

*Approved under the Central Bank Board
Resolution No 162A, dated September 25, 2020*

Inflation Report/3

Monetary Policy Program, Q 3, 2020



*Status Report on Implementation of the Monetary
Policy Program, Q2, 2020*

The inflation targeting strategy of the Central Bank of Armenia highlights the importance of communicating of the Bank to the general public by publishing, inter alia, quarterly inflation reports.

The first section of the inflation report includes the Monetary Policy Program that provides main directions of the monetary policy in the forecast horizon as well as forecasts of inflation and other macroeconomic indicators. These forecasts are based on the Bank's assessment of the current situation and future assumptions by the Bank, which also include the impact of the Bank operations.

The second section includes the Status Report on implementation of the monetary policy program of the previous quarter, which presents the results of monetary policy implementation and covers the actual developments in the domestic economy.

Publishing of inflation forecast and assumptions underlying it makes the monetary policy of the Bank more transparent, understandable and predictable, which considerably increases the public confidence in the Bank. The Bank believes that a clear and trusted monetary policy positively affects the anchoring of inflation expectations and maintaining financial stability in terms of cost reduction.

According to the rule of monetary policy, the policy is aimed at minimizing the deviations between the 4% target and the inflation forecasts. The path to inflation rate shaped as a result of projected policy directions is published as a forecast probability distribution chart for the 12-quarter time horizon.

Projections in this report are based on the actual information available by September 15, 2020, i.e. the day on which the refinancing rate was set, the results of survey conducted by the Bank and the judgment made pursuant to the information on future developments of the macroeconomic environment.

All inflation reports which have been published to date are available on the Bank's website (www.cba.am) which also contains all press-releases and other monetary policy-related publications

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NOTICE

Forecasts of this report were based on the actual information available prior to September 15, 2020, the date of the approval of the refinancing rate. As a result of a large-scale military attack by Azerbaijan on September 27 along the line of contact between Artsakh (Nagorno Karabakh) and Azerbaijan and declaration of martial law in the whole territory of the Republic of Armenia by Government Decree No 1586-N dated September 27, 2020, there can be changes in economic developments, as well as in the implementation of macroeconomic policy. The Central Bank realizes that at the time of publication of this report there is already certain new information that has not been taken into account in the published forecasts. Guided by the principle of ensuring maximum transparency of monetary policy and presenting the assumptions underlying the refinancing rate to the general public, the Central Bank publishes this Inflation Report, at the same time keeping in mind that as a result of the ongoing hostilities, certain deviations from the baseline scenario outlined by the Program are actually possible. Therefore, the Central Bank is following the developments in real time, working on possible alternative scenarios in order to respond appropriately to any outcomes of the situation and to ensure price stability.

1. EXECUTIVE SUMMARY

After the deep decline in the global and Armenian economies due to considerably accelerating spread of the new coronavirus in the second quarter of 2020, a certain reviving of economic activity is observable in the third quarter. However, the still high uncertainty about eventual overcoming of the pandemic is estimated to restrain and delay the recovery of economic activity and aggregate demand in global and domestic economies. In view of these developments, and due to a low inflationary environment, most central banks, including the central banks of the partner countries, continued maintaining stimulative monetary conditions during the quarter, which was accompanied with a sizable expansionary fiscal policy implemented by governments.

According to the baseline scenario of the Central Bank of Armenia, a low inflationary environment is sustained in the third quarter, under which the CBA continues the implementation of a stimulative monetary policy.

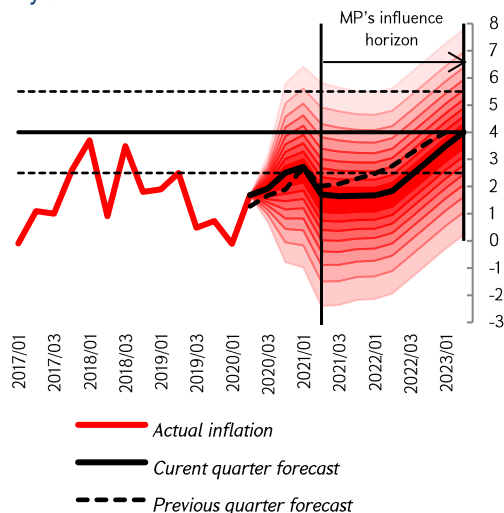
In view of expected economic developments, the 12-month inflation will remain low in the near future, as prices, despite stimulative monetary and fiscal policies, are prevalingly incurring the impact of weak private demand due to uncertainties related to overcoming the pandemic. To ensure the projected inflation path, in expectation of a persisting low inflationary environment as well as non-inflationary effects from the external sector in the near future, **the CBA increases the amount of stimulus by cutting the refinancing rate by 0.25 percentage points to 4.25%**. As expected economic developments unfold, the CBA Board is inclined to continue easing monetary conditions in the near future, estimating that keeping the monetary stance expansionary in the medium term will be also necessary. The CBA estimates that, with stimulative monetary conditions, inflation will gradually recover in the forecast horizon and at the end of the horizon it will stabilize around the 4% target.

According to the CBA baseline scenario of short-term forecasts, driven by economic consequences of the spread of the pandemic and existing high uncertainty about the duration of it, the 2020 economic growth will be in the negative territory; in the medium term it will recover but will remain lower than its long-term equilibrium level.

According to the baseline scenario of the Central Bank of Armenia, the low inflationary environment is maintained in the third quarter, under which the Central Bank continues to pursue a stimulative monetary policy.

Chart 1

Inflation (12-month) forecast probability distribution for 3-year horizon



Source: RA Statistics Committee, CBA forecast

Pursuant to its September 15, 2020 decision, the Central Bank increases the amount of the stimulus through reducing the refinancing rate by 0.25 percentage points, setting it at 4.25%.

The economic decline of 2020 will mainly be determined by a significant reduction in private spending. In the medium term, as uncertainties decrease, the restoring of demand will greatly be facilitated by the implementation of an expansionary monetary policy in particular.

