Local FX market

Since the beginning of 2023, demand in the domestic foreign exchange market has been observed to be stronger than in previous years.

This is attributed, on the one hand, to larger foreign trade deficit and, on the other hand, to the tightening of external financial conditions resulted in higher cost of attracting external funds and more expensive debt servicing for private sector.

In doing so, the increased demand was satisfied by sales of foreign currency by enterprises and residents, as well as by a relatively larger amount of interventions in the domestic foreign exchange market.

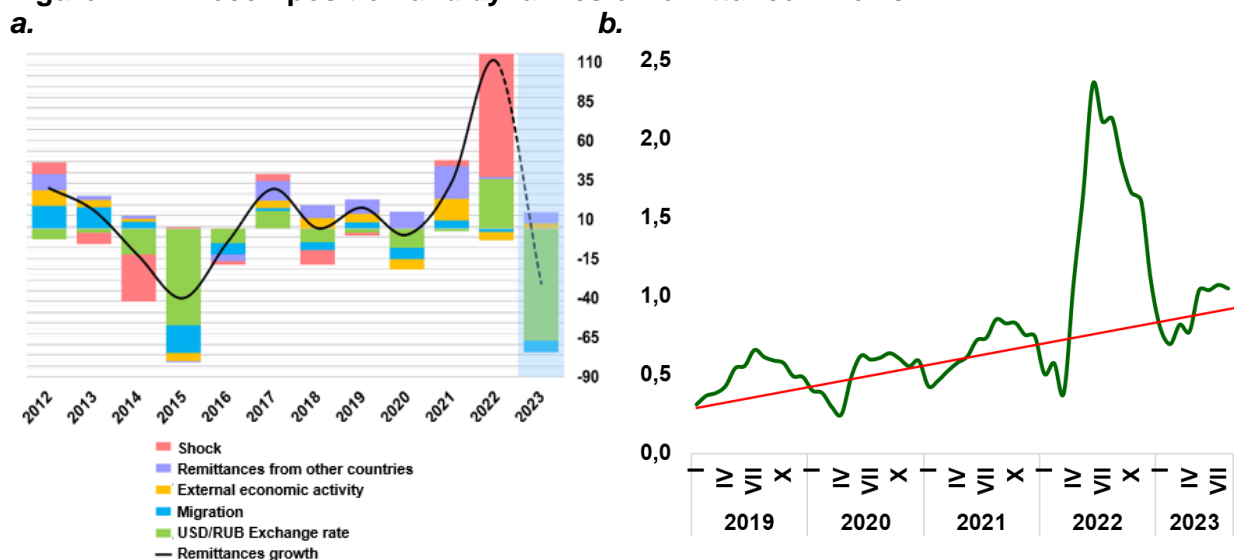
As a result of monetary gold transactions in 2021-2022, a part of the funds that should have been sold in the domestic foreign exchange market under the principle of neutrality, but was not realized due to high supply, was sold

during the first 9 months of 2023. Overall, this ensured compliance with the principle of neutrality of foreign exchange reserves.

Generally, the exchange rate of the national currency remained stable, however, in July-August there was a relatively high depreciation (4.2 percent) caused by a substantial depreciation of national currencies of major trading partners and other internal factors. This movement can be regarded as an adjustment of the exchange rate of the soum to external shocks. Overall, in January-September the depreciation of the national currency exchange rate amounted to **8.3 percent**, lower than the annual inflation rate.

As a result of these adjustments, there was a relatively moderate appreciation of the real effective exchange rate, which is expected not to have abrupt changes until the end of 2023.

**Figure 1.2.4. Decomposition and dynamics of remittance inflows**



Source: Central Bank calculations.

### 1.3. Monetary policy measures aimed at curbing inflation and inflationary processes

In early 2023, headline inflation was around 12 percent. As a result of the increasing influence of factors stimulating aggregate demand, which recovered at a faster pace compared to supply, there was a broad-based price increase in food component of in the consumer basket.

Consumer demand was mainly driven by a significant increase in budget expenditures, a growing momentum in consumer loans, stable cross-border remittances and rising wages.

Inflation expectations of the population and business entities during this period also had an upward trend, signaling continued upward pressure of expectations on prices.

Monetary conditions in early 2023 were maintained relatively tight, in order to balance supply and demand in the following quarters.

This, in turn, contributed to the formation of positive real interest rates in

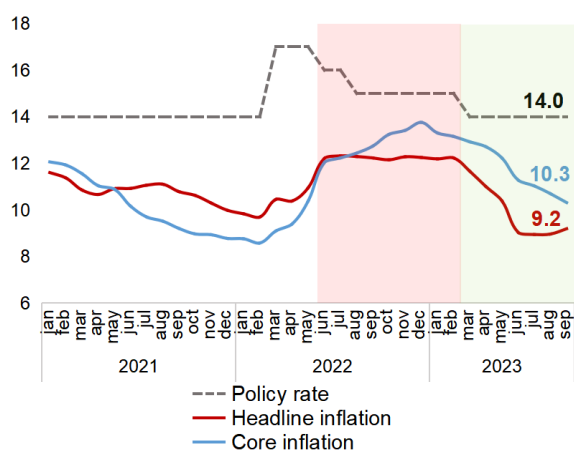
the money market and in the banking system.

Real interest rates on deposits in the national currency remained positive at 4-5 percent relative to the inflation expectations of the population. In the first quarter, the population's propensity to save increased resulting in a rise in deposits in the national currency.

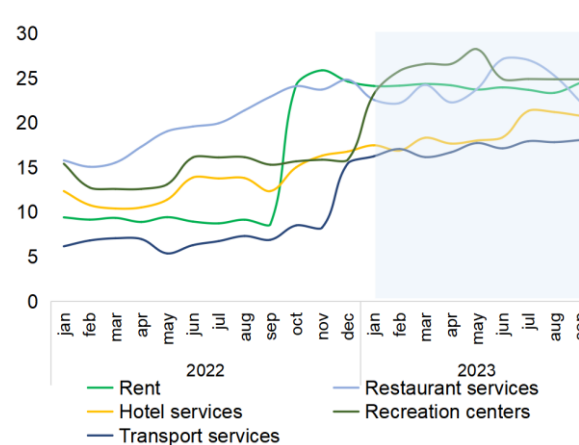
Although in 2023 there are still some risks and uncertainties in the external economy, global inflation has started to decline since February-March owing to lower prices on the global energy and food markets.

Decreasing inflationary pressure and positive price expectations has provided favourable conditions for imports of goods into our country. This served as a factor moderating the impact of imported inflation in the food groups.

**Figure 1.3.1 Dynamics of headline inflation, core inflation and policy rate**

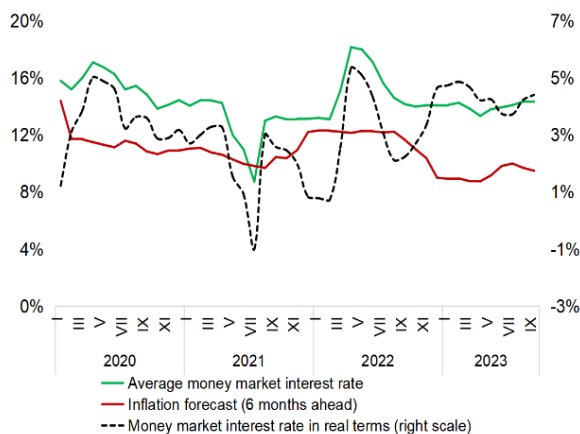


**Figure 1.3.2. Services with high price increases (annual percentage)**

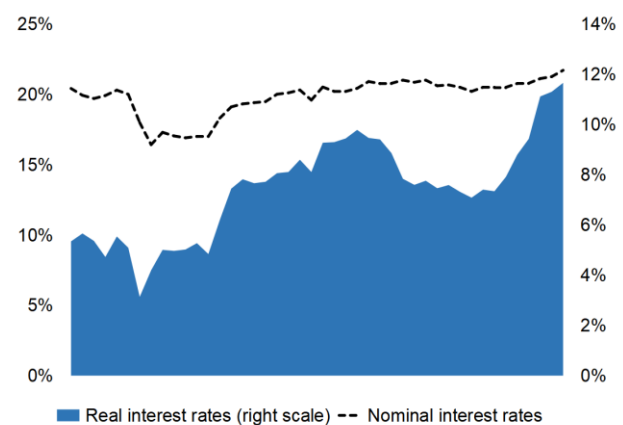


Source: Central Bank calculations based on data from the Statistics Agency.

**Figure 1.3.3. Nominal and real interest rates in the money market (percentage)**



**Figure 1.3.4 Nominal and real interest rates on deposits of individuals (in percent)**



Source: Central Bank calculations.

Consequently, since the first quarter of this year, core inflation and headline inflation have been declining. In March, headline inflation decelerated to 11.7 percent, while core inflation slowed to 12.6 percent.

Moderation of inflationary processes in the economy has been reflected in the dynamics of the GDP deflator and producer price index.

These indicators indicated stabilization of costs as well as elimination of supply problems and signaled a gradual easing of upward pressure on domestic prices.

Starting from February, inflation expectations started to decline, and in March the expectations of the population and businesses amounted to approximately 14-14.5 percent. This, in turn, allowed to reduce the policy rate by 1 p.p. in March this year, while maintaining relatively tight monetary conditions.

The policy rate cut was transmitted to interest rates on the money market, and over the last 10 days of March, market

interest rates averaged 13.9 percent. In turn, real interest rates in the money market, calculated on the basis of the inflation forecast for the next period, were around 2.5-3 percent.

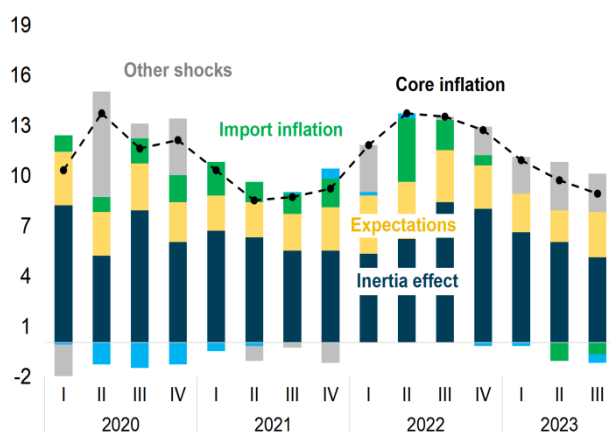
In April-September, core inflation declined slower than expected, requiring to maintain relatively tight monetary conditions for a longer period.

Inflation in April-September continued decelerating year-on-year and amounted to 9.2 percent in September. Core inflation, considered as a more persistent component, also had a downward dynamic, amounting to 10.3 percent. However, the gap between core inflation and headline inflation, as well as the broad-based price increases, indicate that inflationary pressures in the economy are persistent.

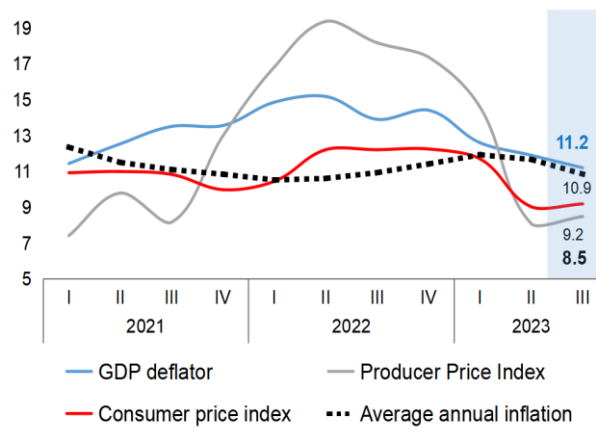
Furthermore, despite the decreased impact of external conditions on domestic prices, internal factors have started putting upward pressure. This indicates that the contribution demand-side factors to inflation is increasing.



**Figure 1.3.5. Core inflation decomposition**  
(annual percentage)



**Figure 1.3.6. Alternative inflation indicators**  
(annual percentage)



Source: Central Bank calculations based on data from the Statistics Agency.

Since the second half of 2023, higher growth of public expenditures, including wage and benefit increases, along with remittance income has continued supporting aggregate consumer demand.

Given continuing demand-side pressures on prices, in order to ensure inflation to be within the forecast by the end of the year, the policy rate in the third quarter was kept unchanged at 14 percent per annum.

As a result, the real interest rate in the money market, calculated on the basis of inflation projection, was around 4 percent, with maintained relatively tight conditions. During April-September, real interest rates on deposits (about 8-11 percent) contributed to a rapid growth of household deposits. In particular, in September, the annual increase in household deposits in the national currency amounted to 42 percent, including a 52.4 percent growth of term deposits.

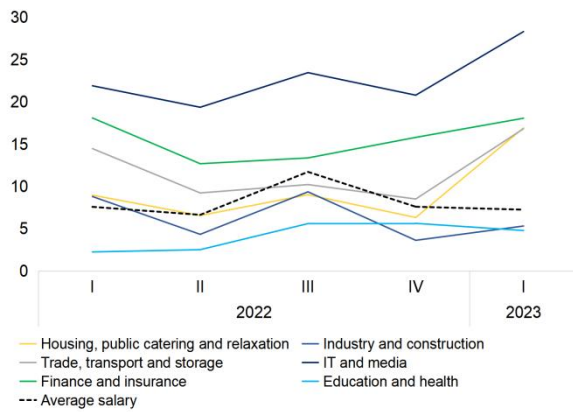
During this period, the population’s demand for loans was stronger despite tight monetary conditions. Therefore, loans to individuals increased by 54 percent year-on-year, serving as a driver of consumer demand.

The rapid growth of loans was also caused by the introduction of consumer loans for imported goods and practice of lending to individuals without official income.

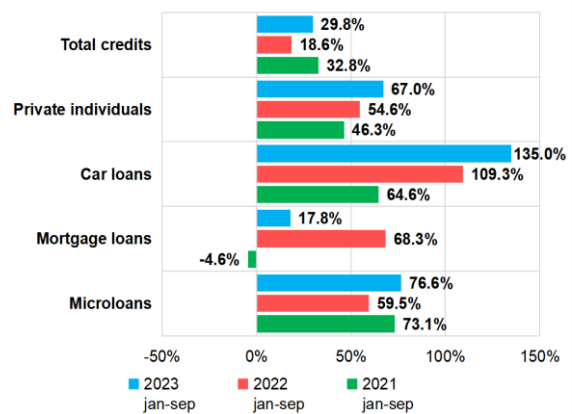
A share of individual loans in the total loans amounts to 29.3 percent, lower than the indicators of most developing countries (on average about 40-50 percent). This indicates that the current high growth trends may continue in the coming years.

In order to balance demand in the consumer loan market, especially in the car loan market, as well as to prevent the emergence of bubbles, macroprudential measures have been introduced through financial risk management. In particular, since August 20 this year, the risk level for car loans has been increased.

**Figure 1.3.7. Dynamics of real income of the population**



**Figure 1.3.8. Growth of loans to households**



Source: Central Bank calculations based on data from the Statistics Agency.

Moreover, in order to prevent an excessive increase in the share of car loans in the loan portfolio of commercial banks, a limit of 25 percent for the share of car loans has been introduced.

Inflationary pressure in some product groups still remains high. In addition to the seasonal price increases during autumn-winter months, the core inflation, less influenced by seasonality factors, is likely to continue accelerating.

Furthermore, secondary effects of adjustments in natural gas and electricity prices for business entities in October may result in an increase of production costs and final consumer prices.

These inflation risks require maintaining relatively tight monetary conditions in the economy in order to ensure a steady decline in inflation.

## Basic principles of Monetary policy

Since 2020 Central Bank of Uzbekistan has been taking measures to transit the monetary policy framework to the inflation targeting (IT) regime based on features and capabilities of our economy. The IT regime is applied by more than 45 foreign countries, and considered as one of the most effective regimes since it allows to ensure long-term sustainable inclusive economic growth through reducing inflation and to conduct structured macroeconomic policy in crisis situations. In particular, during the last 4 years, while there was a rapid inflation acceleration in most foreign countries, the inflation rate in Uzbekistan was observed to decline with other macroeconomic indicators remaining relatively stable.

This regime allows to further bring inflation down, yet given a series of challenges and crises in the domestic and external economy over the last 4 years, the Central Bank maintains a "cautious approach" in monetary policy implementation. Particularly, interest rate cuts to support economic activity in pandemic and post-pandemic periods allowed Uzbekistan to be among the few countries with a robust economic performance even in that challenging period.

***An inflation target is set by the Central Bank and all monetary policy measures are aimed at achieving this target.***

A target is the optimal level of inflation to be achieved, which is set based on the potential of the economy, supply and demand dynamics, macroeconomic forecasts and widely accepted standards.

For Uzbekistan, the medium-term inflation target is set at 5 percent.

The Central bank's policy rate decisions influence economic activity, aggregate demand, and inflation with a certain lag (2-6 quarters). Therefore, the Central Bank adjusts monetary policy based on comprehensive macroeconomic analysis and forecasts, inflation expectations and inflation forecast indicators.

Policy rate decisions are taken in conditions of some uncertainty. The reason is that macroeconomic forecasts are developed based on possible economic prospects, expected movements in the world commodity and financial markets and other factors. Since all these variables are subject to changes, Central Bank takes monetary policy decisions based on relatively stable dynamics of the factors and their inflationary implications.

***The Central Bank's policy rate is the key monetary policy instrument.***

The Central Bank's policy rate is a target interest rate used in transactions with commercial banks to regulate the liquidity of the banking system, by setting it the price of short-term funds attracted and allocated by the Central Bank is defined.

Board meetings to review the Central Bank's policy rate are organised 8 times a year on a schedule predetermined in the Monetary Policy Guidelines (see Appendix 1 for the schedule of meetings in 2024).

***The operational framework of monetary policy is to be developed independently and improved based on international experience.***

The operational framework of monetary policy is based on the interest rate corridor of the Central Bank. Through the operational mechanism, the Central Bank's decisions are transmitted first to the interbank REPO and money market, and then to the interest rates on deposits and loans in the economy.

Consequently, economic decisions on consumption, saving and investment by households and businesses based on their expectations influence inflation through aggregate demand.

***Monetary policy decisions are implemented transparently and communicated in detail.***

One of the main principles of the inflation targeting regime is transparency and openness of monetary decisions. Development of effective communication policy and timely and clear communication of monetary policy decisions to the population are essential in shaping inflation expectations of the population and business entities.

***Advantages of a low and stable inflation environment***

**Low inflation environment** contributes to growth of population welfare, reducing uncertainty in the economy, and is a precondition for developing entrepreneurship and providing a favourable business environment.

Consistently low and predictable inflation is crucial for both households and businesses to take economic decisions.

*Firstly*, in conditions of low inflation, purchasing power of the national currency and, consequently, incomes of the population are sustained stable. As a result, it becomes easier for the population to make decisions on consumption or savings, and balanced aggregate demand and savings are achieved in the economy.