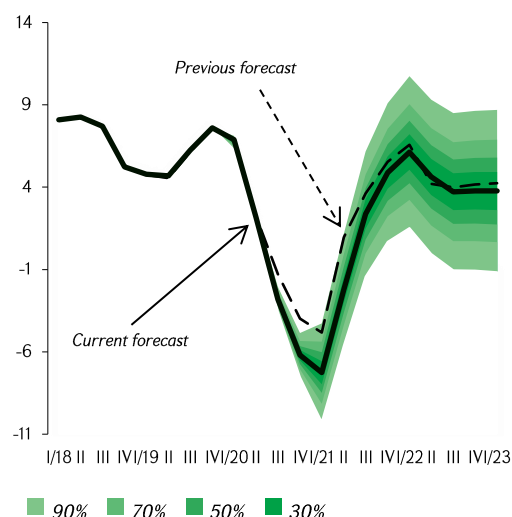
In the forecast horizon, risks to inflation and economic growth deviating from the projection path are twofold and mainly balanced (see subsection “2.2.4 Main Assumptions and Risks”).

Overall, as there is a great deal of uncertainty about healthcare situation and, therefore, how the economy develops further, the CBA attempts to reduce the potential risks ensuing from these uncertainties by building different scenarios for the unfolding of the situation and considering the appropriate policy response. This will allow to adjust the monetary conditions accordingly, should such risks materialize, while ensuring price stability in the medium term.

In 2020 economic growth will be in the negative range; it will recover in the medium term, but will return to its long-term equilibrium level more slowly

Chart 2

Real GDP (cumulative)¹ growth forecast probability distribution for 3-year horizon.



Source: RA Statistics Committee, CBA forecast

¹ The growth rate of each quarter is calculated as the cumulative growth rate for the last four quarters.

2. FORECAST, FORECAST CHANGES AND RISKS

2.1. External Environment Development

The coronavirus pandemic has had a significant impact on the global economy, including both developed and developing countries. Most countries in the world, including Armenia's main partner countries, experienced deep economic downturns in the second quarter of this year, which will be partially restored in the second half of the year due to the gradual easing of restrictions to prevent the pandemic. At the same time, the world's leading partner countries, the United States, the Eurozone and Russia, remain uncertain about overcoming the pandemic, with both potential short-term and medium-term negative effects on the economy.

Most countries in the world, including Armenia's main partner countries, experienced deep economic downturns in the second quarter of this year, which will be partially restored in the second half of the year due to the gradual easing of restrictions to prevent the pandemic.

Economic Developments in the United States. According to the U.S. Bureau of Economic Analysis estimate, in the second quarter, the US economy registered a 9.5% decline in GDP. Despite measures taken by the US government, there has been a downturn in all sectors of the economy. The latter was accompanied by a significant decline in private demand, in particular, private consumption fell by 10.1% and private investment by 8.5%. In the second quarter of 2020, the unemployment rate rose sharply to 13.0%, compared to 3.8% in the previous quarter. It should be noted that in the third quarter, a certain recovery of economic activity was observed, and the unemployment rate decreased to 10.2% in July. With restrained private consumption and slow recovery in 2020, the US economy is projected to shrink by 5.3%.

In the USA, in the first quarter of 2020, the quarterly personal consumption expenditure price index² amounted to 0.6% y/y, running well below the US Fed's medium-term consumption target, and in July it slightly grew up to 1% mainly due to recovery of energy prices. Given current growth developments and persisting uncertainties, the Fed maintained the policy interest rate for the second quarter of 2020 in the range of 0.0-0.25% set in March, and announced about continuation of the large-scale quantitative expansion program. These measures were steered to meet high demand for liquidity by financial

² The personal consumption expenditure price index target is 2%, which on average is commensurate with headline inflation of 2.3%.

markets amid increasing economic uncertainties due to pandemic. Despite some recovery in energy prices, it is expected that the weak demand will continue to help maintain a low inflationary environment. Given such developments, and specifically with the view to boosting economic activity and especially employment in the labor market, the US Federal Reserve, under a new monetary strategy announced in August³, will continue to pursue low interest rates over the long term.

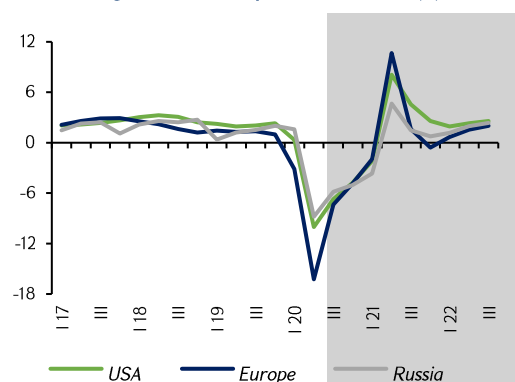
Economic developments in the Eurozone. The measures taken against the outbreak of coronavirus and its spread have had a considerable impact on the economic activity in Eurozone. According to preliminary estimates by the Eurostat, economic decline in the Eurozone in the second quarter of 2020 amounted to 15.0% y/y which was reflected in significant drop in foreign trade, private consumption and investments. Short-term tentative indicators show a certain recovery of the economy in the third quarter, which was mainly due to the positive effects of easing restrictions. Yet, taking into account the current uncertainty caused by the pandemic, the risks of a deeper slowdown in the individual economies of member states across Eurozone are persisting. It is expected that in 2020 the economic decline will total 7.9%. Unemployment rate in the Eurozone in the second quarter of 2020 increased slightly from 7.3% in the previous quarter, reaching 7.7%.

In the Eurozone, the average quarterly inflation in the second quarter of 2020 was 0.3% y/y, mainly due to low energy prices and weak demand, running significantly below the ECB target, while core inflation was 1.1% y/y in the second quarter. In anticipation of low inflation and economic decline, the ECB announced that it will further pursue a low interest rate policy while maintaining a negative policy interest rate and implementing a program of EUR 20.0 billion-worth monthly of assets purchases per month.

Economic developments in Russia. According to preliminary estimates of the Russian State Statistics Service, the economic decline in the second quarter of 2020, was 8.5% y/y, mainly due to the delay in private spending and the contraction of the services sector. Unemployment in Russia rose in the second quarter from 4.6% in the previous quarter to 6.0%. During the third quarter, economic recovery trends are observed, although the economic decline risks associated

³ On August 27, 2020, President of the US Federal Reserve J. Powell announced changes to the "Long-Term Goals and Monetary Policy Strategy." According to the latter, the US Federal Reserve was moving towards flexible inflation targeting or, in other words, targeting of the medium level of inflation, which, in fact, is a strategy to more effectively curb inflation expectations.

Chart 3
Economic growth in trade partner countries (%)



Source: Bureau of Economic Analysis (BEA), Eurostat, Rosstat, CBA forecasts

with the global economy developments remain. In 2020, the Russian economy is projected to shrink by 4.5%.