*Secondly*, long-term low inflation ensures favourable business environment and allows for investment decisions as well as facilitates medium-term planning for production expansion.

*Thirdly*, with consistently low inflation, there is favourable environment for economic growth, which positively contributes to macroeconomic stability, stimulates investment in the economy, including foreign direct investment.

Thereby, low inflation ensures that the value of funds invested in the economy and income generated from them remain stable. In contrast, high inflation and macroeconomic uncertainty lead to a contraction of investment inflows and a loss of investor confidence. Implementation of best foreign practices in the economic sectors along with foreign investment contributes to economic growth and enhances the economic performance.

## II. MACROECONOMIC DEVELOPMENT SCENARIOS AND MONETARY POLICY IN 2024-2026

In 2023, global economic growth has been slowing due to geopolitical tensions and tight monetary conditions aimed at reducing inflation.

Supply chain disruptions caused by the pandemic have been restored and the international shipping period has returned to pre-pandemic levels. However, global inflation has been declining at a slower pace and central banks continue monetary tightening to bring inflation down to the target.

Continued interest rate hikes by major central banks are leading to more expensive external borrowing and higher debt servicing costs and, consequently, to weaker economic activity in most developing countries, as well as to increased risks to the financial stability.

Higher interest rates and asset price imbalances in early 2023 led to the crisis in some banks in the USA and Switzerland. As a result, financial stability has been set on the agenda for central banks in the future, along with ensuring price stability.

Moreover, in recent years, international trade restrictions and technological differences, disruptions in capital flows and heightened migration controls have caused global economic fragmentation. This has a negative impact on global economic growth, especially for the economies of major trading partners.

Macroeconomic development scenarios, designed to define the Monetary

Policy guidelines for the next period, are based on expectations and forecasts of the above factors and their implications for the domestic economy.

When designing the macroeconomic development scenarios for 2024-2026, the following principles and assumptions are considered as a basis:

### *Regarding the external environment:*

- Global inflation is expected to remain high for a longer period of time and approach pre-pandemic levels by the end of 2025. In this case, achieving the inflation target may be delayed in most countries due to the negative impact of the intensifying **global economic fragmentation**<sup>1</sup> on supply factors;

- global economic growth will slow down as a result of prolonged tight monetary conditions, with easing conditions from 2025 onwards relatively stimulating activity;

- maintaining tight global financial conditions over the next year will result in continued higher yields on securities, as well as high interest rates on debt and investment instruments;

- uncertainty in the prices of major commodities will remain in the coming years, and price pressure will continue to increase amid global climate change and geo-economic fragmentation;

<sup>1</sup> Global economic fragmentation is the process of gradual emergence of regional blocs replacing the era of globalization, a united interconnected environment observed in the world economy over

previous decades. An increasingly fragmented world will lead to a reconfiguration of technological exchanges, capital flows and migration, and supply chains, as well as fragmentation of global trade.

- a relative slowdown in economic growth in major trading partners in the coming years and worsening expectations in this regard may have a negative impact on foreign demand.

*Regarding domestic economy:*

- overall fiscal deficit to GDP is expected to shrink, and there will be fiscal consolidation in the coming years. A further stage of price liberalization in the energy sector may be postponed, and deterioration of the external economic situation may curtail the scope for fiscal consolidation;

- aggregate demand will continue increasing as a result of private sector

activity and balanced lending, structural reforms to develop economic sectors will be further intensified, although the pace of reforms may slow down in case of external shocks;

- foreign and private (local) investment is expected to be the key drivers of high economic growth.

Taking into account the current situation and uncertainty in external environment and their implications for the domestic economy, the Central Bank has designed two scenarios of medium-term macroeconomic development - the baseline and alternative scenarios.

## Factors and channels influencing economic growth

### Baseline scenario

### Alternative scenario

#### External economic environment

External economic environment		
<b>Global inflation</b>	Global inflation will decline at a relatively slow pace and most countries are expected to achieve their inflation targets by the end of 2025.	Increasing global economic fragmentation will put pressure on supply, and global inflation may take a longer period to moderate.
<b>Global financial conditions</b>	To bring inflation to the target, advanced economies will maintain tight monetary conditions through at least the first half of 2024, and are expected to shift to a neutral phase in the second half of 2025 once inflation approaches the target.	This may further push domestic prices up through imported inflation. Global financial conditions will remain tight for longer than in the baseline scenario. Higher cost of external resources will continue to put pressure on domestic resources.
<b>Global economic activity</b>	Global economy will slow down in 2023-2024 amid continued tight financial conditions and geopolitical crises, economic activity will gradually rebound from 2025 onwards.	These factors, along with high uncertainty and increased risks, will have negative implications for economic growth. In particular, there will be a slowdown in economic growth in the leading countries.
<b>Economic situation in the major trading partners</b>	Economic outlook for major trading partner is mixed. Although prices will be stable in the coming years, there will be a slight decrease in the economic potential, GDP growth is expected to be relatively low in 2024-2025, before returning to a long-term path from 2026 onwards.	Contrary to the baseline scenario, there is a higher risk of a substantial economic slowdown in the main trading partners. Due to lower energy prices amid a weaker global demand, the economic growth of some trading partners might decelerate markedly in 2024.
<b>Foreign trade and cross-border remittances</b>	Increased export growth in 2024 will accelerate in 2025-2026, depending on the dynamics of external demand and commodity prices. Cross-border remittance inflow will increase in line with its long-term trend.	Lower foreign demand, uncertainty in trading partners and volatile commodity prices may adversely affect the export volumes. Cross-border remittances to our country are likely to decrease.
<b>World commodity prices</b>	Amid uncertainty in the global economy, demand for gold as an investment asset is not expected to decline, and the commodity price will remain stable. As the global economy recovers, demand for oil products will rise and fuel prices will stabilise.	A global economic slowdown and high interest rates may lower demand and gold prices. A global economic slowdown will result in weaker demand for oil products, causing lower fuel prices.

**Internal economic environment**

	<b>Baseline scenario</b>	<b>Alternative scenario</b>
<b>Aggregate demand</b>	Strong growth in income, consumer credit and fiscal stimulus in the economy between 2022 and 2023 will continue to support aggregate consumption in 2024.	Amid a slowdown in remittance inflows, growth rates of household incomes will be lower, resulting in weaker aggregate demand.
<b>Fiscal policy and budget deficit</b>	Budget optimisation and improved tax administration will provide scope for fiscal consolidation from 2024 onwards. Overall fiscal deficit is expected to shrink to 4 percent of GDP in 2024 and to 3 percent in 2025-2026.	Deterioration in the external economic situation and delayed structural reforms may undermine fiscal consolidation. As a result, fiscal deficit may take longer to be reduced to an acceptable level.
<b>Investments</b>	Accelerated privatisation and reforms in the energy sector will result in an increase in foreign and domestic private investment in fixed capital.	External uncertainty and higher country risk premium, delay in structural reforms and privatisation of economic sectors may lead to a decrease in foreign investment inflows. Overall, there may be no positive developments in the investment environment.
<b>Structural reforms</b>	Structural reforms to transform economic sectors will be actively pursued. Liberalisation of regulated prices will be finalised. With the reduced role of the state in the economy and a more competitive environment, performance in all sectors is expected to improve.	Continued high state share and influence in economic sectors may hinder improvement of economic efficiency and thereby adversely affect the economic potential.



## 2.1. Baseline scenario of macroeconomic development and monetary policy

### External economic conditions

In 2023 monetary conditions have been further tightened as inflation remained **above the target** in most countries. According to forecasts, in advanced economies the cycle of interest rate hikes is expected to end this year while maintaining current tight monetary conditions throughout 2024.

Amid tight financial conditions, global inflation is projected to further decline and return to its long-term trend in 2025.

Meanwhile, **keeping interest rates high** for a longer period in order to prevent inflation from **spiraling** may adversely affect the prices of lower-yield assets accumulated in previous periods, causing in turn financial stability risks.

Maintaining tight financial conditions in 2024 will restrain economic growth, whereas starting from 2025, amid expectations of interest rate cuts, economic activity is anticipated to revive resulting in a recovery of economic growth.

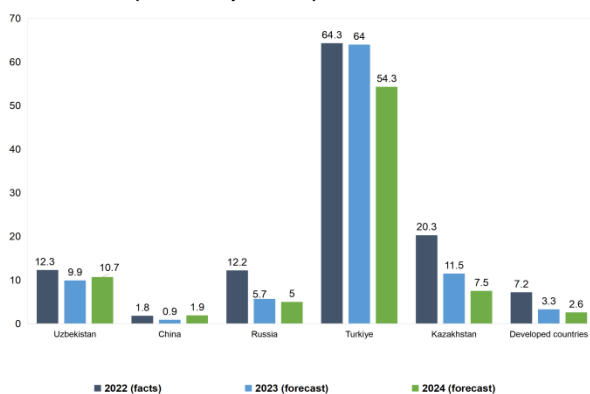
Given these factors, the IMF and the World Bank have revised the inflation and economic outlook in their October reports.

According to updated forecasts, the IMF projects **inflation in advanced economies** at 3.3 percent in 2023 and around 2.6 percent in 2024, while the inflation rate in **developing countries** is expected to decrease to 8.6 percent in 2023 and 6.8 percent in 2024 (*Figure 2.1.1*).

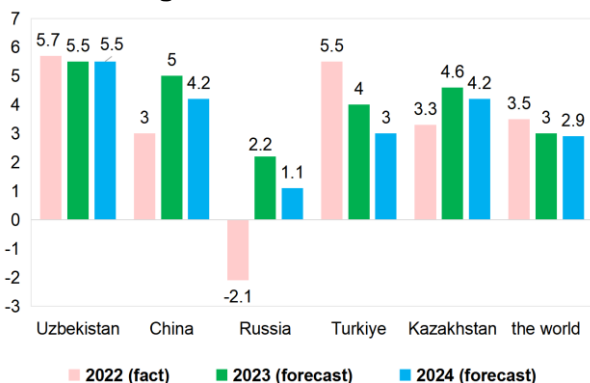
The IMF expects the world economy to grow by around 3.0 percent in 2023 and 2.9 percent in 2024. Meanwhile, in 2024 GDP growth in advanced economies and developing countries is projected to amount to nearly 3.2 percent and 4.7 percent, in turn (*Figure 2.1.2*).

Inflation in the major trading partners is expected to somewhat decelerate amounting to 1.9 percent in China, 5 percent in Russia, 7.5 percent in Kazakhstan, and 54.3 percent in Turkey in 2024 according to the IMF.

**Fig 2.1.1. IMF projections on global inflation (end of period)**



**Fig 2.1.2. IMF projections on world economic growth**



Source: IMF, *Global Economic Outlook (October, 2023)*.

While inflation deceleration allows to **ease monetary conditions in China**, other partner countries are expected to maintain tight monetary conditions for a longer period to address persistently above-the-target inflation.

Furthermore, due to ongoing geopolitical tensions and weak recovery of economic activity, output growth in **Russia and China** is expected to be **below the potential** next year, at about **1.1 percent** and **4.2 percent**, respectively.

Projected prices for the main exported commodities (except gold) and weaker **foreign demand** as a result of negative output gap in the major trading partners may lead to a slower growth of exports in 2025-2026.

Higher world price for gold despite increased interest rates in global financial markets and the appreciated dollar index is mainly attributed to still existing uncertainties in world economy and geopolitical risks.

Production cuts by oil producers put upward pressure on oil price. Moreover, global demand for oil products is expected to be stronger from 2025 onwards due to rebounding economic activity.

Under the baseline scenario, foreign demand is assumed to grow moderately without sharp changes in the coming years.

In 2024, the growth pace of exports is projected to accelerate owing to improved **copper** production capacity and favourable prices for textile products. The volume of exports excluding gold will increase by 10-12 percent in 2023, 11-13 percent in 2024, and 10-14 percent in 2025-2026 (*Table 2.1.1*).

Ongoing **structural reforms** and **expansionary fiscal policy**, as well as stronger **economic activity** in the private sector stimulate demand for imports which is expected to grow at a high pace. In this case, the volume of imports is projected to increase by 15-17 percent in 2023 and persistently by **8-10 percent** year-on-year in 2024-2026.

As a result, the foreign trade deficit will also continue expanding in the medium term, partly offset by **remittance** and **foreign investment inflows**.

After a sharp increase last year, the volume of cross-border remittance inflows is expected to reverse to the **long-term trend** and amount to around **11-11.5 billion** dollars in 2023 (*a decrease of 30-35 percent compared to last year*).

In 2024, remittances are expected to increase by 10-12 percent followed by annual growth of **12-15 percent** in 2025-2026.

Influenced by the above factors, the **current account** of the balance of payments will be negative at **5.5-6.5 percent** of GDP in 2024-2025.

Components of the **financial account**, including foreign credit lines attracted by commercial banks and direct investments, will be the main sources to cover the current account deficit.

Due to high cost of external funding, foreign inflows in 2024 are expected to consist mainly of **public external debt** and **foreign investment**. In 2025-2026, however, interest rate cuts will allow commercial banks and large enterprises to attract funds in foreign markets.

**Table 2.1.1. Forecast indicators of macroeconomic development under baseline scenario (annual percentage)**

Indicators	2022 (actual)	2023 (exp.)	Baseline scenario forecasts		
			2024	2025	2026
<b>Annual inflation</b>	<b>12,3</b>	<b>8,5-9,5</b>	<b>8-9</b>	<b>5-6</b>	<b>5</b>
<b>Real GDP growth</b>	<b>5,7</b>	<b>5,2-5,7</b>	<b>5,0-5,7</b>	<b>5-6</b>	<b>5,5-6,5</b>
Final consumption expenditures	9,2	5-5,5	5-6	6-7	6-7,5
- households	11,4	5-6	5-6	6-7	6-7
- general government	1,3	1-2	1,5-2	1-2	2-3
Fiscal balance (as a percentage of GDP)	-5,8	(-5)-(-5,5)	-4	-3	-3
Exports (excl. gold)	21,6	10-12	11-13	10-12	12-14
Imports	20,3	15-17	10-12	9-10	8-10
Cross-border remittances	2,1 б.	(-30)-(-35)	10-11	12-13	12-15
Loans to the economy	21,4	19-21	18-19	17-18	16-17

Given the above factors and the expected dynamics of external indicators, pressure on the exchange rate is unlikely to occur, which provides grounds for the real effective exchange rate of the soum to form within the long-term trend.

#### **Internal economic conditions**

High fiscal stimulus coupled with a rapid increase in consumer demand and private investment in 2023 will be major drivers of economic growth in 2024.

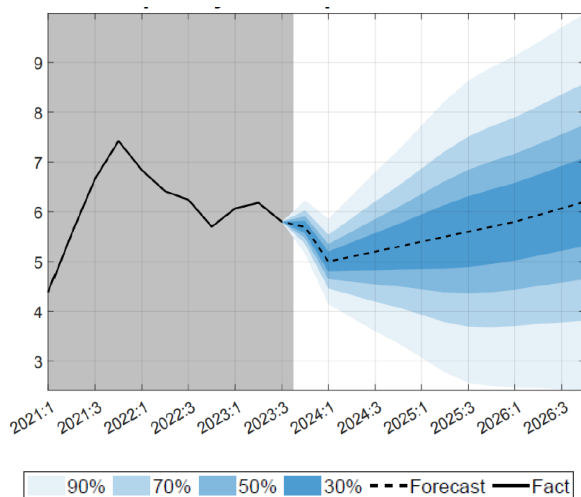
In particular, real GDP growth is projected to reach approximately 5-5.7 percent by the end of 2024, 5-6 percent in

2025 and 5.5-6.5 percent in 2026 (Figure 2.1.3).

In the coming years, an increase in **lending to the economy** within the nominal GDP growth will positively contribute to economic activity.

In 2024, **final consumption expenditure** is expected to rise by nearly 5-6 percent in real terms, having an effect on aggregate demand in the economy.

**Fiscal deficit** is projected to be reduced to **4 percent** to GDP in 2024 and **3 percent** in 2025.

**Fig 2.1.3. Real GDP forecast under the baseline scenario**

Source: Central Bank forecasts.

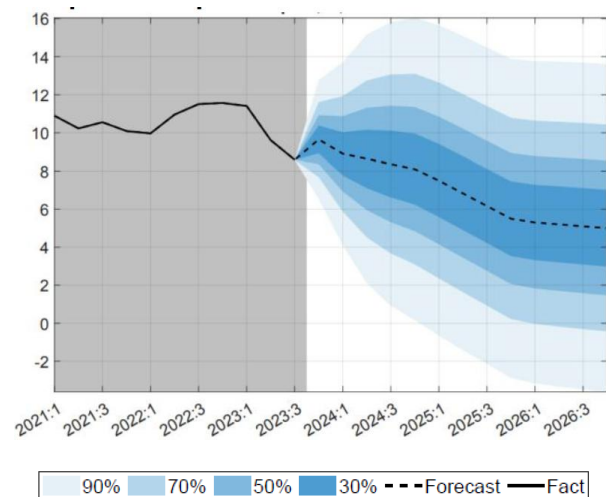
Starting from 2024, optimisation of budget expenditures will provide conditions for fiscal consolidation and serve to diminish pressures of monetary factors on inflation.

Continued structural reforms to transform and expand economic sectors are a major assumption in the baseline scenario. As a result of the decreasing role of the state in the economy, performance indicators in all sectors are expected to demonstrate positive trends.

Given inflationary processes in the past period of 2023 and factors expected in the last quarter of the year, the **inflation rate** by the end of the year is projected to be at around 8.5-9.5 percent.

According to the updated forecast, in view of the longer-lasting effects of external developments in 2022-2023 and upward pressures on domestic prices, there are grounds to expect achieving a 5 percent inflation target in the second half of 2025.

It should be noted that most central banks around the world also expect inflation to approach target by the end of 2025.

**Fig 2.1.4. Inflation forecast under the baseline scenario**

A delay in achieving the target in turn implies that measures aimed at price stability should be reinforced, given strong pressures from external supply and intensified structural reforms expanding aggregate demand.

Under the baseline scenario, **the inflation rate** is projected to amount to nearly **8-9 percent**. In the second half of 2025 and 2026, assuming no significant external risks and pro-inflationary factors, headline inflation is forecast to be around 5 percent (*Figure 2.1.4*).

### Monetary policy

Monetary conditions for the coming years are defined based primarily on the inflation outlook, its factors and inflation expectations.

At that, the Central Bank's mandate to ensure price stability and achieve the 5 percent inflation target remains in place.

Reducing inflation to the target level by the end of 2025 requires the Central Bank to maintain relatively tight monetary conditions until the end of the current year and in 2024, and to ensure real interest rates of 3-4 percent in the money market.