In the second quarter of 2020, Russia's average quarterly inflation accelerated to 3.1% year-on-year, up from 2.4% in the previous quarter, still below the target of 4%. The acceleration of inflation rates mostly resulted from the rise in seasonal food prices and depreciation of the Russian ruble. Amid the existing uncertainties and deflationary risks due to weak demand, the Bank of Russia reduced the policy interest rate by 1.5 percentage points in the second quarter of 2020, and in July 2020, by another 0.25 percentage point, setting it at 4.25% level. Given further inflation and economic developments, as well as the risks associated with the global economy, the Bank of Russia is expected to maintain a monetary stimulus policy in the projected timespan.

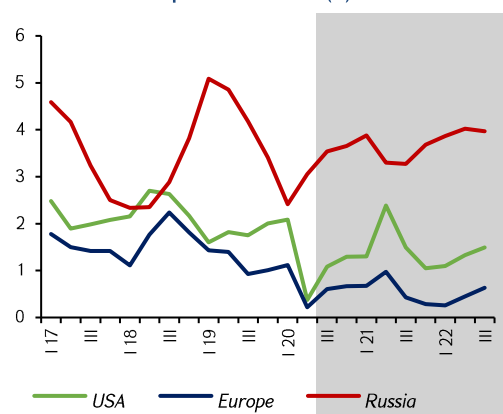
Developments in commodity and food product markets: During the second quarter of 2020, commodity markets continued to be affected by the coronavirus pandemic, which has been spreading since the beginning of the year, on account of country restrictions, disruption of production chains, as well as a significant downturn in the global economy. As a result, in the second quarter of 2020, prices for large commodity and food groups decreased compared to the previous quarter, but since June, prices in the commodity markets have started to restore.

The recovery of China's economy in the second quarter, which led to a sharp increase in copper imports, contributed to the rise in international copper prices at the end of the quarter. Subsequently, in the second quarter of 2020, a 5.1% q/q deflation was observed in the international copper market, which was below the expectations of the Central Bank of Armenia. International oil prices fell by 38.0% compared to the previous quarter, which was mainly due to a significant reduction in global demand. However, it should be noted that in the second quarter, the balance of supply and demand in the international oil market was ensured by the agreement reached between OPEC + member countries on the issue of cutting supply. As a result, international oil prices were restored in June-July and it is projected that in the second half of the year, the international prices of raw materials, in particular oil and copper, will increase, the latter at higher rates.

In the second quarter of 2020, compared to the previous quarter, prices decreased in almost all food markets, and since June, prices have risen somewhat. Thus, in the sugar market, due to the increase in

Chart 4

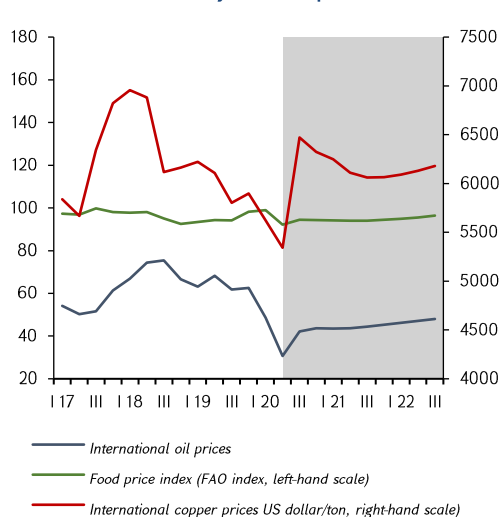
Inflation in trade partner countries (%)



Source: Bureau of Economic Analysis (BEA), Eurostat, Rosstat, CBA forecasts

Chart 5

International commodity and food prices



Source: World Bank, FAO, CBA forecast

oil prices, inflation was observed, as most of the existing sugarcane was directed not to the production of sugar, but to the production of oil substitute, ethanol, as a result of which there is a reduction in supply in the sugar market. In the grain market, prices remained close to the levels recorded in previous months, due to a slight decrease in demand on the one hand, and a slightly downward revision of supply expectations for the 2020/21 marketing year on the other. In the short run, weak global demand will contribute to the formation of current low prices in the main food categories.

2.2. Forecasts

2.2.1. Inflation and Monetary Policy

Inflation remained at a relatively low level during this quarter. Maintaining uncertainties caused by the pandemic will restrain and to some extent delay the recovery of the aggregate demand in the partner countries of Armenia, which, combined with the weak inflationary developments in the commodity markets, will suppress transfer of inflationary pressures to the Armenian economy. At the same time, based on current estimates, the 2020 forecast for annual growth rate of the Armenian economy has been lowered from previous -4.0% to -6.2%, mainly as a result of prudent investment and consumer behavior amid continuing uncertainties. This will precondition the lower expected rates of economic activity and demand recovery in the second half of the year and, consequently, certain deflationary effects. In the current situation, the Central Bank estimates that it is necessary to continue easing monetary conditions by lowering the policy rate by 0.25 percentage points, which will become an additional stimulus for the recovery of aggregate demand. As a result, the inflation, residing below the target in the upcoming months, will gradually stabilize around it in the medium term.

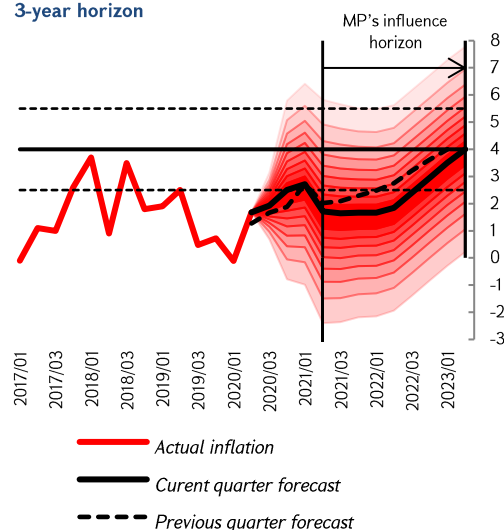
Based on current estimates, the 2020 forecast for annual growth rate of the Armenian economy has been lowered from previous -4.0% to -6.2%, mainly as a result of prudent investment and consumer behavior amid continuing uncertainties.