According to the baseline scenario	
<b>Inflation</b>	In 2024, inflation is forecast to be around <b>8-9 percent</b> . By the end of 2025, inflation will approach <b>the 5 percent target</b> .
Monetary policy measures	
<b>Monetary conditions</b>	Considering inflationary pressures, monetary policy will be maintained <b>relatively tight</b> throughout 2024, before shifting to a “neutral” phase at the end of 2025, once there are preconditions for achieving the inflation target.
<b>Money market interest rates</b>	In 2024, the UZONIA rate will be at 3-4 percent in real terms, before amounting to around 2-2.5 percent (neutral rate) in late 2025 after inflation approaches the target

With a sustained decline in inflation, the central bank's key policy rate may be lowered accordingly. The Central Bank will thoroughly analyse potential inflation risks and expectations for the coming period, and continue taking a cautious approach in defining monetary conditions.

Monetary conditions in the current and next year also depend on fiscal policy parameters. In case of continued fiscal stimulus, further monetary tightening may be required to mitigate monetary factors of inflation. Otherwise, fiscal incentives will result in a considerable increase in inflationary pressure through supporting aggregate demand in the economy.

Once inflation approaches the target and stabilises, there will be scope to ease and move monetary conditions into a “neutral” phase in 2026.

Additionally, liquidity conditions in the banking system are also important in defining monetary conditions in the medium term.

Future dynamics of total liquidity will be influenced by budget operations, the balance of supply and demand in the local FX market, and demand for money in the economy. Continued formation of banking system liquidity without surplus may serve as a monetary tightening factor.

Meanwhile, the credit channel still has a major influence in defining monetary conditions. However, household demand for loans is expected to remain high over the medium term, and the effect of monetary conditions on retail loan growth is likely to stay relatively moderate.

Given the continued high growth of consumer loans, the macroprudential policy measures might be actively applied.

In the coming years, one of the important tasks will be balancing credit growth rates and ensuring the stability of the banking system as a whole, through coordinated monetary and macroprudential policies.

In the future, transition of the pricing of fuel and energy resources to market principles is considered essential in further implementation of reforms aimed at providing the population and business entities with sustainable energy resources, as well as boosting production through attracting private investment in the sector.

These developments will have positive implications for the monetary policy implementation in the medium and long term and generally serve as drivers towards macroeconomic stability and economic growth.

In case of introducing tariff changes for retail consumers in 2024 as a consequential effect of these reforms, their inflationary and other macroeconomic impact will be reassessed and there will be appropriate adjustments to the monetary conditions.

## 2.2. Alternative scenario of macroeconomic development and monetary policy

The alternative scenario of macroeconomic development assumes **deterioration of the external economic and geopolitical conditions** and their adverse implications for the domestic economy. Given worsening external conditions, achievement of **the 5 percent inflation target** may be delayed until the end of 2026.

### External economic conditions

Increasing global economic fragmentation will negatively affect world economic growth and prices.

According to IMF analysis, the number of international trade restrictions has been increasing substantially in recent years (*Figure 2.2.1*). These restrictions may further delay downward movement in global inflation, exerting supply-side pressures. This may put upward pressure on domestic prices through imported inflation.

Geoeconomic fragmentation has a more negative impact on developing countries than on advanced economies. In particular, according to IMF outlook, an income falls in African and Asian countries caused by geoeconomic fragmentation is estimated to be **twice as high** as in developed countries (*Figure 2.2.2*).

Prolonged tight global financial conditions will cause the global economy to grow slower than in the baseline scenario through an adverse impact on economic activity.

Particularly, according to the updated IMF projections, a global economic growth

in 2024 is expected to **decline to 2.3 percent** (*0.6 p.p. lower compared to the baseline scenario*).

Under the alternative scenario, **high uncertainty and risks** prevail in economic prospects of the **main trading partners**.

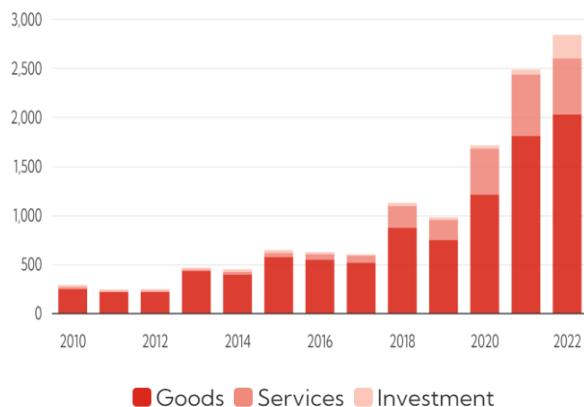
Contrary to the baseline scenario, there is a higher risk of a considerable slowdown in Russia and China.

Slower decline in global inflation raises the probability of global financial conditions remaining tight for a longer period of time. In particular, leading central banks are not expected to loosen monetary conditions in case of persistently high inflation.

Most countries are expected to achieve the inflation target at the end of 2025 and in 2026. This, in turn, given continuing pro-inflationary environment occurred in the post-pandemic period, increases the risks of inflation spiralling and negatively affecting inflation expectations.

Consequently, foreign financial resources will remain expensive for our country, and there will be an increase in demand for domestic financial resources and bank competition in this context.

A slowdown in the global economy may cause a decrease in demand for **commodities** and, as a result, price decreases in **energy resources**. In turn, lower energy prices are expected to **negatively affect the economic growth** of our trading partners in 2024, however, from 2025 as demand for energy resources increases, their economies will recover.

**Figure 2.2.1. Number of international trade restrictions in the world**

Source: Global Trade Alert and IMF staff.

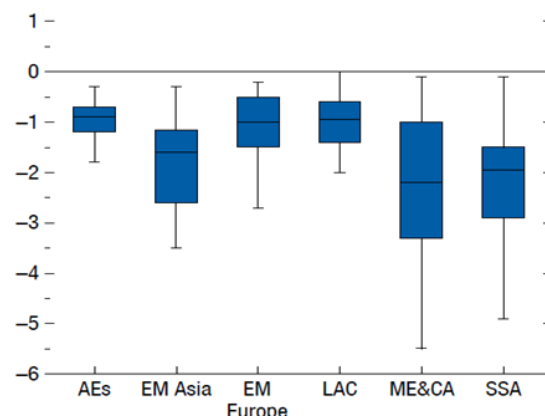
Moreover, the sluggish global economy and higher interest rates may have a negative effect on demand for **gold** and **copper** as well as their price.

Weaker output growth in the main trading partners may result in shrinking **foreign demand** for our goods and services. Thereby, a growth in exports (*excluding gold*) is projected to slow down to **5-6 percent** in 2024, amounting to about **6-8 percent** in 2025-2026 (Table 2.2.1).

Amid weaker economic activity and a modest increase in household incomes, **imports** are projected to grow at a slower pace (*by an average of 7-9 percent annually over the forecast horizon*).

Furthermore, due to strengthened sanctions against Russia, there will be further pressure on **the ruble exchange rate** over the forecast horizon. Slower economic growth compared to the baseline scenario and a stronger ruble depreciation may cause a decrease in cross-border remittances from Russia.

The alternative scenario assumes an annual increase in cross-border

**Figure 2.2.2. Changes in real per capita income due to fragmentation**

Source: IMF staff calculations.

remittances at nearly **5-6 percent** in 2024 and **7-8 percent** in 2025-2026.

Given the above factors, there may be wider **current account deficit** compared to the baseline scenario, reaching approximately 6.5-7.5 percent of GDP in 2024-2025.

### *Internal economic conditions*

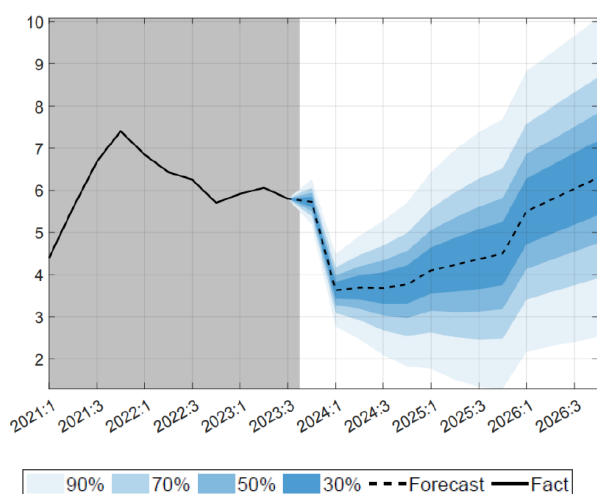
Under the alternative scenario, the major factors determining internal economic environment will be the progress of structural reforms and fiscal policy measures.

Should most of the conditions envisaged in this scenario be realised **simultaneously**, real GDP growth in 2024 may be **1.5-2 percentage points lower** than in the baseline scenario (Figure 2.2.3).

As external risks subside and financial conditions are relatively eased from 2026, economic growth will recover.

Increasing uncertainty in the external sector, persistence of global geopolitical tensions may lead to a higher country risk premium and a decrease in foreign investment inflows.



**Figure 2.2.3. Real GDP forecast under the alternative scenario**

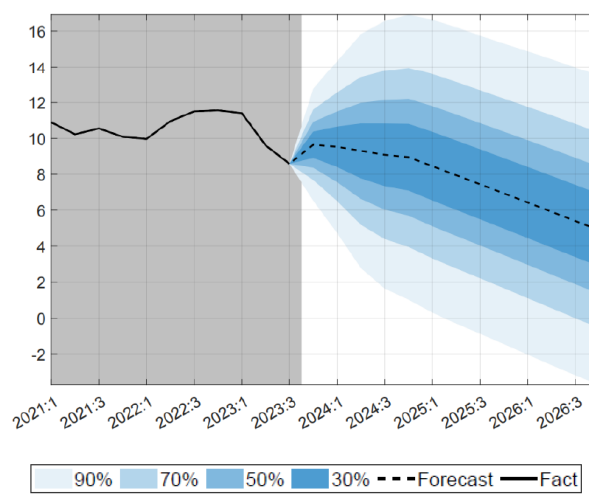
Source: CBU forecasts.

Over the forecast horizon, **final consumption expenditure** will increase by around 3-4 **percent** in real terms, with lower contribution to economic growth compared to the baseline scenario.

In 2024-2025, higher public expenditure to support economic activity and subsidies may imply postponing fiscal consolidation until a later period.

Overall budget deficit is projected to amount to **around 5 percent** to GDP in 2024 followed by a decline to 4 percent in 2025-2026. This suggests that monetary pressures will remain in the economy pushing the inflation up.

In the coming years, amid persistent global inflationary pressures and effects of imported inflation, under the **alternative scenario** the inflation rate is projected to amount to 9-10 percent in 2024 and **to 7-8 percent** in 2025. Under this scenario, the period for achieving the target may be longer, extending to the second half of 2026 (Figure 2.2.4).

**Figure 2.2.4. Inflation forecast under the alternative scenario**

### **Monetary policy**

In order to curb inflationary processes and ensure price stability, the Central bank will further **tighten monetary conditions** in 2024-2025 in the event of alternative scenario conditions.

Thus the emphasis will be placed on reducing monetary factors of inflation through monetary policy instruments and measures to eliminate non-monetary factors coordinated with the Government.

In particular, major pro-inflationary factors in the alternative scenario are from the supply side, and ensuring sufficient supply of goods and services in order to achieve price stability is an ongoing task.

In turn, to reduce monetary factors of inflation and ensure price stability, monetary conditions need to be kept tight for a longer period than in the baseline scenario.

## Monetary policy measures

### Monetary conditions

In order to curb inflationary processes in the economy and ensure price stability, **“tight”** monetary conditions will be maintained in 2024-2025.

### Money market interest rates

The Uzonian rate is expected to average **4-5 percent** in real terms in 2024-2025, before decreasing to **2-2.5 percent** (neutral level) in the second half of 2026 as inflation approaches the target.

In order to ensure positive real interest rates in the interbank money market, monetary policy instruments and liquidity management operations will be intensified. Thus, the Central Bank may increase the volume of bonds issuance.

Under the alternative scenario, the overall liquidity of the banking system is an important factor in defining monetary conditions. However, although a larger overall budget deficit compared to the baseline scenario means that more liquidity is channeled in the market, the net effect of budget operations on overall liquidity will depend on the sources of deficit financing.

As noted above, with relatively higher cost of external borrowing, demand for

**domestic resources**, including deposits in national currency, is expected to increase, while **real interest rates will be higher**, and this situation will persist for a certain period. This will serve to balance the demand for foreign currency through the impact on prices of assets in the national currency.

Due to relatively weak economic activity, a **growth of loans** to the economy may be slightly lower than in the baseline scenario.

However, with strong demand for retail loans, credit growth is expected to be in line with nominal GDP growth even under the alternative scenario.

### Role of fiscal discipline in ensuring long-term sustainable growth

*In most countries, the key conditions for effective fiscal policy to promote inclusive growth are its countercyclicality, high distributive function and the elimination of inefficient expenses and measures.*

In recent years, the significant fiscal stimulus observed in advanced and emerging economies has become one of the main factors accelerating inflationary processes. The sensitivity of inflation to fiscal expansion in the group of emerging countries (*correlation coefficient - 43 percent*) remains relatively strong, although lower than in advanced economies (*72 percent*) (*Figure 1*).

Despite the fact that high economic growth rates in Uzbekistan in 2021-2022 increased budget revenues to a certain extent, additional expenditures on targeted social protection of the population significantly rose due to external disturbances. This, in turn, has led to a definite gap between revenues and expenditures (*Figure 2*) and an increase in the overall budget deficit.

The World Bank's analysis of the fiscal policies of 148 countries for the period 1990-2019 noted that Uzbekistan's fiscal policy was acyclical (*not tied to the economic cycle*).

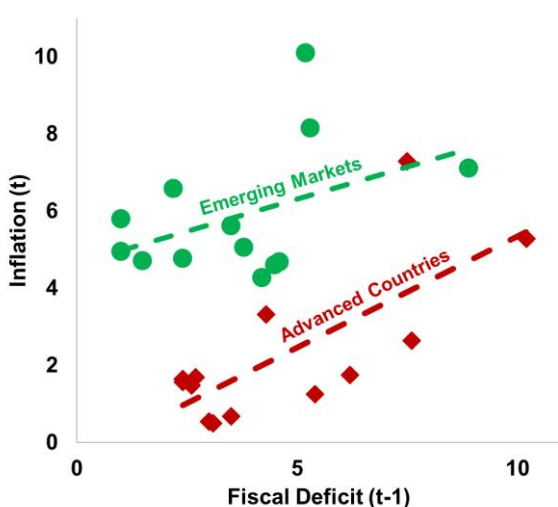
Meanwhile, according to the Central Bank's preliminary calculations, fiscal policy in 2019-2023 has shifted in a pro-cyclical direction (*Figure 3*), creating a definite level of pro-inflationary pressure in the economy.

In recent years, international financial institutions have emphasized the increase in energy subsidies (*Figure 4*) as "distorting costs" of the market mechanism.

The International Energy Agency estimates that global energy subsidies will double in 2022 compared to 2021, reaching 1 trillion US dollar. Subsidies undermine fiscal discipline, put pressure on economic growth, increase debt and create conditions for inefficient resource allocation.

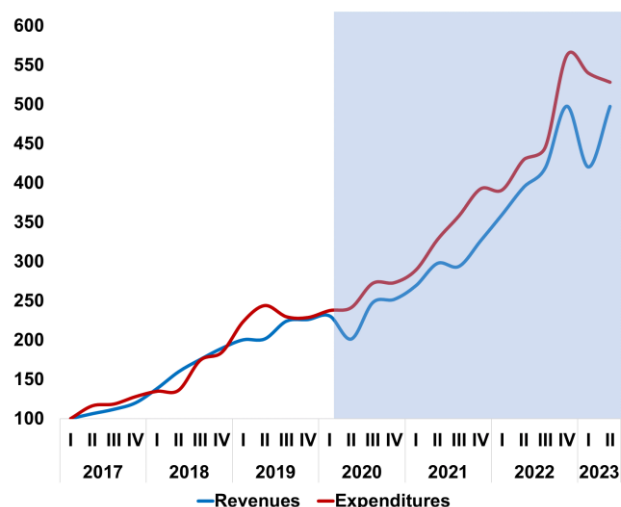
Liberalization of tariffs while preserving targeted social support is one of the important factors of budget consolidation by reducing energy subsidies at the current stage. Reduction of the budget deficit to a neutral level (*2-3 percent of GDP*) and transition to a countercyclical fiscal policy will be the key factors of inflation decline in the medium and long term.

**Figure 1: Correlation of fiscal deficit and inflation by group of countries in 2010-2023.**

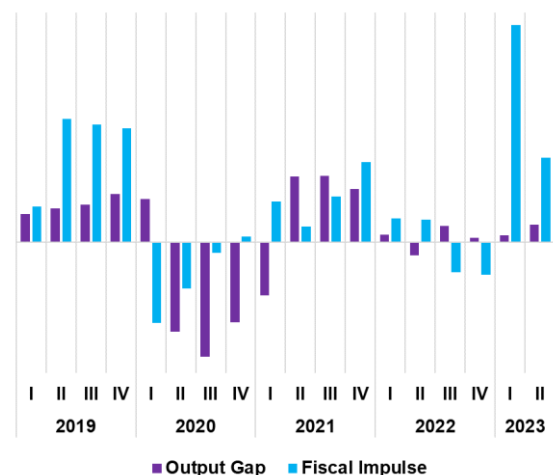


Source: Central Bank calculations based on IMF data.

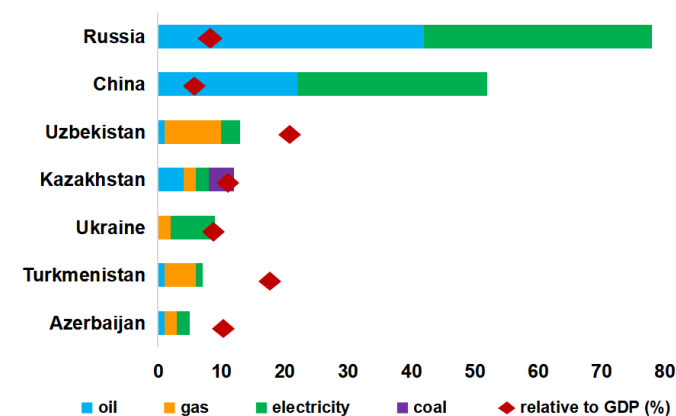
**Figure 2. Seasonally adjusted budget revenues and expenditures (Q1 2017 = 100)**



Source: Central Bank calculations based on data of the Ministry of Economy and Finance.

**Figure 3: Fiscal conditions in Uzbekistan**

Source: Central Bank calculations based on data of the Ministry of Economy and Finance.

**Figure 4: Energy subsidies by country**  
(in billion USD, percent of GDP)

Source: International Energy Agency.