According to current estimates of the Central Bank, in the third quarter of the year economic activity will remain sluggish under the influence of both supply and demand factors. In terms of supply, the decline is mainly due to the larger-than-expected decline in output in the services sector. On the demand side, the decline will be reflected in

reduction and delay of total private expenditures and may be lengthier if uncertainties carry on longer. At the same time, the impact of fiscal policy will be stimulative in the third quarter of 2020 and throughout the year. As a result, the GDP gap for the third quarter of 2020 continues to be significantly negative. Under the influence of stimulating monetary and fiscal policies, the GDP gap will gradually close, in which case the deflationary pressures on inflation will gradually phase out. In view of the aforementioned monetary and fiscal policies, the inflation will begin recovering gradually in the upcoming quarters after having remained low. It is estimated that population's short-term inflation expectations have moved lower to some extent amid increasing uncertainties at the moment and in anticipation that demand would restore at a weaker pace. However, inflation expectations are likely to stabilize in the medium term as inflation recovers, while high uncertainty over such expectations will gradually phase out as the situation with pandemic stabilizes. **Given certain delays in the recovery of external and domestic demand, as well as the existence of a low inflationary environment, the Central Bank Board decided to loosen monetary conditions by cutting the refinancing rate.** At the same time, in view of expected macroeconomic developments, the Central Bank Board also tends to consider the possibility of easing monetary conditions in the near future. Furthermore, it is estimated that in order to achieve the inflation target, maintaining enhancing monetary conditions also in the medium term will still be needed.

Chart 6

Inflation (12-month) forecast probability distribution for 3-year horizon



Source: RA Statistics Committee, CBA forecast

Given certain delays in the recovery of external and domestic demand, as well as the existence of a low inflationary environment, the Central Bank Board decided to loosen monetary conditions by cutting the refinancing rate.

Table 1

Period	Inflation interval forecast probability distribution				
	<1.0%	1.0-2.5%	2.5-5.5%	5.5-7.0%	>7.0%
Q III, 2020	10.9%	67.0%	22.1%	0.0%	0.0%
Q IV	22.6%	27.3%	43.4%	5.5%	1.2%
Q I, 2021	22.2%	23.9%	43.1%	8.0%	2.9%
Q II	38.5%	23.6%	31.1%	4.8%	2.1%
Q III	39.3%	24.1%	30.6%	4.3%	1.7%
Q IV	38.6%	25.1%	31.0%	3.9%	1.3%
Q I, 2022	38.5%	25.3%	31.1%	3.9%	1.3%
Q II	35.6%	25.5%	33.2%	4.3%	1.4%
Q III	27.2%	24.6%	39.3%	6.6%	2.3%
Q IV	19.8%	22.4%	44.4%	9.5%	3.9%
Q I, 2023	13.8%	19.3%	47.6%	12.8%	6.4%
Q II	9.6%	16.1%	48.6%	16.1%	9.6%

2.2.2. Economic Activity⁴

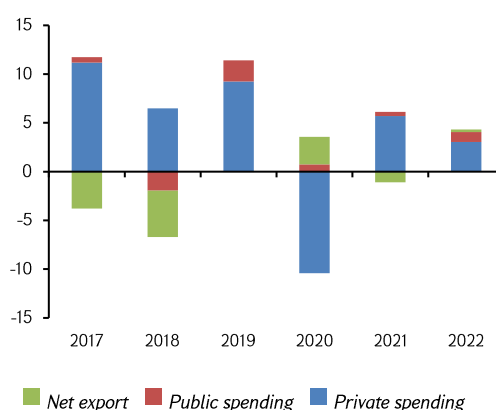
Aggregate demand: The economic decline in the first half of 2020 totaled 5.7%, mainly due to the spread of the pandemic, anti-pandemic measures, increasing uncertainty and decisions to delay consumption and investment as a result of prudent behavior. According to experts, the pandemic has not yet shown any seasonality and the rate of spread depends exclusively on the scale and enforcement of restrictions. When restrictions are lifted, pandemic usually adopts more active patterns, which is currently observed in a number of European countries. In Armenia, due to the lifting of some restrictions and the opening of schools and universities, the number of cases of infection has grown. According to the Central Bank, the spread of coronavirus is expected to continue until the end of the year, but it will be more manageable and no additional restrictions will be needed. It is also projected that the uncertainties stemming from the coronavirus pandemic and the cautious behavior of economic agents will continue until the end of the year, which will to some extent curb economic activity. As a result, the decline in private demand will be deeper than the previous projection, and the economic downturn will reach 6.2% instead of the previously projected 4.0%. According to the Central Bank estimates, the decrease in private consumption will total 9.3%, and the decrease in gross accumulation of private fixed assets, 20.0%, whereas public spending contributions to economic growth will be positive. While the import and export volumes will drop considerably, net export's contribution will be positive.

In the projected horizon, private spending will accelerate and become the key driver to economic growth, however, both private demand and economic growth will still recover slowly in the medium term, due to the slowdown in potential GDP growth caused by the delays in investment and declining productivity amid current uncertainties. As a result, export and import volumes will restore slowly, in line with a slow recovery of international tourism, inter alia. It is expected that with the restoration of economic growth, the contribution of public spending will decrease and will be neutral in the medium term.

The economic decline in the first half of 2020 totaled 5.7%, mainly due to the spread of the pandemic, anti-pandemic measures, increasing uncertainty and decisions to delay consumption and investment as a result of prudent behavior.

Chart 7

Demand components⁵ contributing to growth (percentage point)



Source: Armenia's Statistics Committee, CBA forecast

It is projected that the uncertainties stemming from the coronavirus pandemic and the cautious behavior of economic agents will continue until the end of the year, which will to some extent curb economic activity. As a result, the decline in private demand will be deeper than the previous projection, and the economic downturn will reach 6.2% instead of the previously projected 4.0%.

⁴ For a detailed economic growth forecasts, see the "GDP Projection Probability Distribution", Chart 18, Table 2.

⁵ The change in tangible working capital inventories is not included in demand; it is considered by the RA statistic Committee as a balancing item and does not show the true level of investment, so supply and demand-side calculated economic growth may vary from each other. See https://www.armstat.am/file/article/sv_04_19a_112.pdf.

External demand: The current account projections for the second half of the year were revised under the following main assumptions: the recovery of both the global and the domestic economy will be slower; outgoing tourism will be significantly affected by travel restrictions and additional costs in case of opening the borders; and private remittance trends will be more positive than expected.

As a result, the decline in real exports of goods and services is projected at 29.0-32.0%, which implies a deeper decline compared to previous forecasts. The revision, in the wake of the slow recovery of the world economy, will mainly be conditioned by the almost zero projected level of tourism exports. The actual developments also prove that tourism will be the main affected sector within the export structure. The positive developments in the export of raw materials will be maintained in 2020, under a certain recovery of metal prices.