Note to Figure 3: data are cumulative, uni-directionality characterizes procyclicality, multidirectionality - countercyclicality.

In the international experience, fiscal consolidation occurs predominantly by reducing the public investment, while the current social expenses remain unchanged.

Recent studies show that when public investment declines relative to public consumption and hence its share of public expenditure decreases, a consolidation of 1 percent of GDP reduces output by 0.7 percent in the three years following a fiscal shock.

Therefore, while conducting fiscal consolidation, it is important to maintain public investments that have a long-term positive impact on sustainable economic growth, and in cases of their reduction, to compensate by attracting private investments.

Along with this, international experience shows that to achieve long-term fiscal stability it is necessary to create an effective system of fiscal institutions. The main objectives of fiscal institutions system are to ensure macroeconomic stability, fiscal sustainability for countries with temporary flows of high commodity revenues, and sufficient accumulation of buffers.

One of the most important in the system of fiscal institutions especially in emerging resource-rich countries are fiscal rules, which increase the transparency of budget policy, reduce the high volatility of the exchange rate during economic shocks and mitigate certain inflationary pressures through the external channel.

In achieving the inflation target, coordination of monetary and fiscal policies is a crucial element. Full understanding and concerted action in the gradual consolidation and disciplined implementation of fiscal policy using fiscal rules is the fundament for macroeconomic stability.

### III. GUIDELINES FOR IMPROVING THE EFFECTIVENESS OF MONETARY POLICY

#### 3.1. Improving the transmission of monetary policy

Improving the channels of the transmission mechanism is important to ensure effective transmission of the Central Bank's decisions to the economy.

##### Interest Rate Channel

The interest rate channel is considered to be **the main channel** in the inflation targeting regime, and the central bank's policy rate is **the key instrument in monetary policy implementation**. Further improvement of each element of the interest rate channel is required to ensure effective transmission of the key rate decisions to the economy. In particular:

a) **The operational framework** is considered to be the **initial element** that ensures the transition of key rate decisions to the money market, and owing to the systematic work on its improvement over the last 3 years, **the transmission of decisions to the interbank money and REPO market has been improved**.

However, in order to enhance the influence of interest rates on long-term resources, some modifications are to be introduced in the operational mechanism.

Particularly, **overnight operations** conducted within the interest rate corridor are available until 4:00 p.m., and since a **banking day** is until 5:00 p.m. (*it may be extended on some days*), opportunities for banks to make full use of these instruments during a business day are limited.

Thus, in order to facilitate for banks to effectively manage their liquidity **even after**

**the end of a settlement day and comply with the established requirements**, it is planned to ensure the operation of **interbank money and REPO markets within 15 minutes**, and the Central Bank's overnight operations **within 30 minutes** after the end of a settlement day.

In this case, commercial banks will be able to **redistribute** overall liquidity in the money markets after the end of a banking day and then apply overnight operations of the Central Bank, which will significantly improve the effectiveness of liquidity management.

Furthermore, the Central Bank is considering to introduce "intraday credit facility" and issuing **interest-free loans against collateral during the day**. This will serve to prevent liquidity shortages in banks and ensure continuity of the payment system.

Within the framework of improving the operational mechanism, there are plans to **securitise deposit auctions**, which are the key instrument for liquidity management (*in the form of deposit certificates or short-term bonds of the Central Bank*), to conduct "**fine-tuning operations**" based on the overall liquidity situation, and to develop the Central Bank's "**Collateral Mechanism**".

b) **Enhancing capacity to forecast the liquidity of the banking system**. Currently, the overall liquidity of the banking system is **analyzed daily** and **forecasted weekly** in terms of autonomous factors. **Accuracy of**

**forecasts** is to be improved in order to properly adjust the parameters of monetary operations.

Some autonomous factors of liquidity are forecasted on a daily basis applying the **ARIMA model** based on the data of previous periods, at present the forecasting capacity is to be expanded with **artificial intelligence** and **machine learning models** based on Big Data.

In the medium term, the accuracy of forecasts will be improved by widely introducing artificial intelligence and machine learning models into daily forecasting of the banking system's overall liquidity.

c) *Improving automation and activity in the interbank REPO market.* Activity in the **interbank REPO market** launched in 2022 has increased following a decrease in overall liquidity this year, and currently **around 20-25 percent** of liquidity is redistributed between banks in this market.

The platform of the market was **independently developed** by the Republican Currency Exchange, and consistent measures are being taken to **fully automate** and **improve the convenience of operations**. In particular, the recommendations provided by the IMF under the **technical assistance programme “Development of the Interbank REPO Market”** in April this year are to be gradually implemented.

d) *Improving the effectiveness of interest rates in the economy.* There is a need to implement **a number of modifications** in order to improve the

transmission of policy rate decisions to market interest rates.

In particular, the underdevelopment of **the secondary market for government securities** and **the capital market** causes a **relatively low correlation** between money market interest rates and interest rates on deposits and loans, as well as **high markups**.

In this regard, in the medium term, in cooperation with the Government, it is planned to **establish permanent primary issuance of government securities**, activate **the secondary market** on the principles of “**fair valuation**”, develop **the yield curve for securities** and implement **systemic measures to develop the financial markets**.

Meanwhile, the introduction of banking services **with flexible interest rates** will be stimulated, along with improving the effectiveness of the interest rate channel. At present, banks offer deposit and lending services mostly **at fixed interest rates**, and the fact that interest rates are not adjusted depending on maturity is reflected in the relatively weak influence of these segments on the yield curve.

In this regard, **the methodology of calculating the UZONIA benchmark rate** for money market operations was improved in July 2022, and further measures will be taken to introduce floating rate banking services, including **interbank interest rate swaps**, according to the recommendations of the “**Money Market Working Group**” established with the support of the European Bank for Reconstruction and Development.

### Assessing the effectiveness of monetary policy transmission

The central bank's decisions on the policy rate are firstly transmitted through monetary operations to the money and REPO markets, then to the interest rates on bank deposits and loans, subsequently being reflected in the economic decisions of the population through aggregate demand influence inflation in the economy.

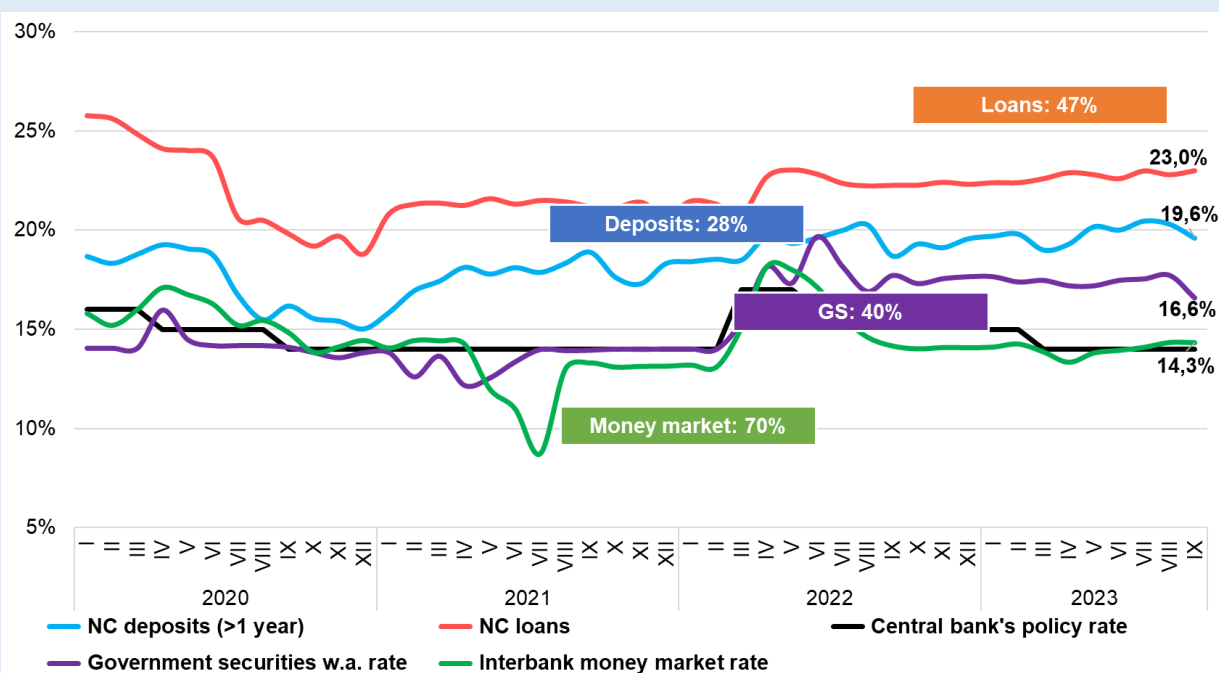
Within the framework of the transition of monetary policy to the inflation targeting regime, owing to the improvement of the Central Bank's liquidity management instruments, the pass-through effect of the policy rate change on the money market has significantly increased, and currently the correlation amounts to around 70 percent (Figure 1). The effect of the policy rate on the yields of government securities is around 40 percent, and this low value is attributed to the restrictions on the yields of government securities issued in previous periods.

Moreover, due to the underdevelopment of the capital market and financial instruments, the influence of short-term liquidity prices on long-term interest rates is relatively lower, and the correlation between the policy rate and interest rates on deposits and loans amounts to 28 percent and 47 percent, respectively.

The effectiveness of monetary policy transmission in our country was assessed by IMF experts (M. Al-Rasasi and E. Cobeson, 2022), and according to their calculations, the effect of the Central Bank's policy rate on loan and deposit interest rates in 2017-2022 was 59 percent and 35 percent, respectively.

Change in the Central Bank's policy rate influences economic indicators, including aggregate consumer demand and inflation rate, **with a certain time lag**. In practice and in studies of foreign countries this lag is found to be **about 2-8 quarters**. For this reason, decisions on the policy rate are based on the inflation forecast for the next period, expectations and potential risks.

**Figure 1. Correlation between interest rates in the economy and the Central Bank's policy rate**



Source: Central Bank calculations.

Meanwhile, the policy rate **has a significant and more rapid impact** on the money market, and in Uzbekistan, changes in the policy rate start to influence overnight interbank operations **from the next business day**. However, pass-through from money market to bank interest rates on deposits and loans tends to be somewhat slow. In particular, in the current environment with **underdeveloped financial markets** and **alternative instruments**, the effects of changes in interest rates occur more slowly.

In this regard, it is worth emphasizing that the emission of **government securities** is constantly increasing, and the increase of activity **in the interbank REPO market** positively contributes to the formation of long-term liquidity prices and improves **the effectiveness of interest rate transmission**.

### Exchange rate channel

In countries with fully liberalized cross-border capital flows and well-developed financial markets, **the exchange rate channel** has an important role in the transmission of monetary policy.

In particular, the extent to which capital flows are free in small open economies reduces **the scope for independent decision making on the interest rate**. The reason is that **the capital flow situation** slows down the transmission of policy rate decisions.

The exchange rate channel influences economic processes mainly by determining **the competitiveness of locally produced goods and services**, thereby driving **exports and imports**. In particular, while **real appreciation of the exchange rate** balances economic growth and **brings inflation down by increasing imports**, **real depreciation of the exchange rate** supports activity by boosting demand for exports.

Noteworthy, **the real effective exchange rate of the soum** has been appreciating over the last 3-4 years. **Inflation and devaluation** observed in major trading partners is also a key factor contributing to the UZS appreciation in real terms.

Given the expected trend in foreign exchange inflows in the form of export revenues, foreign investment, remittances and capital flows, the soum is expected to **appreciate to some extent** in real terms in the medium term. This is consistent with the objectives of ensuring **relatively tight** monetary conditions aimed at curbing inflation.

**Free-floating** exchange rate regime in Uzbekistan expands the scope **for conducting independent monetary policy** through the interest rate channel.

However, **the impact of the exchange rate channel on inflation** is considerable, mainly due to the significance of **devaluation expectations in the overall inflation expectations of the population** and **a high share of imported goods in the consumer basket**.

According to recent Central Bank estimates, the overall long-run effect of a **1-percent change** in the exchange rate **on core inflation** equals 0.2 percent, with a relatively high influence **on the core food prices (0.33%)**.

In the medium term, the key area for improving the effectiveness of the exchange rate channel is to further develop **the framework for the free floating** exchange rate and increase the share of



market participants **in the formation of the exchange rate.**

Free formation of the exchange rate based on the market expectations is essential for **mitigating external risks, minimizing the pressure on the country's international reserves** and reducing **the pass-through effect to inflation.** Meanwhile, the Central Bank's interventions in the domestic foreign exchange market are implemented only **under the “principle of neutrality of international reserves” in order to prevent sharp fluctuations in the exchange rate.**

Furthermore, the objective in the medium term **is to gradually liberalize capital flows, and non-residents** are expected to start participating in the government securities market from 2024. Increased capital inflow into the country, on the one hand, **will appreciate the exchange rate** through higher currency supply, and on the other hand, will increase the risks of outflow of this capital **in crisis and shock situations.**

Therefore, the process of capital flow liberalization requires **a cautious approach** and, first of all, creation of conditions for **the long-term stable capital inflow.** This, in turn, contributes to mitigating the adverse impact of **short-term speculative capital flows on macroeconomic stability.**

In addition, **the activity in the interbank market of currency futures,** launched in October 2022, is planned to be increased, which will further enhance banks' capacity to manage **currency risks.**

Active operation of this market will allow commercial banks to carry out **currency forward and swap operations** with their clients. As a result, legal entities with **relatively high imbalances in their currency position** will be able to remain stable in their operations even in the face of **possible external shocks** by managing **the potential risks** associated with the exchange rate.

### **Credit channel**

In the credit channel of the transmission mechanism, **the capability of banks to allocate loans** and generate sources has become pivotal, and this year banks relied mainly on domestic sources, causing competition in the deposit market to increase.

In the context of global inflationary developments, external financial conditions are expected to remain tight for a longer period of time and the demand for domestic resources is expected to increase in the coming years. Meanwhile, given the regulations on banks' currency position, loans are being allocated primarily in the national currency, and dollarization of loans is decreasing.

In the coming years, coordinated measures will be taken to reduce **dollarization of loans,** gradually eliminate the practice of **preferential lending,** and ensure the growth of loans in line with **the nominal GDP growth.** This **will contribute to better transmission** of monetary policy decisions and reduce the impact of **monetary factors on inflation.**

### Factors limiting the effectiveness of monetary policy

The effectiveness of monetary policy is associated with the transmission of decisions to economic processes and, ultimately, to the inflation rate. In the inflation targeting regime, the primary instrument of monetary policy is the policy rate of the Central Bank, and decisions on the policy rate serve to regulate the price of short-term liquidity in the national currency through monetary operations, and long-term assets through changes in interest rates on deposits in future periods.

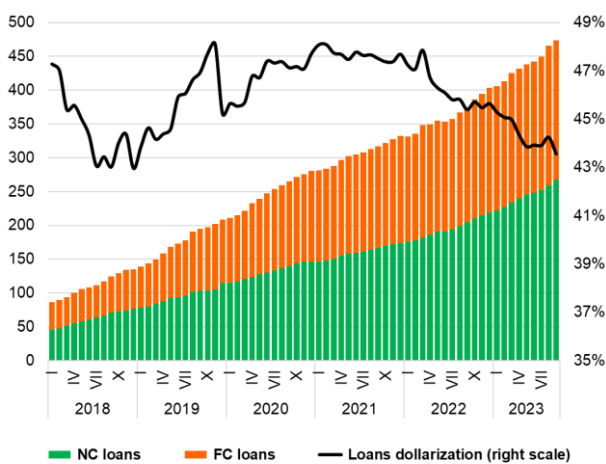
The effectiveness of monetary policy is limited on the one hand by the weak influence of money market interest rates on the asset prices due to underdeveloped financial intermediation, and on the other hand, by the reasons such as high dollarization of deposits, loans and liabilities in the banking system, the practice of preferential lending and unanchored inflation expectations.

High level of dollarization adversely affects the achievement of monetary and foreign exchange policy objectives and their effectiveness. In particular, realization of a certain part of transactions and agreements in foreign currency in the economy has a negative impact on the interest rate channel of monetary policy transmission and increases the influence of the exchange rate on inflation. In addition, financial dollarization has an adverse effect on financial stability due to high credit and liquidity risks.

The level of financial dollarization in Uzbekistan, as well as in most CIS countries is high, however, it is decreasing under the influence of the monetary and fiscal policy conducted in recent years (Figure 1). In particular, in 2018-2021, external credit lines were actively attracted by commercial banks due to the extensive reliance on external sources for financial support of structural changes, reforms and projects implemented in the transition period of the economy, as well as low global interest rates.

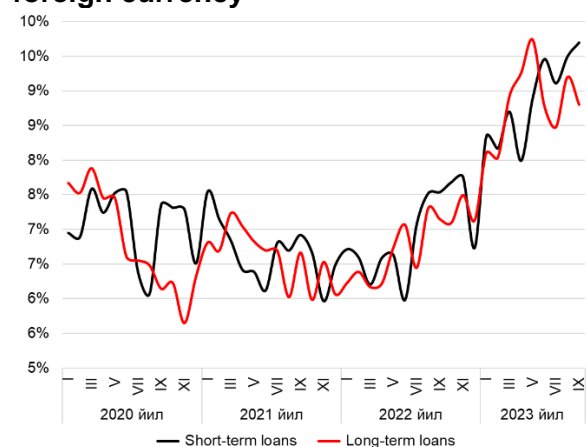
However, in response to high global inflation, starting from the second half of 2022, the external resources have been increasing in price as a result of interest rate hikes by leading countries (Figure 2), and banks' opportunities to attract external credit lines have been decreasing.

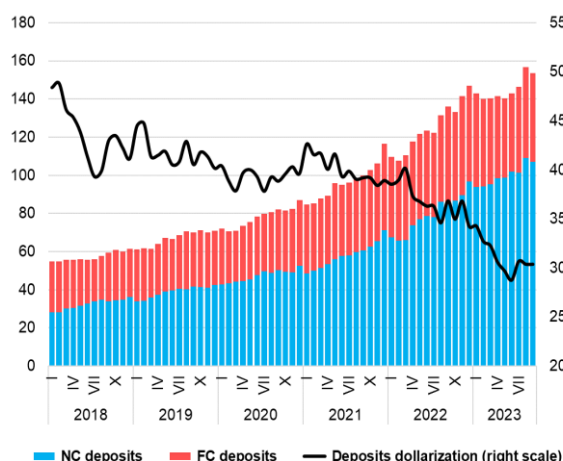
**Figure 1. Dynamics of loan dollarization**



Source: Central Bank calculations.

**Figure 2. Interest rates on loans in foreign currency**



**Figure 3. Dynamics of deposit dollarization**

Source: Central Bank calculations.

As a result, loan dollarization declined from 47.7 percent in December 2021 to 43.6 percent by September this year. Moreover, loan dollarization is expected to further decrease in the coming years as the external financial resources remain expensive and restrictions on open foreign exchange positions reduce the banks' capacity to lend in foreign currency on affordable rates using domestic resources.

The asymmetry between the exchange rate depreciation and expectations in the economy caused the high dollarization of deposits (*on average 40-42% in 2018-2021*) over many years (*Figure 3*).

In recent years, high positive real interest rates on term deposits in the national currency resulted from the relatively tight monetary conditions, as well as the positive gap between the rates on term deposits in UZS and depreciation of the exchange rate (*Fig. 4*) had a favorable effect on the propensity to save in UZS.

As a result, the dollarization of deposits decreased from 38.9 percent at the end of 2021 to 30.4 percent as of October 1, 2023, including a decline in the dollarization of household deposits to 22.3 percent.

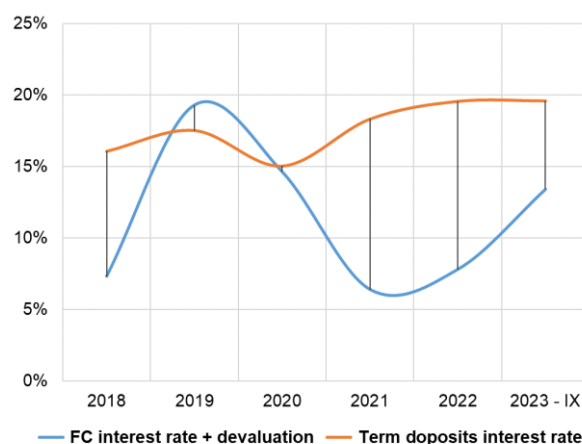
In the future, continued positive real interest rates, expected stability of the exchange rate and strong demand for domestic resources in the banking system will contribute to the high growth of deposits in the national currency and further decrease in the dollarization of deposits.

Another major factor limiting the effectiveness of monetary policy is the practice of preferential lending.

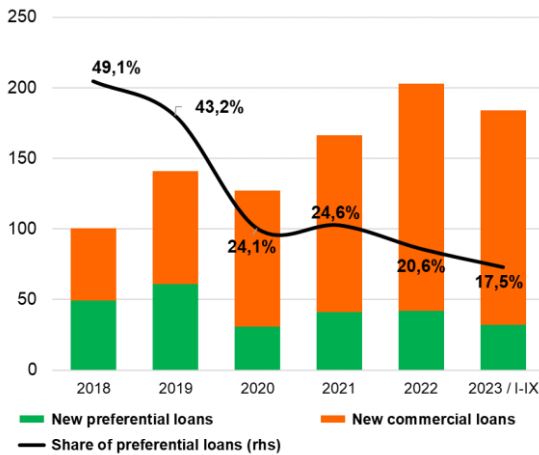
Preferential lending is lending in the national currency at or below the Central Bank's policy rate and in foreign currency at the expense of funds attracted under government guarantees.

Currently, work is underway to gradually transfer the practice of preferential lending within the framework of various state programs, aimed at improving the living standards of the population, supporting small business and financing investment projects, to market principles.

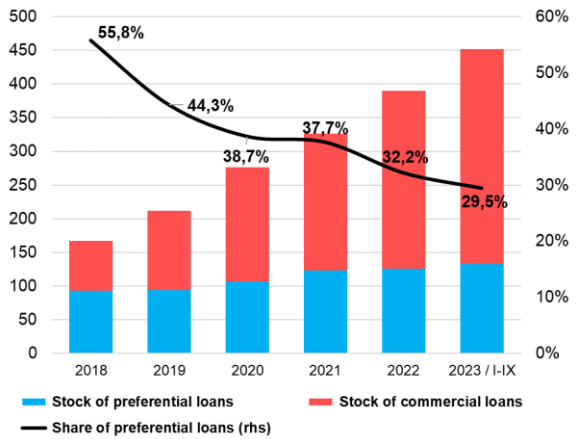
Despite decreasing year-on-year, the share of preferential loans under these policies still remains relatively high. In particular, the share of preferential loans in total loans fell from 49.1 percent in 2018 to 17.5 percent for the first 9 months of this year, and the share of preferential loans in total loan balances declined from 55.8 percent at the end of 2018 to 29.5 percent as of October 1 of this year.

**Figure 4. Comparative interest rates on term deposits in national and foreign currencies**

**Figure 5. Share of preferential loans in newly issued loans**



**Figure 6. Share of preferential loans in the loan balance**



Source: Central Bank calculations.

In general, further measures aimed at reducing inflation, maintaining positive real interest rates in the national currency, implementation of systemic measures for the development of capital markets and alternative saving instruments to improve the effectiveness of monetary policy transmission will still be relevant in the coming years.

## 3.2. Guidelines for development of the Central Bank's analytical and forecasting capacity

**In macroeconomic policy decisions,** central banks use a wide range of data and rely on in-depth and relevant empirical analysis. They apply modeling and forecasting tools to analyze the fundamental factors of economic developments and continuously improve them.

This is primarily due to different changes and shocks in the economy, which require the central bank to properly model these factors when preparing forecasts and to be ready to constantly assess economic parameters.

Nowadays, in analyzing and forecasting economic indicators, the use of artificial intelligence (AI) and machine learning (ML) models based on Big Data (big data) is increasing. This impels the Central Bank to consider opportunities for further development in this area of modeling and forecasting.

Therefore, the Central Bank is constantly working on developing a plan to improve its analytical and forecasting capacity for the coming years, taking into account **the new environment**.

**The main objective** is to take comprehensively justified decisions in the area of the Central Bank's monetary policy and to increase the impact of these decisions on other areas and indicators of the economy.

In order to monitor, analyze and forecast internal and external macroeconomic indicators, it is essential to continuously upgrade the skills of the staff, regularly monitor key economic indicators, design scenarios for the development of

the national economy and use appropriate models to accurately reflect the main macroeconomic relationships.

Currently, a number of models are employed in the macroeconomic analysis and forecasting. In particular, the following models are applied: **integrated auto regression model with moving average (ARIMA)**, **Bayesian vector autoregression (BVAR)** model for short-term inflation forecasting, **quarterly forecasting model (QPM)** for medium-term forecasting, **macromodel** for forecasting macroeconomic indicators based on the results of QPM models and based on financial programming relationships. To forecast real GDP growth for short-term period, **multifactor regression models** (DFM, VAR and ARDL) are employed.

In 2023, the development of a **dynamic stochastic general equilibrium (DSGE)** model has been actively pursued **to evaluate macroeconomic decisions and to study the implications of structural changes and reforms on economic development**. Next year, this model will be further developed and put into practice.

Moreover, in cooperation with foreign central banks, the range of inflation estimation models (**e-CPI**) and short-term inflation forecasting based on data from the online system is planned to be expanded.

Furthermore, in order to enhance the analytical and forecasting capacity and expand the **range of econometric models** for macroeconomic forecasting in the coming years, in cooperation with

international consulting companies it is planned to:

widely employ methods of **variance** and **mean deviation** in inflation analysis;

develop **e-CPI** forecasts based on the results of **machine learning** and **online monitoring**;

***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.*

implement inflation forecasting based on **RLS** (restricted least squares) method and **VECM** (vector error correction model) model;

***RLS (restricted least squares)** is a method for estimating the parameters of regression equations, allowing previously known information or constraints to be introduced into the estimation process. This method increases the accuracy and reliability of the estimates. Using the RLS method, one can ensure that the constraints are met while minimizing the sum of squares of the errors.*

***VECM (vector error correction model)** is a particular class of vector autoregression model where in addition to the estimation of model parameters, an error correction variable is introduced. The advantage of this method over traditional methods is that it allows relaxing the requirement of stationarity of the analyzed time series, which is one of the necessary conditions for estimation in other models, that is, it allows estimating the degree of dependence of variables cointegrated in practice.*

design GDP forecasts on the basis of **MIDAS** (mixed-data sampling) and **FAMIDAS** (factor augmented mixed-data sampling) models.

***MIDAS (mixed-data sampling) and FAMIDAS (factor augmented mixed-data sampling) regressions** are direct forecasting methods that allow to relate future low-frequency data to current and lagged high-frequency indicators and develop different forecasting models for each forecast horizon. They can flexibly deal with sample data of different frequencies and directly forecast the low-frequency variable. In particular, they include each individual high-frequency indicator in the regression, thus allowing to avoid the loss of potentially useful information and problems of misspecification.*

### 3.3. Measures to improve the monetary policy communication

Given that **the communication policy has a high significance** in conducting the monetary policy of the Central Bank in the inflation targeting regime, a special emphasis in the coming years will be placed **on improving the transparency and effectiveness of monetary communications**.

In this regard, **the primary objective** is to effectively influence **inflationary and macroeconomic expectations** of economic entities, including market participants, through communicating

monetary policy decisions, analysis and forecasts to the general public.

The effectiveness of monetary policy communication serves to shape **rational inflation expectations** in the economy. **Rational expectations** imply that economic agents make decisions based **on the most appropriate information available** and draw conclusions based on expected trends.

In order to improve communication in the monetary policy, technical assistance

programs from international financial organizations and foreign central banks are attracted. In particular, within the framework of technical assistance currently provided by the European Bank for Reconstruction and Development the following is planned:

implementation of **best foreign practices** in the monetary policy communication;

**providing preliminary signals** regarding prospective decisions in the future (*“forward guidance”*);

**expert assessment** of communication tools and channels, improvement of methods **for evaluating the effectiveness of communication**.

Generally, monetary policy communications are upgraded and improved **in the following directions:**

### ***1. Improving public literacy and awareness on monetary policy issues***

Inflationary and macroeconomic expectations largely depend on the level of **awareness of the monetary policy**. To increase the level of public awareness, infographics, analytical reports, researches, videos and other materials related to the monetary policy are **regularly** published on the official pages of the Central Bank.

Given modern standards, the Central Bank plans **to increase the number of video content**, to participate in press clubs and discussions on economic topics, as well as to organize seminars on the ongoing activities in the field of monetary policy **in higher educational and training institutions**.

Providing **timely** information to economic entities regarding changes and

decisions in the monetary policy area (*“keeping up to date”*) is considered to be a **strategic principle**.

### ***2. Improving communication tools aligned with the interests and needs of target audiences***

The audience of the Central Bank's monetary policy communications **includes different categories**, and considering their qualifications and information needs, the objective is **to classify them into target groups** and apply appropriate communication tools.

In particular, **financial market participants** and **representatives of educational institutions** have different expertise, and the Central Bank intends to meet the needs of the former group **by increasing the transparency of statistical indicators** and publishing **large-scale analyses**, and the needs of the latter group **through infographics and visual summaries**.

In this regard, the monetary policy **communication tools**, including press releases on policy rate review, reports and monetary policy guidelines, analysis on inflation expectations and other in-depth macroeconomic research will be upgraded **based on the level of understanding of the target audience**, while **avoiding asymmetry of information**.

In particular, **the most important and urgent information**, including the Central Bank's decisions on the policy rate and press releases will be announced **simultaneously through all communication channels in 3 languages** (*Uzbek, Russian and English*).

In developing **communication channels**, there will be constant interaction with information intermediaries, including

**representatives of mass media**, and also wider coverage of topics related to the monetary policy for the general public, improving the navigation of the Central Bank's official website and transforming it into the primary source of information is envisaged.

### **3. Improving the quality of published reports and expanding the scope of analysis**

With a view to improving **the quality of published materials** related to monetary policy, emphasis is placed on enhancing **analytical and forecasting capacity** through continuous participation of subject matter experts **in seminars and training courses** organized by international financial institutions and foreign central banks.

In particular, implementation of **the General Equilibrium Model (DSGE) for Uzbekistan** will serve to **expand the scope of research, substantiate** expert opinions with the model, and **enhance** the analytical materials presented to the public.

Meanwhile, under the technical assistance mission of the EBRD, **each** monetary policy **publication** is revised and improved **from an analytical and critical**

**point of view** with the participation of experienced experts.

### **4. Development of communication discipline and release schedule**

An issue of **raising awareness** on monetary policy and accountability of the Central Bank in this direction requires **communication discipline and publication of all materials on a predetermined schedule.**

Thus, the timely delivery of expected information to market participants will facilitate **rational decision making** and thereby **improve the transmission of monetary policy.**

Currently, there is a **“release calendar”** for **statistics** announcements, and this mechanism is planned to be introduced for all **monetary policy materials** (*summaries, analytical data and infographics*). The **“Monetary Policy”** section on the Central Bank's official website has been redesigned and updated in all 3 languages.

In general, **in the medium term**, the Central Bank will continue activities on strengthening the monetary policy communication, increasing its transparency and thereby **curbing inflation expectations.**



## APPENDICES

### *Appendix 1*

#### **Schedule of the Board meetings of the Central Bank of the Republic of Uzbekistan to revise the policy rate in 2024**

In 2023, meetings of the Board of the Central Bank to revise the policy rate will be held according to the following schedule:

January 25;

March 14;

April 25;

June 13;

July 25;

September 12;

October 24;

December 12.

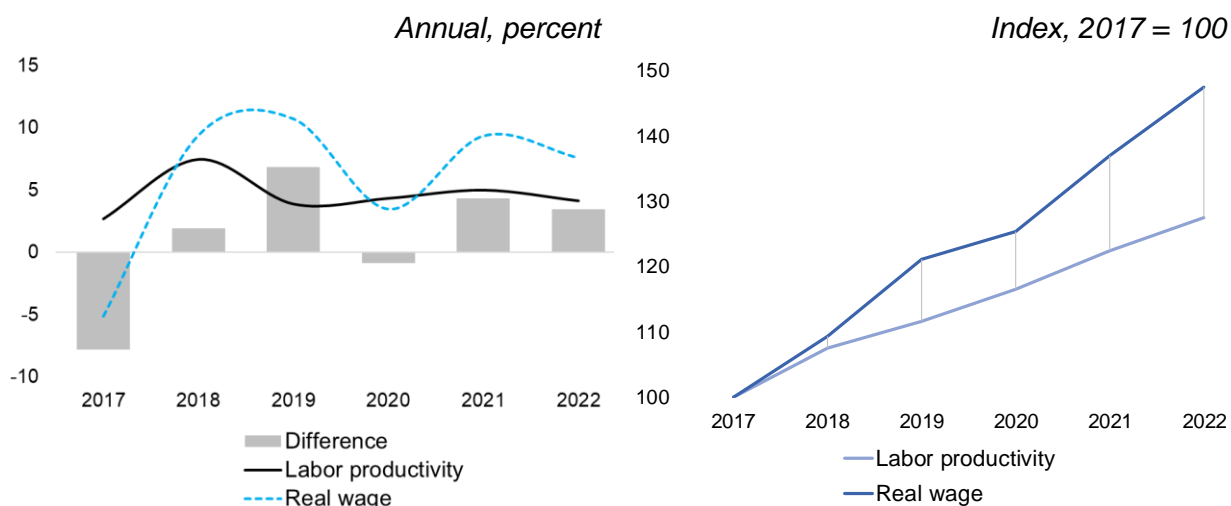
Following all the Board meetings, a press release of the Central Bank is to be published on the official website of the Central Bank.

Also, there will be a press conference with the Central Bank management on the results of the main meetings on January 25, April 25, July 25 and October 24, and the “Monetary Policy Review” will be announced.

## Labor Market Trends: Impact of Wage and Productivity Growth on Inflation

Changes in labor market conditions are considered one of the important factors that can affect the price level in the economy. According to economic theory, an increase in wages can lead to an increase in income and aggregate consumption of the population and, as a result, to an increase in consumer prices due to a delay in providing adequate supply.

**Figure 1. Labor productivity and real wage dynamics**



Source: Central Bank calculations based on data from the Statistics Agency.

In practice, the relationship between wages and prices is not always observed. One reason for this is that labor productivity<sup>2</sup> grows at the same or faster rates than labor costs.

According to the research, if an increase in the real cost of wages occurs due to an “adequate” increase in labor productivity, then this change has almost no effect on prices, that is, in exchange for an increase in the final wage of the product produced by enterprises, their higher monthly costs do not increase the cost of one product.<sup>3</sup>

On the other hand, if wage growth exceeds productivity growth, supply and demand inflation may occur due to rising costs and increased consumer demand.

Labor productivity, real wages and unit labor costs for 2017-2022 are analyzed. The results show that labor productivity is growing by an average of 4-4.5 percent per year, and real incomes are growing by 6-7 percent.

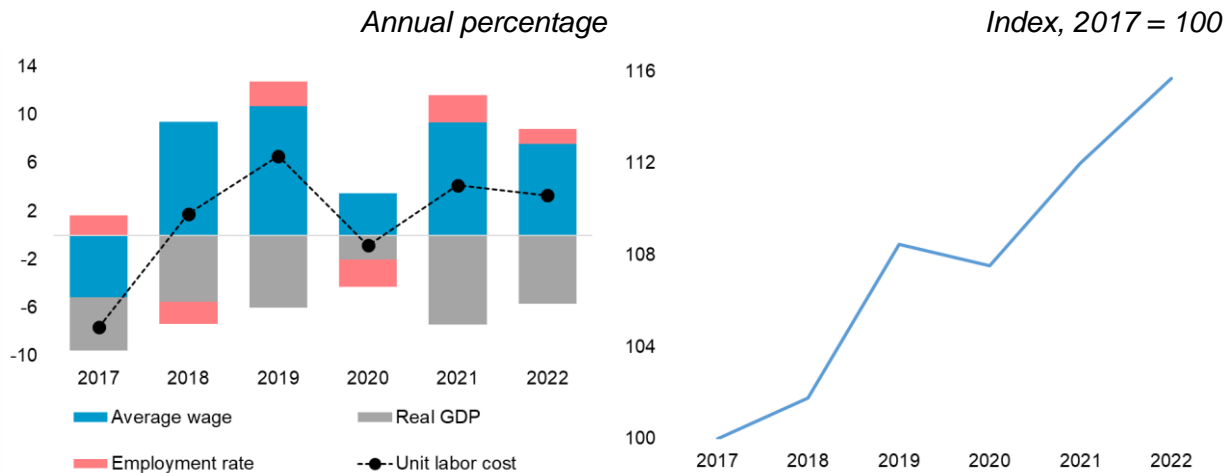
Real income growth exceeds labor productivity, and the gap between the two is widening. This difference was more pronounced in 2018–2019 and 2021–2022 (Figure 1).

From the beginning of 2017 to the end of 2022, real incomes are estimated to have increased by a total of 47 percent, while labor productivity has increased by 27 percent, with the difference reaching 20 percent.

<sup>2</sup> Labor productivity is an indicator of how efficiently labor resources are used in production. It measures how many units of output are produced per worker or per hour worked.