In the conditions of slower recovery of the domestic economy compared to the previous forecast, the real import volumes of goods and services will also narrow, staying in the range of 29.0-32.0%. Projections in terms of tourism import volumes are also almost zero.

Developments in remittances from individuals will show some improvement over previous projections. In particular, during the second quarter, the decrease of remittances was much smaller than expected. Structural shifts take place in the structure of remittances, by countries. The decrease in Russia's remittances is almost offset by the increase from the United States and other countries, probably for "altruistic"⁶ motives. If these trends are maintained, the decrease in remittances in 2020 will be smaller compared to previous forecasts and will be in the range of 19.0-22.0%.

On the back of such forecasts, the 2020 current account deficit-to-GDP ratio will improve against that of 2019, running within 5.0-6.0%.

In the medium run, a slower than previously projected recovery of global and domestic economies will lead to a somewhat slower growth in exports and imports. However, as a result of surpassing export growth, the current account deficit-to-GDP ratio in the medium run will approach and stabilize within an equilibrium level of 3.0-5.0%.

Fiscal policy: The fiscal policy's impact on aggregate demand for 2020 was estimated using the figures set out in RA Law on "2020 State Budget", the current changes to the law and the relevant Central Bank projections.

⁶ There are two main motivations for remittances that occur in the literature: "self-interest" and "altruistic". Self-interest remittances are mainly made for investment purposes, while altruistic transfers are intended to compensate for the recipient's lack of income.

In the time of expected economic decline caused by the coronavirus pandemic, projected tax revenues⁷ in 2020 will be significantly lower compared to the scenario set forth in the RA law on “2020 State Budget”. Consequently, the taxes-to-GDP ratio⁸ will be 22.1%, dropping by 0.2 percentage point over 2019.

In terms of public expenditures, based on the figures of state budget expenditures of the previous few years and given actual indicators of expenditures for the first half of 2020, the Central Bank estimate equals to 97.5% of the expenditure figure fixed by the amendment to the law in March of this year, including economic assistance packages. Lower expenditure output is expected especially in terms of externally supported capital expenditures. Thus, externally supported capital expenditures in the first half of 2020 amounted to only 19% of the planned or AMD 14.1 billion.

In general, as a result of the Government's measures to overcome the pandemic, in 2020 the share of current expenditures in the structure of public expenditures will increase compared to capital expenditures, which includes the implementation of social assistance programs and the growth of health expenditures.

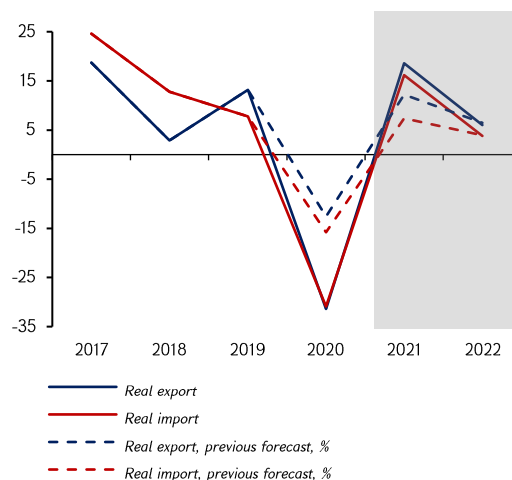
According to the Central Bank projections, public expenditures-to-GDP ratio will reach 29.4%, up by 4.7 percentage point against the previous year.

The state budget deficit will grow to 5.7% of GDP in 2020, up by 4.8 pp against the previous year, mainly determined by the reduction of taxes.

With the above tax and expenditure projections, exclusive of one-off streams not affecting aggregate demand, but inclusive of economy net lending⁹, the 2020 fiscal policy's impact on aggregate demand is estimated 5.7 pp expansionary against that of 2019. This will be attributable to expenditures and net lending to the economy 5.1 pp primarily expansionary impulse and slightly expansionary 0.6 pp revenue¹⁰ impulses. Given the highly disproportionate sectoral distribution of the economic consequences of the pandemic and the nature of the overall impact of monetary policy (see Box 1), implementation of leveraging and sectoral oriented fiscal policy is key to restoring gross demand.

Chart 8

Change in real export and import of goods and services in the medium term, (%)



Source: Armenia's Statistics Committee, CBA forecast

The 2020 fiscal policy's impact on aggregate demand is an estimated 5.7 pp expansionary relative to that of 2019.

⁷ Projection given by RA government.

⁸ The 2020 GDP indicator is the Central Bank forecast.

⁹ The calculation of the impulse includes net lending to the economy, which, although not affecting the deficit, has an impact on aggregate demand.

¹⁰ The revenue impulse is considered to be slightly expansionary due to the inclusion of both taxes and other changes in the combined account of other revenues and taxes. In order to ensure comparability with the previous year, in 2020, in calculation of the impulse the extra-budgetary means of state institutions are included, which, starting from 2019, are accounted in the indicators provided in the budget law.

In such circumstances, government debt in 2020 will also grow strongly. In the medium term, the increase in the Government debt / GDP ratio will determine the need to apply the relevant fiscal rules set by the current legislation, with the corresponding economic effects.

In view of the above, the medium-term impact of fiscal policy is assumed to be neutral, in line with the baseline scenario of preliminary version of the 2021-2023 Mid-Term Expenditure Framework.

Box 1 ¹¹

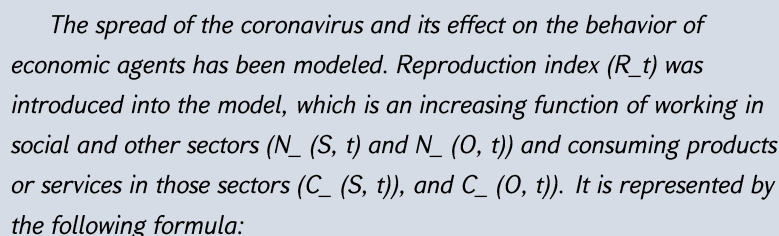
Impact of Coronavirus on Sectoral Revenues of the Economy in Armenia

The economic consequences of the coronavirus are different from other crises in that low-productivity households suffer disproportionately, and highly productive people have the opportunity to work remotely. As a result of the shock the sectors where interpersonal contacts are large, such as services, catering, etc. suffer the most. To this end, the CBA has built a satellite model under the projection system to assess the impact of the pandemic on different households and different sectors of the economy and to analyze policies.