<sup>3</sup> Hess, Gregory D. and Schweitzer, Mark, Does Wage Inflation Cause Price Inflation? (April 2000). FRB of Cleveland Policy Discussion Paper No.1.

**Figure 2. Dynamics of unit labor cost**



Source: CBU calculations based on Statistics Agency data.

The increase in the difference was reflected in the growth of unit labor costs. An analysis by component shows that average wages have increased significantly, mainly due to an increase in monthly wages (Figure 2).

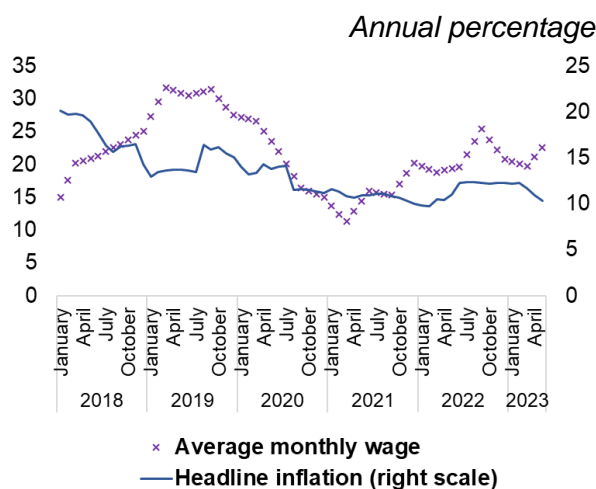
**Quantitative effect of an increase in average monthly wages on headline inflation**

An analysis of the relationship between average monthly wages and general inflation shows that there is a positive relationship between these two indicators (Figures 3-4).

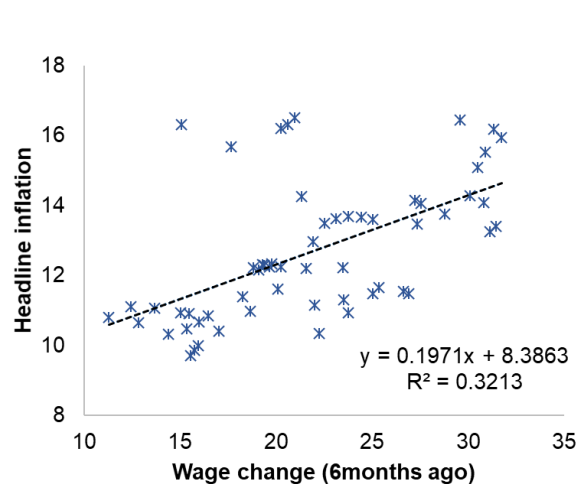
The analysis is based on a study conducted by Mohanty and Marc Klau (2001)<sup>4</sup> to quantify the impact of supply and demand factors on inflation in developing countries.

In this study, to take into account the influence of demand factors, indicators of the gap in GDP and money supply as well as changes in average wages were used.

**Figure 3. Dynamics of headline inflation and average wage**

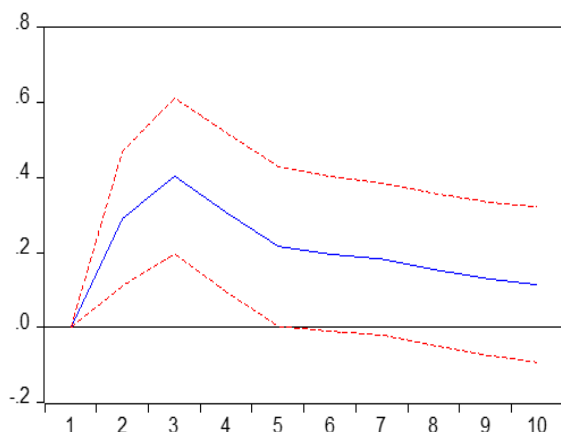
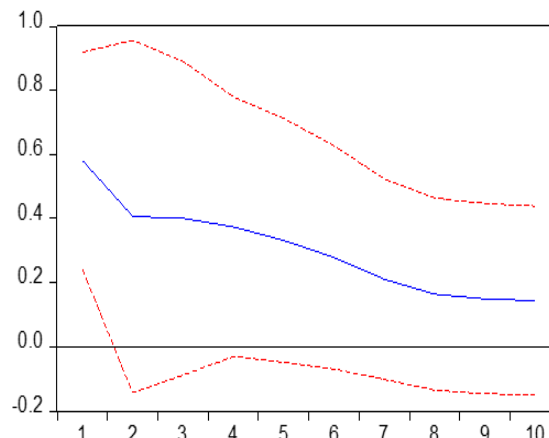


**Figure 4. Correlation of headline inflation and average wage movements**



Source: Central Bank calculations based on data from the Statistics Agency.

<sup>4</sup> Mohanty and Marc Klau, *Modelling aspects of the inflation process and the monetary transmission mechanism in emerging market countries: What determines inflation in emerging market economies?* 8th ed. (Bank for International Settlements, 2001), 1-38.

**Figure 5. Headline inflation response to wage increases****Figure 6. Production prices response to wage increases**

Source: CBU calculations.

Changes in the exchange rate, world food price index and producer price index were included in the model equations to estimate the impact of import inflation and supply-side costs.

The results show that a 1 percent increase in average wages could accelerate headline inflation by 0.21 to 0.28 percentage points over the next three months and by 0.29 percentage points over the course of a year.

In addition, rising average wages create upward pressure on production costs along with demand factors for general inflation (Figure 6).

Today, in conditions of insufficient supply factors, household incomes are growing at a high rate, which allows us to draw conclusions about the long-term persistence of inflationary pressure in the economy.

In this case, the improvement of supply factors will largely depend on the increase in production and labor productivity, the effectiveness of the implemented structural reforms to develop a competitive environment in consumer markets.

## Risks associated with the retail lending market and increasing debt burden

In recent years, due to the liberalization processes in the economy and the increase in the popularity of financial services, high growth rates were observed in loans. In this case, the volume of new loans to the population increased by an average of 48.2 percent per year in 2019-2023, making a high contribution to the growth of loans to economy (*Figure 1*).

Even if the annual growth rates of retail loans allocated to the population have been balanced since the second half of 2020, an acceleration in the annual growth rate of retail loans has been observed since the second half of 2022 due to the sharp increase in the activity of commercial banks in providing car loans and microloans.

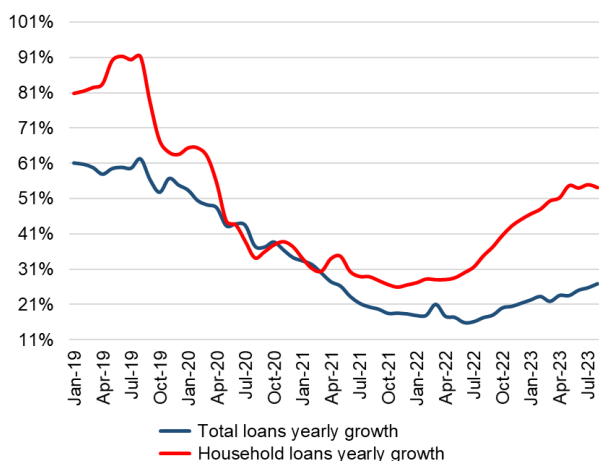
Growing demand and improved living standards are driving consumer demand for mortgages and consumer loans. In particular, the share of car loans (*average share - 29 percent*), mortgage loans (*23 percent*), microloans and microcredits (*38 percent*) in allocated new loans in 2020-2023 was high (*Figure 2*).

Despite the fact that a high level of lending has a positive effect on the financial wellness of the population, the volume of gross consumption and, ultimately, economic growth indicators, it can create certain risks in the system and increase the risks affecting financial stability. Therefore, in the long-term perspective, it is important to optimize lending trends in ensuring the financial stability of banks.

In assessing these risks, the ratio of loans to deposits and debt service ratio of the population have a significant importance. The loan-to-deposit ratio reflects the liquidity risk for the banking system, the degree of dependence on foreign deposits and lines, and the debt service ratio represents the credit risk.

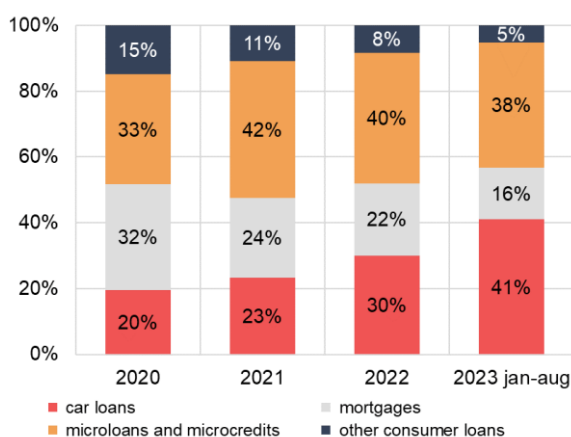
The ratio of household loans to deposits is high (*on average - 167 percent in 2019-2023*) and has increased in recent years, and the high demand for loans has been covered mainly by external and centralized resources (*Figure 3*). However, since the second half of 2022, due to the increase in the cost of external financing, this ratio is expected to improve to some extent in the coming quarters due to the fact that commercial banks are focusing more on internal resources.

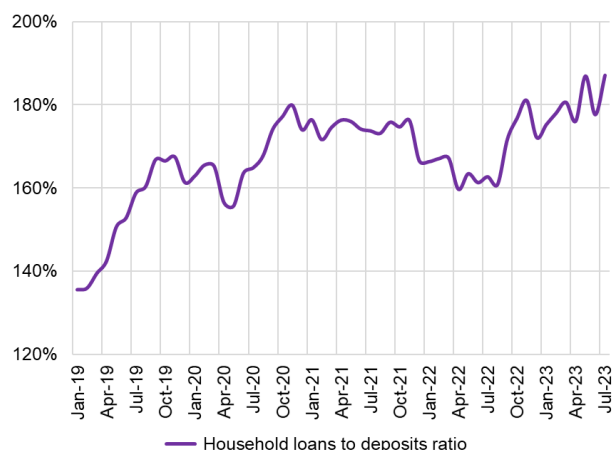
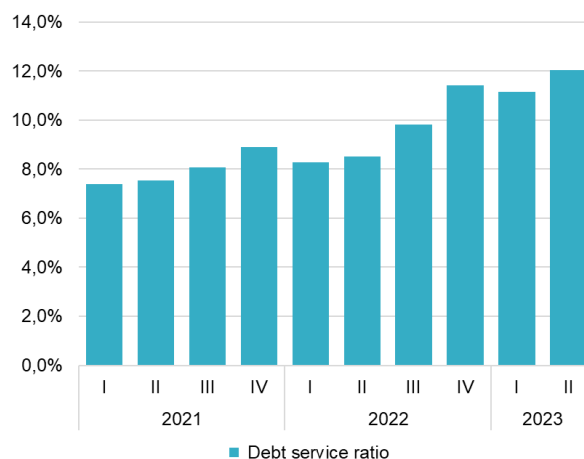
**Figure 1. Dynamics of household loans (annual percentage)**



Source: CBU calculations.

**Figure 2. Decomposition of newly issued household loans (share in percent)**



**Figure 3. Household loans to deposits ratio****Figure 4. Households' quarterly debt service ratio**

Source: Central Bank calculations.

The debt service ratio expresses the ratio of monthly loan payments of the population to the income of the population. This indicator is widely used to assess the financial capabilities of borrowers and determine their ability to repay loans.

In other words, the debt service ratio is a calculation of how much of the population's income is spent on debt obligations. If this indicator is high, it increases the likelihood of future risks to the stability of the financial system.

The debt service ratio<sup>5</sup> has increased significantly in recent quarters, which, as noted above, is explained by the growth rates in retail loans. This indicator increased from 7.4 percent in the first quarter of 2021 to 12 percent in the second quarter of 2023 (Figure 4).

Also, when assessing the volume of lending in the economy, the indicator of the ratio of household loans to GDP is widely used, and through this indicator, it is possible to compare the state of financial popularity in the cross-section of countries.

percent by the end of 2022. In comparison, this indicator is slightly higher than in Azerbaijan and significantly lower than the indicators in Georgia, Armenia, Russia and Kazakhstan (Figure 5).

The household debt index of the Organization for Economic Co-operation and Development (OECD) is considered an important indicator for analyzing the financial stability and well-being of households in the country, reflecting the ratio of all debt obligations of the population to net household disposable income.

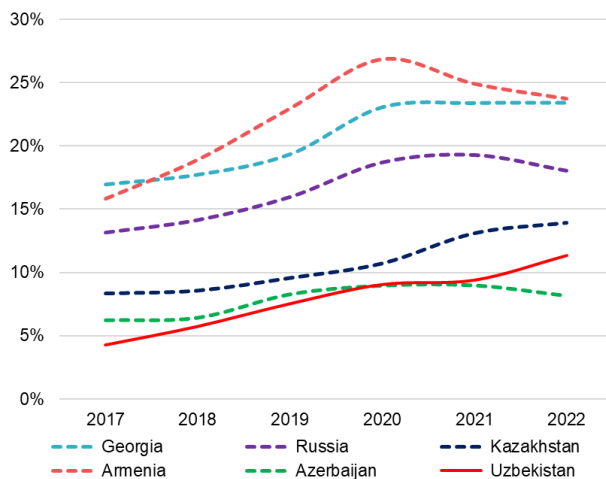
A high level of this indicator indicates the probability that the population will face financial difficulties or become insolvent. The public debt indicator for Uzbekistan is 17 percent, which is much lower than the indicators of most developing countries calculated by OECD. By comparison, this figure is higher than 70 percent in the Czech Republic and Estonia, 45 percent in Hungary and Lithuania, and 37 percent in Russia and Latvia (Figure 6).

The dynamics of the population's income is considered important in forecasting the debt burden for the coming periods, and in recent years, a high growth of the population's income in real terms (annual average of 5-6 percent) has been observed in our country (Figure 7).

The preservation of high economic growth indicators means that in the medium-term perspective, high growth rates of population incomes will be observed.

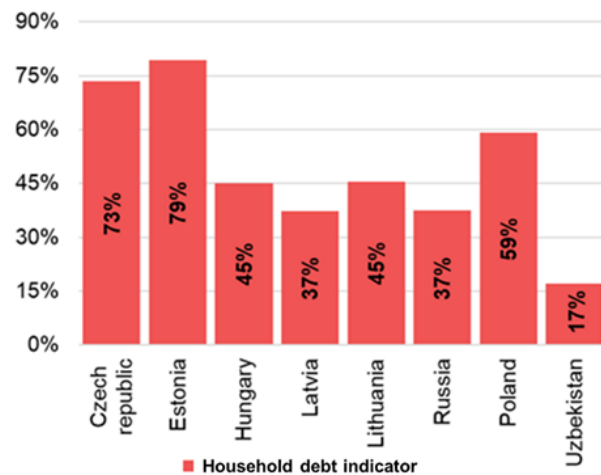
<sup>5</sup> Quarterly indicator calculated on the basis of the ratio of the amount of expenses on the principal debt of loans and interest payments to the total income of the population.

**Figure 5. Household loans to GDP ratio**



Source: CBU calculations.

**Figure 6. Household debt indicator**



Source: OECD (2023), Household debt (indicator).

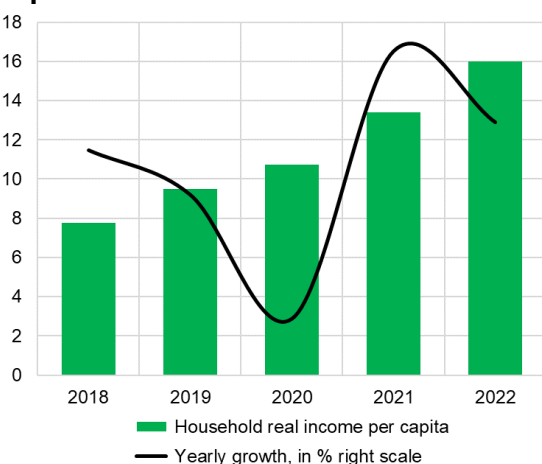
Also, the ratio of household income to loans reflects the population's "buffer" for obtaining new loans. This indicator is equal to 157 percent in the II quarter of 2023, which means that the population's high demand for loans will remain in the coming years (Figure 8).

While household loans have a positive effect on aggregate consumption demand and economic growth indicators, they can also cause pressures on the inflation rate and risks to the stability of the financial system in the context of high growth of the debt burden.

In the previous years, the practice of providing loans to the population was limited to a certain extent, so the share of retail loans in the total credit deposits or the ratio to GDP in our country is low, and the high growth rates of the last 4-5 years represent the emergence of accumulated "delayed demand".

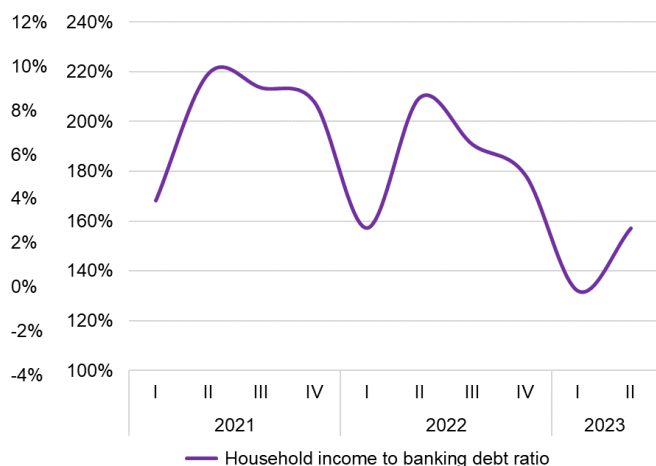
Due to the fact that the above-mentioned indicators of household loans have not reached a certain level of balance, it is expected that the high demand for loans will remain in the medium-term perspective. At the same time, due to the "thirst" for retail loans, the sensitivity of the population to changes in interest rates is relatively low, and the importance of active use of macroprudential policy measures in balancing the growth of household loans is increasing.

**Figure 7. Household real income per capita**



Source: Statistics agency data and Central bank calculation.

**Figure 8. Household income to debt ratio**



## Application of a dynamic stochastic general equilibrium (DSGE) model in estimating the impact of monetary policy on the economy

Dynamic stochastic general equilibrium (DSGE) models provide a theoretical framework for studying the interactions between economic agents, markets, the central bank and the government, and also serve to analyze the consequences of changes in monetary policy, assess possible risks and the effectiveness of the transmission mechanism.

The DSGE model created for the economy of Uzbekistan is based on the hypothesis of a small open economy (demand and supply in the local economy do not depend on world prices and international interest rates) and represents a new Keynesian macroeconomic model.

The model includes the concept of fixed prices and nominal wages, which allows us to take into account the impact of economic expenditures (consumption, investment or government spending), the impact of changes in demand on changes in production volume.