The model presents two types of households: "Ricardian" and "non-Ricardian". It is assumed that the Ricardian households are able to smooth their consumption over time through savings, while the non-Ricardians are completely consuming their incomes in the given period. The economy is divided into three sectors: social, health and other sectors. Social sector is the area where physical contact between employees and customers are the most. Examples of these industries are hotel services, restaurants, cinemas, etc. In other fields, the possibility of physical contact is low, therefore employees in those fields are less vulnerable to health shock, as they can also work remotely. It is assumed that more non-Ricardian households work in social sectors, and more Ricardian households are employed in other sectors. It should also be noted that the study of the data proves that compared to the social sector the level of productivity in other areas is higher, and this factor is also taken into account during development of the model. There is a Central Bank in the model, which implements a policy of price stability, guided by Taylor's rule. The government is represented in the model by both aggregate and sector specific and targeted instruments (taxes, subsidies and lump-sum transfers). Therefore, the model provides an opportunity to assess the impact of both economic constraints and state support programs on the economy and the pandemic situation. The schematic representation of the model is presented in Chart 9.

¹¹ Prepared by Haykaz Igityan (haykaz.igityan@cba.am), Vahagn Davtyan (vahagn.davtyan@cba.am), Hovhannes Manukyan (hovhannes.manukyan@cba.am) from the Model Improvement Division of the Monetary Policy Department of the Central Bank of Armenia.

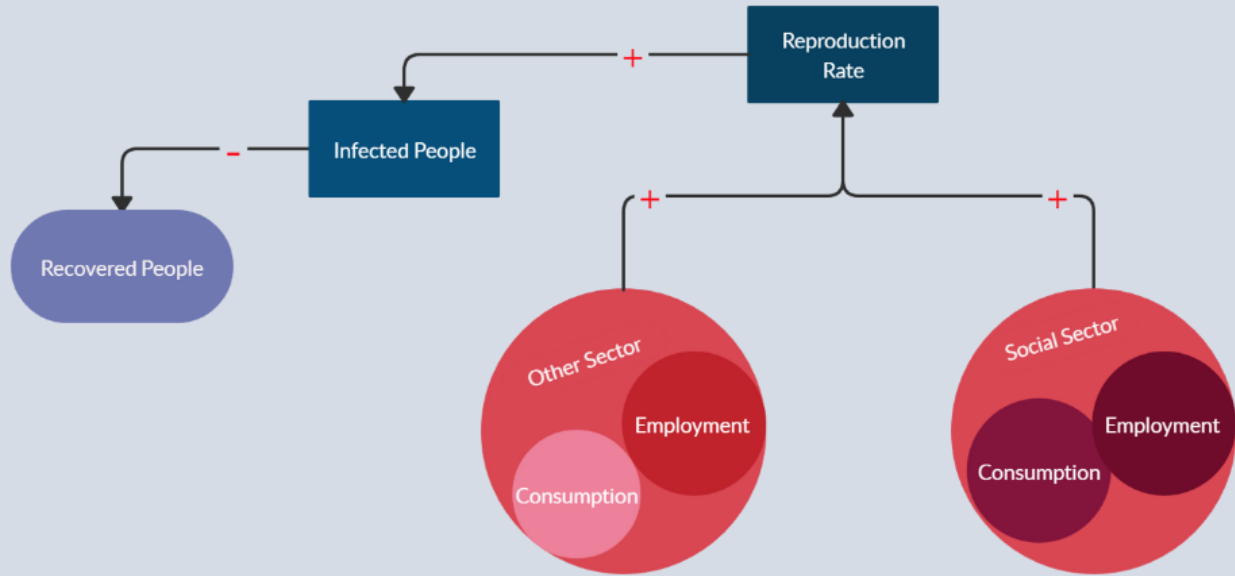
Schematic Representation of the Model



"ss" denotes the values of variables in the steady state;

The dynamics of coronavirus infection cases ($I(t)$) at any given moment depends on the number of previous infection cases and new cases, which is represented by the following formula:

where δ_{rec} is the proportion of recovered people and μ is the parameter that allows the number of new infection cases to be approximated by the reproduction rate. The process described above is presented in Chart 10.



The household maximizes its lifetime utility function, which is presented as follows:

$$U_{t+j} = E_t \sum_{j=0}^{\infty} \beta^j \left(\ln f_t^{\omega_i} \frac{C_{i,t+j}^{1-\sigma_i}}{1-\sigma_i} - \ln f_t^{v_i} \frac{N_{i,t+j}^{1+\varphi_i}}{1+\varphi_i} \right)$$

where $i = \{R, NR\}$ are indices of Ricardian and non-Ricardian households. They get utility from consuming ($C_{-}(i, t)$) and disutility from working ($N_{i,t}$): The number of infected people with certain coefficients of elasticity (ω_i and v_i) is included in the utility function, which describes the response of the economic agent to the pandemic. Witnessing an increase in the number of infected, households reduce consumption and work less to curb the further intensification of the infection. At the heart of this behavior is the orientation to future, as households maximize the usefulness of their whole life. By reducing their consumption in the current period, they thus curb the decline in future consumption, as the economic downturn will deepen in the future as a result of the large number of infected people. β^j , σ_i and φ_i are other structural parameters describing behavior.

The Ricardian household budget constraint is represented by the following equation:

$$(1 - \tau_{1,t})C_{R,t} + \frac{B_t}{P_t} = (1 + \tau_{2,t})\frac{W_{R,t}}{P_t}N_{R,t} + \frac{i_{t-1}B_{t-1}}{P_t} + \frac{\Pi_t}{P_t} + \tau_{3,t}$$

where $C_{R,t}$ is consumption; $W_{R,t}$ – wages; $N_{R,t}$ – working hours; B_t – bonds acquired by households; i_t – nominal interest rate; Π_t – profit; and P_t – price index.

Non-Ricardian households do not have the opportunity to smooth their consumption over time and consume all their income. The budget constraint of the latter is presented as follows:

$$(1 - \tau_{4,t})C_{NR,t} = (1 + \tau_{5,t})\frac{W_{NR,t}}{P_t}N_{NR,t} + \tau_{6,t}$$

As one can see, various government subsidies and transfers also play a role in budget constraints. In particular, $\tau_{1,t}$ and $\tau_{4,t}$ are consumption subsidies, $\tau_{2,t}$ and $\tau_{5,t}$ are wage subsidies, and $\tau_{3,t}$ and $\tau_{6,t}$ are government lump-sum transfers to households.

Sectoral income gap ($SecIncGap_t$) is presented as the ratio of the incomes of employees in other sectors ($W_{O,t}N_{O,t}$) to the incomes of people in the social sector ($W_{S,t}N_{S,t}$):

$$SecIncGap_t = \frac{W_{O,t}N_{O,t}}{W_{S,t}N_{S,t}}$$

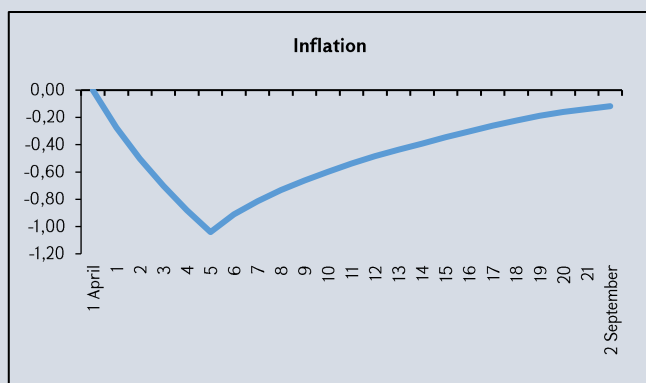
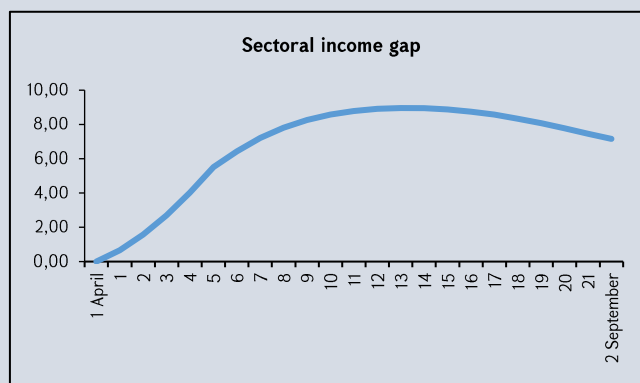
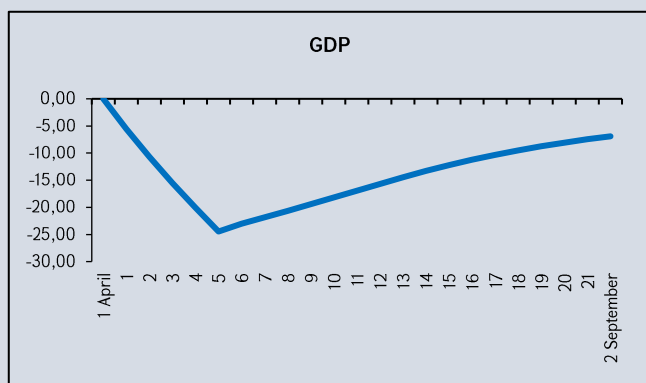
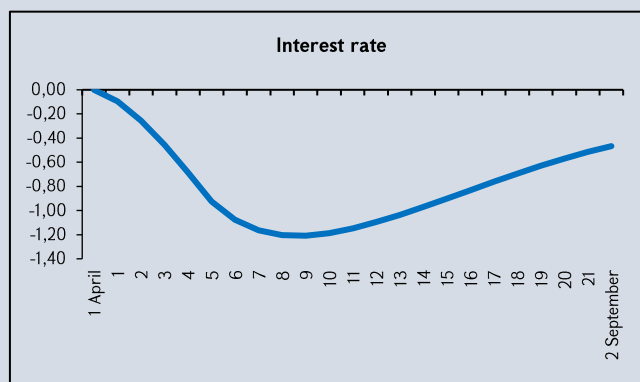
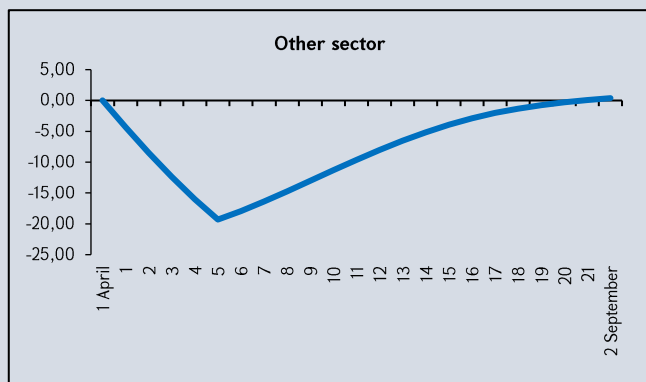
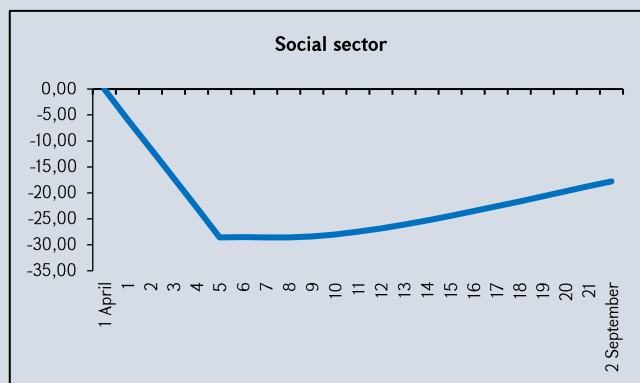
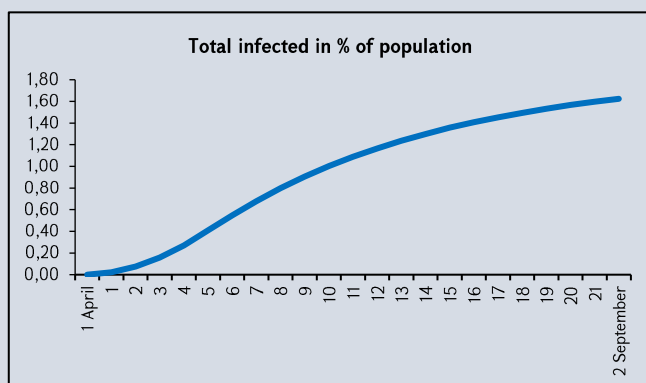
The model is calibrated for Armenia, and was based on the results of various surveys conducted at the Central Bank of Armenia. Chart 11 shows the impact of the coronavirus shock on the economy. The horizontal axis represents the period on a weekly basis. The simulation starts in the first week of April with a one-time shock, and is built on the assumption of other equal conditions for the future. It should be noted that the simulation includes both the restrictions of the commandant's office and the programs of the Government of the Republic of Armenia to neutralize the economic consequences of coronavirus in different areas. Construction of the estimates and calibration of the shock were based on the actual data of the GDP and the number of infected people, from which the other economic estimates were derived.