The model includes the structure and main components of GDP, ensuring the compatibility of all three approaches to its calculation: production, expenditure and income.

The model includes agents such as households, firms, government, central bank and the outside world.

**Households** (consumers) provide labor for the production process and purchase consumer goods. They make today's decisions based on their future utility, with the more distant future weighing less. They also like to consume and do not like to work.

Consumption and saving decisions are made by a fixed number of "infinitely living" households. An important assumption is that households maximize their lifetime utility expectations, meaning that they consider the impact of current consumption on future consumption in their decisions.

Households are divided into the following groups:

- Saving households – provide labor, equity capital and make consumption and investment decisions taking into account the future profitability;
- Non-saving households – they also provide labor, but since they consume all their income, they cannot save and, as a result, cannot invest.

The budget constraint of households is the correspondence of their expenses to their income. Households organize their behavior rationally (the assumption of rational expectations), focusing on achieving maximum utility, taking into account the budget constraint.

**Firms** hire labor and rent capital from households to produce and supply goods and services, which can then be used for personal consumption and investment. The main goal of firms is to maximize profits from production, taking into account the present value of all future earnings.

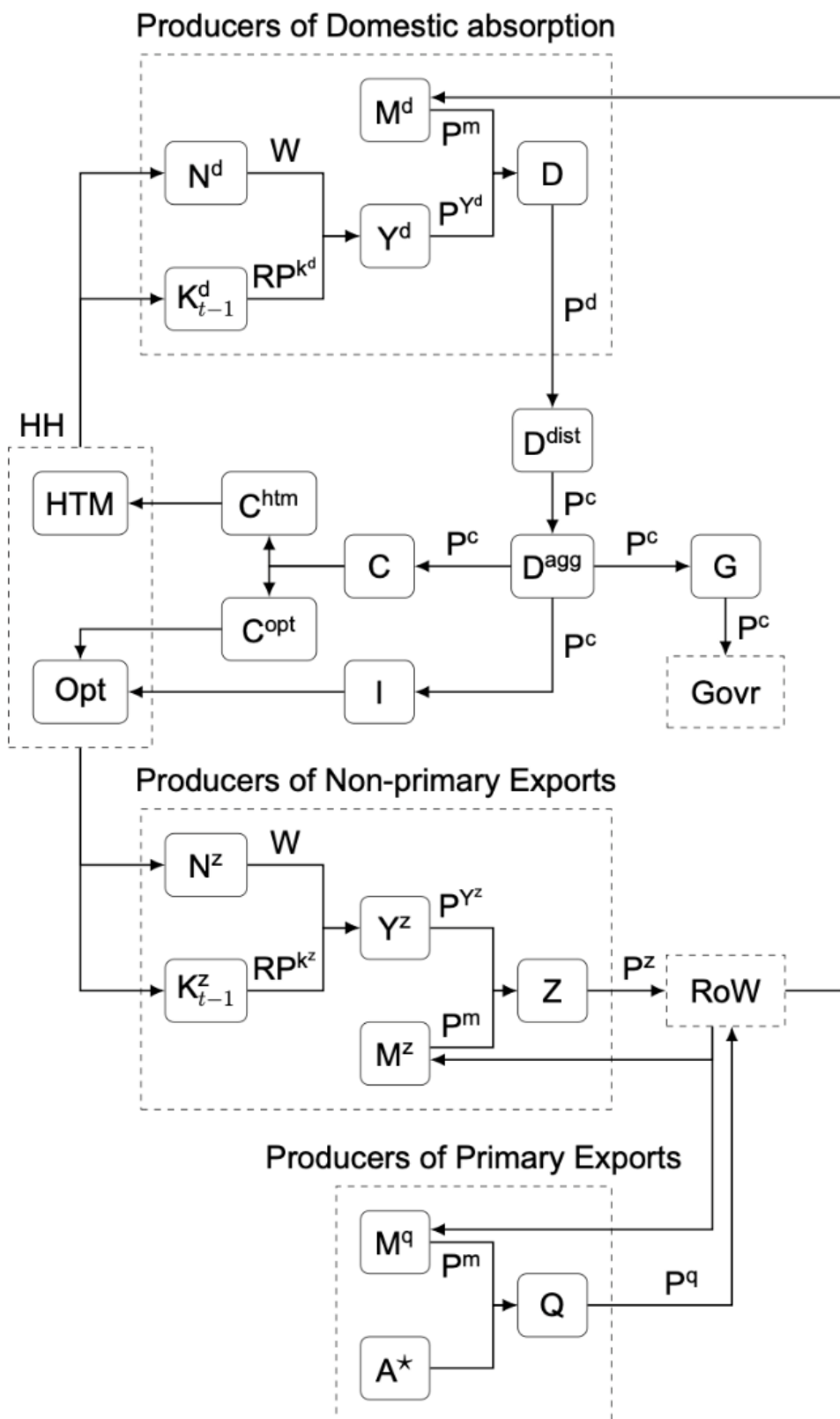
In the model, firms are divided into three types: producers of local consumer goods, producers of non-commodity goods for export, and producers of resources.

The connection between production (the real economy) and inflation is ensured by adding an agent to the model with the power to set prices. In this regard, the production process of local consumer goods is divided into three stages:

- 1) production of intermediate products from capital, labor and imported components;
- 2) distribution of intermediate goods for the production of final products by distributors who have the right to set prices;
- 3) transformation of the intermediate product into the final product by the aggregator.



Figure 1. Structure of the DSGE model (flow of goods)



where:  $N$  — labor (working hours),  $K_{m-1}$  — opening equity balance,  $M$  — imported goods,  $Y$  — intermediate goods,  $D$  — final product for domestic consumption,  $C$  — household consumption,  $I$  - investment,  $G$  — public consumption,  $Z$  - final product of non-commodity exports,  $A^q$  - natural resources,  $Q$  — exported commodity,  $P^c, P^d, P^m, P^{Y^d}, P^{Y^z}, P^z, P^q$  -- price level in the respective industries,  $W$  — wage,  $RP^k$  — rental price of capital. Agents:  $OPT$  (optimizers),  $HTM$  - hand-to-mouth households,  $D^{dis}$  — distributors,  $D^{agg}$  — aggregators,  $RoW$  - rest of the world.

Firms that produce non-commodity goods for export operate in the same way as producers of intermediate goods, but unlike them, all their output is exported.

Manufacturers of export goods produce products using natural resources and imported equipment and export them abroad at world prices.

In the model, **the central bank's** monetary policy aims to keep inflation within a target range based on the Phillips curve and the inflation forecast.

**The government** operates on the basis of approved budget revenues and expenditures. Budget revenues are generated from taxes paid by the population and companies. These funds are used to provide public services and develop infrastructure, and are also allocated in the form of subsidies (transfers) to households and companies.

When a budget deficit arises, resulting in an increase in government debt, the government covers it by issuing securities and offering them to households and the outside world at fixed interest rates.

Households purchase government securities from the government at the risk-free interest rate, determined based on central bank monetary policy and aimed at stabilizing inflation, and their intertemporal investment decisions determine the household risk premium.

A limitation of the general equilibrium model with respect to fiscal policy is the fiscal rule, which determines the behavior of fiscal policy. The rule states that a long-run target is set for the government debt-to-GDP ratio, and when the debt-to-GDP ratio deviates from the target value, the model tries to return it to the target value by tightening or easing fiscal policy.

Stabilization of the debt-to-GDP ratio is achieved by adjusting the combination of budget revenues and expenditures.

The model shows a Ricardian equilibrium, according to which different forms of financing government spending are equivalent in terms of impact on the real economy. The assumption that households are rational and consider the entire future plays a key role in the manifestation of Ricardian equilibrium.

The public sector does not directly influence the optimization decisions of the private sector, but influences the economy only through government demand. At the same time, the source of financing public consumption in the long term (through taxes or public debt) is not considered important (Ricardian equivalence).

**The outside world** buys government securities and provides foreign assets for household savings. In addition, households receive a flow of remittances from the outside world.

In the model, the price of imports in national currency is defined as the product of the world price of imports in foreign currency and the exchange rate. The difference between import and export prices represents the terms of international trade (terms of trade). For example, when the terms of trade improve, a country receives more from exports than it pays for imports.

In the model, the exchange rate is treated as freely floating, and external demand is expressed indirectly through the terms of trade. According to the small open economy hypothesis, world prices in foreign currency and international interest rates are considered exogenous, that is, import prices in foreign currency do not depend on Uzbekistan's demand for these goods. In such a situation, long-term fixed relative prices are used to ensure the stability of the model. An increase in import volume affects import prices in local currency, but import prices in foreign currency do not change. Excess imports create external imbalances that worsen the trade balance and affect a country's net international investment position. As a result, local currency prices rise and the exchange rate declines.

Uncovered interest rate parity, which includes a risk premium, is used to establish the relationship between a country's net international investment position and the nominal exchange

rate. Uncovered interest parity means that the international interest rate multiplied by the expected depreciation of the domestic currency and the risk premium equals the local interest rate. The risk premium depends on the country's net international investment position, and a deterioration in the investment position leads to an increase in the risk premium, which in turn leads to a depreciation of the local currency.

The DSGE model has a number of advantages over econometric and semi-structural models. In particular:

- has a microeconomic basis: since the model is based on optimizing the behavior of households, firms and other economic agents, it ensures the mutual compatibility of individual behavior;

- theoretical consistency: the model is based on economic theory and consists of economic equilibrium conditions resulting from rational expectations and optimization of agent behavior, this theoretical sequence provides a well-structured model that allows researchers to study the underlying mechanism of various economic phenomena;

- flexibility: the model can be adapted to find answers to specific questions based on the practical and theoretical needs of researchers and decision-makers in the field of monetary policy;

- monetary policy analysis: the model provides a strong basis for analyzing the consequences of various monetary policy actions due to its strong theoretical structure and micro fundamental principles. They allow researchers to conduct broad theoretical experiments, evaluate the impact of different policy instruments, and study the consequences of established policy rules.

#### ***Analysis of the economy's response to increased government spending***

One of the pressing issues of macroeconomic analysis is assessing the impact of changes in government spending on the economy. To do this, the impact of increasing government spending on the economy was studied using the DSGE model developed for Uzbekistan.

In this case, the increase in government consumption as a percentage of GDP by 1 percentage point was taken as the variable producing the effect (hereinafter referred to as shock), and the process of the model's transition to a new state of macroeconomic equilibrium was analyzed (Figure 2).

In the model, it is necessary to determine financial sources to cover the excess of government expenditures over revenues (deficit). Deficit financing can be accomplished by borrowing from external or domestic (household) sources, or by raising taxes on households and/or businesses.

According to the results of the shock simulation, at the first stage the ratio of the budget deficit to GDP will increase by 1 percentage point. Since there were no other changes, this figure is entirely due to the growth of government consumption. The stock of government debt also increases along with the deficit.

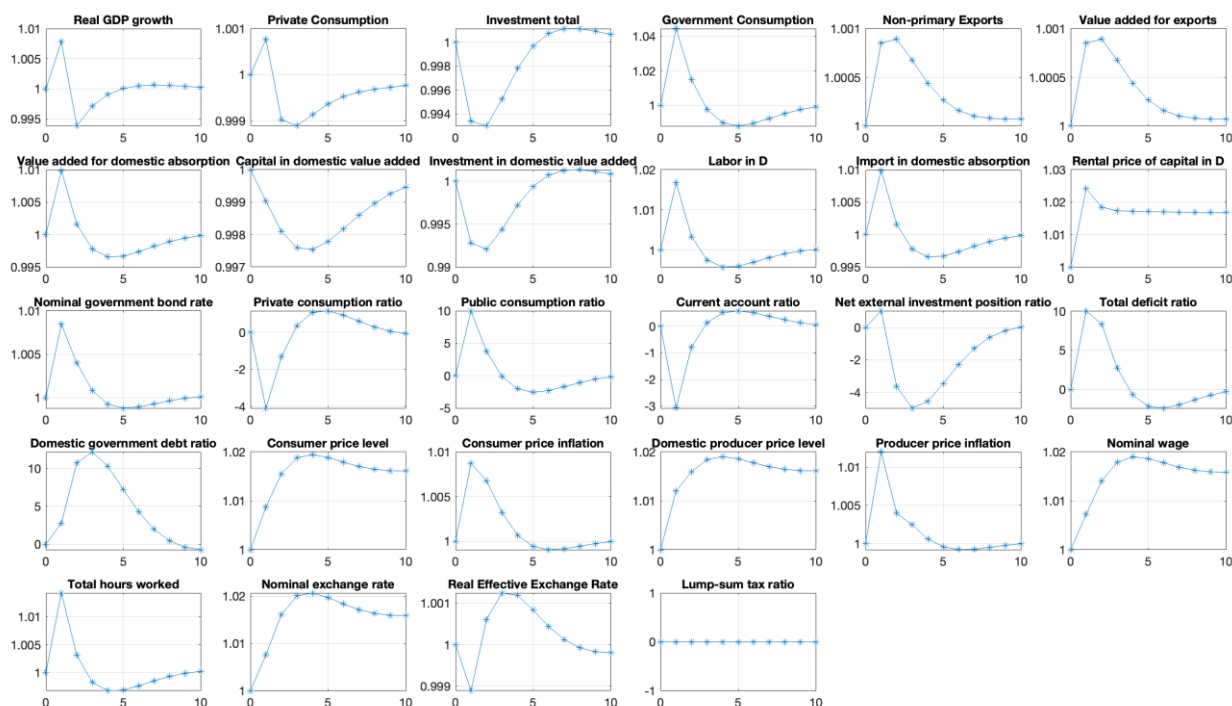
However, the ratio of public debt to GDP increases disproportionately to the budget deficit (1 percentage point). This difference is due to the fiscal multiplier of government spending<sup>6</sup>.

Due to increased demand from the government, distributors are increasing their margins. This, in turn, leads to higher prices. This also allows distributors to offer better prices for the supply of goods from manufacturers. In this case, the marginal cost of production will increase. However, due to the "slow adjustment" of producer prices, their adaptation to the current situation is slower.

It should be noted that an increase in government spending leads to an increase in aggregate demand in the economy, which creates the following two processes: firstly, monopolistic distributors begin to demand higher markups, and secondly, they begin to offer higher purchasing prices to manufacturers, stimulating production.

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<sup>6</sup> The fiscal multiplier is the ratio of the change in output to the exogenous change in the budget deficit.

**Figure 2. Effect of a shock on government spending**

Source: Model results.

In such a situation, in order to prevent acceleration of inflation, the Central Bank increases the attractiveness of government securities by increasing the interest rate. This leads to an increase in the cost of capital.

High security returns and the cost of capital lead to increased investment costs, limiting the ability of businesses to invest in capital. Instead, enterprises prefer to increase their workforce to expand production.

In the first period, attracting additional labor while maintaining current labor productivity requires an increase in wages in the economy. During this period, the amount of capital remains unchanged.

As wages and employment in the economy rise, so do household incomes. They react to this differently, depending on their attitude towards saving. In this case, consumers who do not save their income increase their consumption spending.

In contrast, saving households believe that increases in government spending and wages are temporary and that increases in government debt could lead to future tax increases or cuts in government spending. As a result, they do not change consumer spending.

Thus, the additional demand created by the government in the economy is not balanced by the creation of new production capacity, but rather it is met by an increase in supply by increasing output by hiring more labor or increasing imports.

Against the backdrop of household expectations for stabilization of public debt in the future, a decrease in demand for capital and a decrease in investment can be observed.

In addition, an increase in inflation leads to an increase in the real exchange rate, provided that the nominal exchange rate remains unchanged. This makes imports more attractive.

Rising wages and the strengthening of the real exchange rate reduce the competitiveness of the non-resource export sector. Although, output in this sector will increase by 0.1 percent due to

the gap between wage growth (0.7 percent) and nominal exchange rate depreciation (0.8 percent).

In the second stage, real wages in the economy fall and require an increase in nominal wages. This results in an equal increase in nominal wages and consumer prices in the long run (resulting in no real wage growth).

Also, the volume of imports for domestic production will increase in proportion to the increase in production levels. Due to the fact that a certain part of the raw materials used in domestic production is covered by imports.

This creates a current account deficit, affecting the exchange rate and causing it to depreciate relative to wages. Initially, this deficit is covered by borrowing to finance increased imports. However, these changes are temporary and the demand for foreign exchange increases during the period of debt repayment and leads to a depreciation of the exchange rate.

In general, increases in government spending initially stimulate domestic production and temporarily increase employment. However, this does not help increase production in the long run.

The multiplier effect of increased spending is also temporary and limited: government spending increases real GDP by about 1 percent in the first year. However, this effect disappears in subsequent years.

In general, the simulation allows us to conclude that an increase in government spending increases the risks of price increases and exchange rate depreciation in the economy in the long term.

## Impact of exchange rate and regulated price movements on inflation expectations

Currently, numerous central banks constantly analyze inflation expectations of economic entities and its main determinants in order to implement an effective monetary policy.

Inflation expectations of households and business entities are considered as one of the main factors which impact on inflation rate. Expected inflations have an influence on consumption and investment decisions of households, as well as price setting decisions of entrepreneurs.

Therefore, anchoring inflation expectations of economic agents is essential for central banks in order to achieve a low and stable inflation rate.

A large number of empirical studies have been investigated to assess the impact of macroeconomic factors on inflation expectations. Particularly, Jonung (1981) analyzed the main determinants of Swedish households' inflation expectations through applying Ordinary Least Squares (OLS) regression model. Empirical findings indicate that 1 percentage point increase in perceived inflation rate leads to a 0.5 percent increase in Swedish households' inflation expectations.

Also, Sommer and Troyong (2009) analyzed the impact of inflation on inflation expectations using the Vector Autoregressive (VAR) model in case of Sweden. According to empirical results, a 1 percentage point increase in inflation rate causes 0.4 percent increase in the Swedish households' inflation expectations.

In case of Uzbekistan, empirical analyses are conducted in order to determine the macroeconomic factors of economic agents' inflation expectations. Particularly, changes in exchange rate, regulated prices, perceived and headline inflation, short-term interest rates, real GDP, and foreign debt are applied as independent variables into regression equations.

The coefficients of variables in empirical analyses were quantitatively evaluated through applying OLS and VAR models based on the data from January 2018 to September 2023.

*Equation of inflation expectations of the households in the OLS model:*

$$hh\_E\pi_t = \gamma_0 + \gamma_1 Per\_inf_t + \gamma_2 Inf_t + \gamma_3 Exch_t + \gamma_4 Reg_t + \gamma_5 Inter\_rate_t + \gamma_6(L)rgdp_t + \gamma_7(L)debt_t + \varepsilon_t$$

*Equation of inflation expectations of enterprises in the OLS model:*

$$bs\_E\pi_t = \gamma_0 + \gamma_1 Per\_inf_t + \gamma_2 Inf_t + \gamma_3 Exch_t + \gamma_4 Reg_t + \gamma_5 Inter\_rate_t + \gamma_6(L)rgdp_t + \gamma_7(L)debt_t + \varepsilon_t$$

Empirical results reveal that changes on exchange rate and regulated price have statistically significant and positive impacts on inflation expectations of households and business entities.

It was also determined that depreciation of exchange rate by 1 percentage point will lead to increase inflation expectations of households by 0.1 percent, and entrepreneurs by 0.15 percent. Additionally, 1 percent increase in regulated prices will cause a 0.13 percent increase in expected inflations of business entities.

Moreover, 1 percentage point growth in perceived inflation leads to an increase in inflation expectations of households and entrepreneurs by 0.54 percent and 0.56 percent in respectively. Empirical analysis shows that 1 percentage point acceleration in current inflation would lead to 0.2 percent increase in households' expectations and 0.4 percent increase in business entities' expectations.

**Table 1. List of model variables**

Factors affecting inflation expectations	Denominations
<i>Inflation expectations of households</i>	$hh\_E\pi_t$
<i>Inflation expectations of business entities</i>	$bs\_E\pi_t$
<i>Perceived inflation level</i>	$Per\_inf_t$
<i>Inflation</i>	$Inf_t$
<i>Exchange rate</i>	$Exch_t$
<i>Regulated price changes</i>	$Reg_t$
<i>Short term interest rates</i>	$Inter\_rate_t$
<i>Real GDP growth</i>	$rgdp_t$
<i>External debt</i>	$debt_t$

**Table 2. Regression results on inflation expectations**

Factors of inflation expectations	households	Businesses
<i>Perceived inflation level</i>	0.537***	0.564***
<i>Inflation</i>	0.185**	0.394***
<i>Exchange rate</i>	0.112***	0.145***
<i>Regulated price changes</i>	0.128***	0.133***
<i>Short term interest rates</i>	-0.165	-0.02
<i>Real GDP growth</i>	2.993***	2.114***
<i>External debt</i>	-2.063*	-1.761
<i>No of observations</i>	60	60
<i>R-square</i>	0.85	0.88

It was also found that inflation expectations have a positive relationship with economic growth, and an inverse relationship with short-term interest rate changes.

#### *Vector autoregression model (VAR) results*

The responsiveness of economic agents' inflation expectations to changes in the exchange rate and regulated prices was estimated through the VAR model.

The equation of the VAR model is:

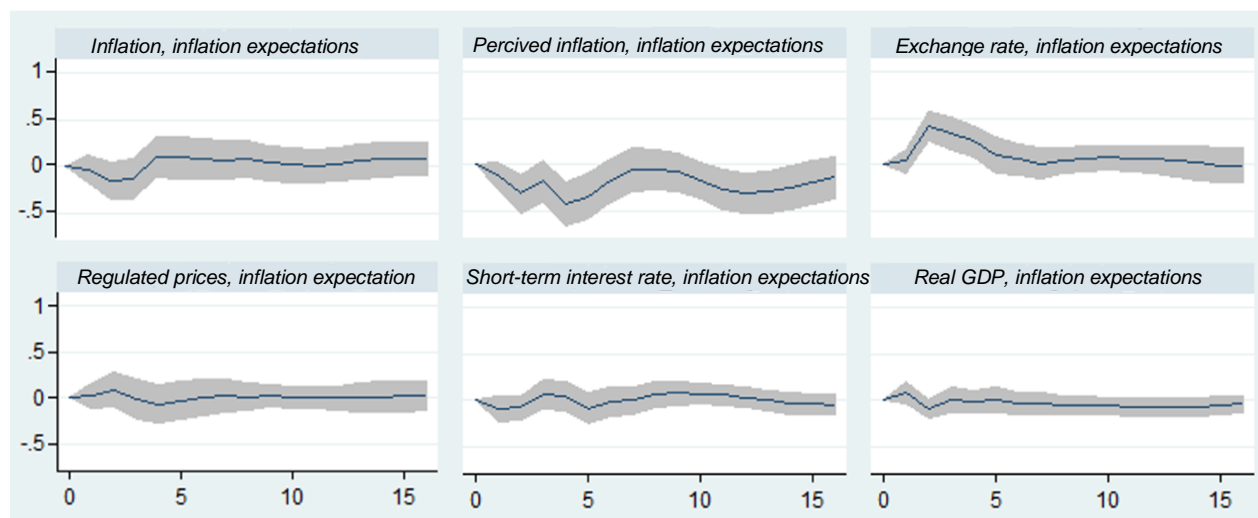
$$Y_t^n = \alpha X_t^n + \beta Z_t^n + \varepsilon_t, n \in 1, 6$$

Here  $Y_t^n$  – vector of endogenous variables,  $X_t^n$  – matrix of values in endogenous variables for n group and  $Z_t^n$  – vector of exogenous variables.

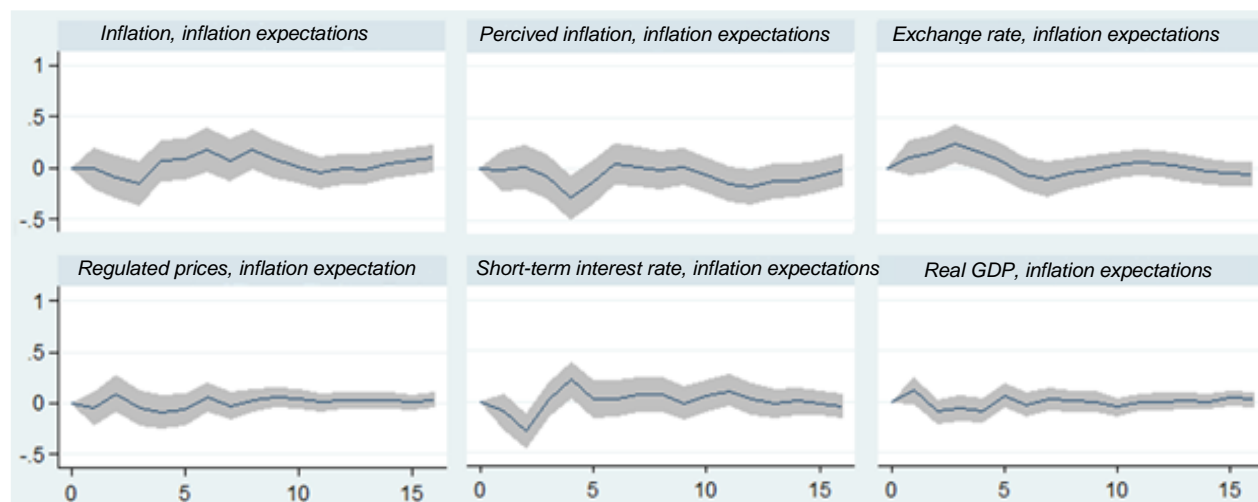
The results of model indicate that 1 standard deviation from mean value of exchange rate leads to an increase in inflation expectations of households by 0.25 percentage points in one quarter, while 1 standard deviation from mean value of regulated prices causes an increase in households' expectations by 0.2 percentage points in the next quarter.

There is a long-term positive relationship between economic agents' inflation expectations and inflation. Moreover, 1 standard deviation from mean value of inflation leads to an increase in inflation expectations of households by 0.2 percentage points, particularly, overall impact occurs after two quarters.

**Figure 2. Response of inflation expectations of households to movements in macroeconomic variables**



**Figure 2. Response of inflation expectations of business entities to movements in macroeconomic variables**



Furthermore, 1 standard deviation from average value of exchange rate causes inflation expectations of local entrepreneurs to increase by 0.4 percentage points during one quarter.

Also, 1 standard deviation from average value of regulated prices reflects inflation expectations of entrepreneurs in the next two months. Finally, 1 standard deviation of current inflation from mean value increases inflation expectations of business entities by 0.1 percentage point, in particular, the effect lasts up to 12 months.



## Impact of increased budget expenditures on foreign trade balance

Interrelationship between the state budget and the current account deficit has been studied by many researchers. Some of them argued that expansionary fiscal spending has no positive impact on the balance of payments, in particular on the current account balance. The assumption here was that the fiscal deficit would result from increased capital expenditures, and in the long run, these expenditures would support exports by enhancing the economy's production capacity.

Another group of researchers supported the existing twin deficit theory. In the twin deficit theory, an increase in fiscal spending, in addition to generating direct demand for goods and services produced in the country, stimulates additional demand from the households given the prevailing public social spending. Since domestic production cannot immediately adjust to the higher aggregate demand, imports increase, and this channel exerts pressure on the trade balance. A larger fiscal deficit can lead to a higher current account deficit through the import channel. Long-term persistence of twin deficits indicates low efficiency of budget expenditures.

Fiscal deficit impact on the current account deficit can be exemplified by the case of Sri Lanka. The government's focus on the social sector and unprofitable infrastructure projects, which for many years had been a major part of budget expenditures, was a factor behind the widening of the fiscal deficit. Financing the resulting deficit through external debt has in turn led to an increase in the current account deficit.

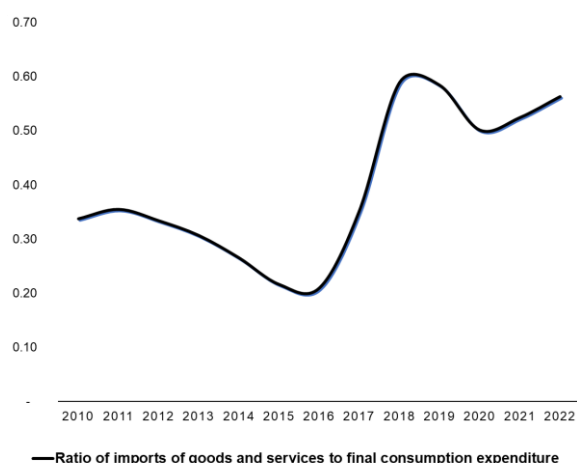
The long-standing twin deficits were the reason why the country defaulted on its external obligations in 2022.

Rising imports into Uzbekistan under the stimulative fiscal policy in recent years is in turn associated with supporting domestic demand (Figure 1). Increasing imports puts significant pressure on the country's foreign trade balance (Figure 2).

The ratio of total imports to final consumption expenditures has almost doubled over the last 5 years, amounting to about 60 per cent. Over this period, the country's foreign trade deficit has also increased, amounting to 14.2 per cent by the end of last year.

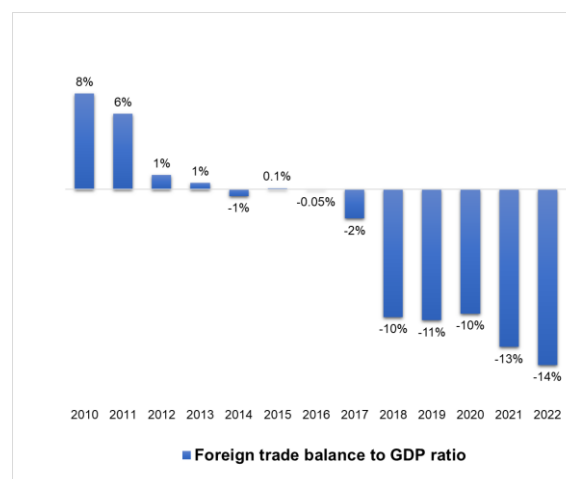
A significant share of current budget expenditures (75-80 per cent on average) indirectly generates additional demand in the economy, increasing the sensitivity of imports to changes in fiscal spending in the context of limited domestic production.

**Figure 1. Imports to final consumption expenditure ratio**



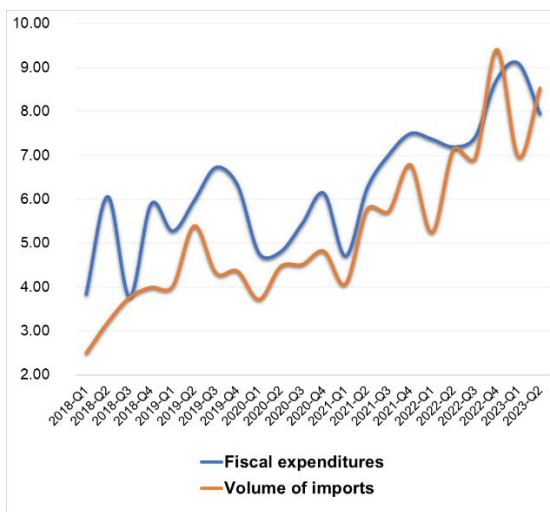
Source: CBU calculations based on Statistics agency data.

**Figure 2. Foreign trade balance to GDP ratio**



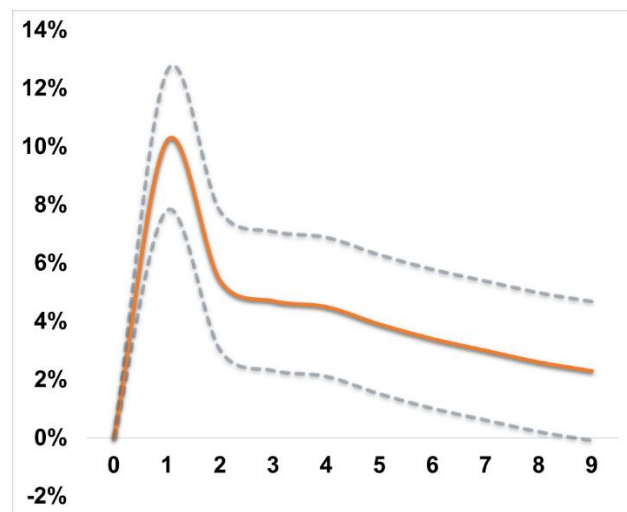
Source: CBU calculations based on Statistics agency data.

**Figure 3. Dynamics of fiscal expenditures and imports, bln. dollars**



Source: Statistics agency.

**Figure 4. Impulse response of imports to 1 standard deviation of budget expenditures**



Source: CBU estimations.

Meanwhile, an 84 per cent correlation between government expenditures and imports indicates that there is a strong interrelation between the two.

According to the empirical analysis, the cumulative effect of a 1 per cent increase in fiscal spending on import growth reach 0.6 per cent during the observed period.

According to the analysis, the country has been experiencing persistent twin deficits for a relatively long period, which emphasises the need for consistent continuation of structural reforms aimed at improving the efficiency of fiscal spending, reducing the state's share in the economy, building production capacity, diversifying the economy and increasing exports in the future.

## GLOSSARY

<b>Administratively regulated prices</b>	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.
<b>Anchoring inflation expectations</b>	is linking inflation expectations of the population and business entities for the next medium term period to a certain quantitative indicator (inflation target).
<b>Balance of payments</b>	is statistical report which reflects all economic transactions between residents and non-residents for a certain period of time.
<b>Consumer demand</b>	is a part of the aggregate demand related to consumer goods and services in the economy.
<b>Consumer Price Index (CPI)</b>	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.
<b>Core inflation</b>	is inflation calculated excluding changes of prices for certain goods and services (fruits and vegetables, fuel, certain types of public transport, communication services, housing and public utilities, etc.), which are influenced by factors of seasonal and administrative character.
<b>Cross-border money transfer</b>	is transfer of funds to or from the country through international money transfer systems.
<b>Currency interventions of the Central Bank</b>	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.
<b>Current account</b>	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.
<b>Deposit auctions</b>	are operations of the Central Bank to attract funds from the representative 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.
<b>Economic cycle</b>	is a natural form of economic development, in which the increase in production, employment, GDP growth is replaced by periods of recession.
<b>Financial market</b>	is a system of economic relations arising in the process of the exchange of economic resources.
<b>Financial stability</b>	is the state of the financial system, in which it is capable to effectively perform its functions in emergency situations, ensuring the redistribution of resources and financial risk management, there is no

	excessive volatility in the financial market (its segments), continuity of settlements is ensured, as well as the ability to eliminate the effects of negative shocks and to recover from stress.
<b>Financial system</b>	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 case, financial institutions (markets and financial organizations) redistribute limited financial resources from one economic entity to another.
<b>Gross domestic product deflator</b>	is a change in the overall level of prices for goods and services produced and consumed in a country over a period of time.
<b>Inflation inertia</b>	is a tendency of inflation to return slowly to its long-term (equilibrium) level after the shock, which deviated it from this long-term level.
<b>Inflation target</b>	is a pre-announced target of inflation that provides the basis for long-term economic growth and price stability.
<b>Inflation targeting regime</b>	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 its target by applying monetary instruments.
<b>Inflation expectations</b>	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.
<b>Interbank money market</b>	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.
<b>Interest rate corridor</b>	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), and the lower limit is the Central Bank's deposit rate for commercial banks.
<b>Investment demand</b>	is demand from business entities for physical capital objects (cars, equipment) and services used to maintain or expand its activities. Investment demand is a part of the aggregate demand in the economy.
<b>Liquidity of the banking system</b>	is cash balances in the national currency on correspondent accounts of commercial banks in the Central Bank of the Republic of Uzbekistan.
<b>Machine learning</b>	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.
<b>Macroprudential policy</b>	is a set of proactive measures aimed at minimizing systemic risk in the financial sector or specific segments thereof.
<b>Monetary factors of inflation</b>	are inflationary factors that can be directly influenced by the Central Bank's monetary policy instruments in the medium term.

<b>Monetary policy</b>	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 set level using monetary instruments.
<b>Open foreign currency position</b>	is quantitative inequality between foreign currency assets and foreign currency liabilities of credit organization
<b>Output gap (GDP gap)</b>	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.
<b>Phillips curve</b>	is a line 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
<b>Policy rate</b>	is the interest rate, which determines the interest rate on loans for commercial banks and the cost of borrowing for borrowers; changes in the policy rate influence interest rates in the interbank money market.
<b>Recession</b>	is a sharp decrease in production in the economy or a significant slowdown in economic growth.
<b>REPO operations</b>	are transactions of selling government securities to the Central Bank under a repurchase agreement for short-term borrowing by commercial banks 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).
<b>Reserve requirements of commercial banks</b>	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.
<b>Stagflation</b>	is high inflation coupled with low economic growth.
<b>Systemic risk</b>	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.
<b>Time lag</b>	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.
<b>Transmission channels of the monetary policy</b>	are the channels through which monetary policy decisions influence price dynamics and the economy. The process of gradual transmission of the Central Bank's signal on interest rate changes or its future trajectory from financial market segments to the real economy and, as a consequence, 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.

<b>Trend</b>	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.
<b>Trimmed inflation</b>	is inflation calculated by excluding the 10 groups of goods (services) with the highest and lowest price increases respectively.
<b>Yield curve</b>	is a graphical representation of the interest rates on debt for a range of maturities. The yield curve is considered an important economic indicator and plays a pivotal role in communicating monetary policy decisions to the economy. The dynamics of this curve represents investors' expectations regarding macroeconomic variables such as future interest rates, economic growth and inflation rates.