Thus, according to the estimates, the economic decline in the second quarter caused by coronavirus is 12.9% (quarterly average value of the weekly indicator presented in the chart), which is close to the 13.7% decline recorded by the Statistical Committee. At the same time, according to the results of the model, as of September 2, the number of infected people was 1.62% of the population, and actually it was 1.49%.

As can be seen in the presented estimates (Chart 11), the decline was mainly manifested in the social sector, where during the quarter, according to the estimates, a decrease of 19.2% was observed, while the economic decline in other sectors was relatively low, which is one of the most important peculiarities of the economic consequences of the pandemic. As a result, as might be expected from sectorally differentiated effects, the coronavirus pandemic has widened the sectoral income gap by 8-9%.

Chart 11

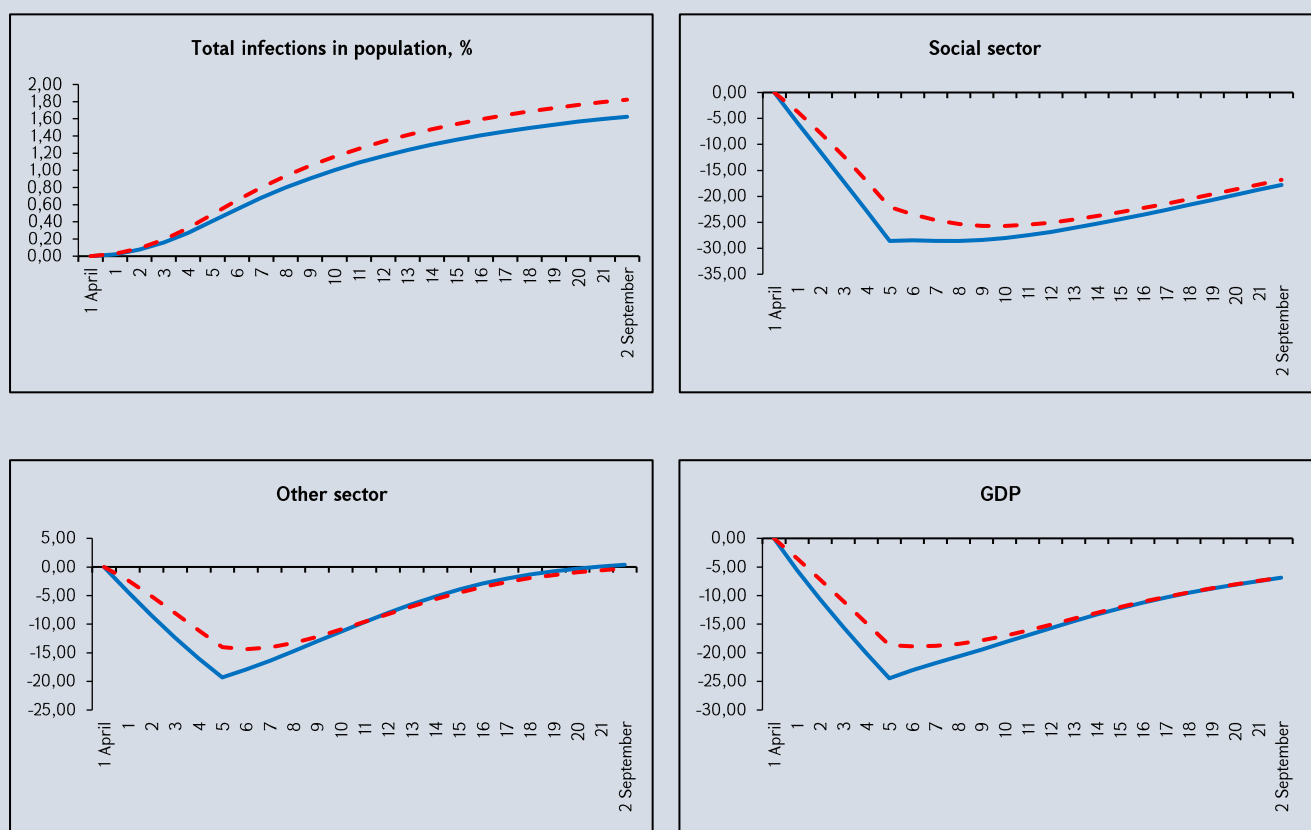
Impact of the Coronavirus Shock on the Economy

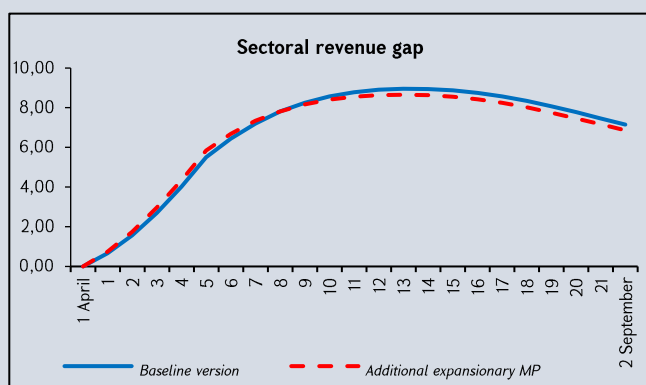
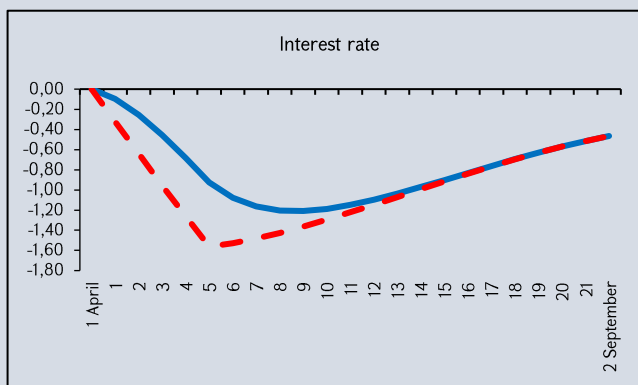
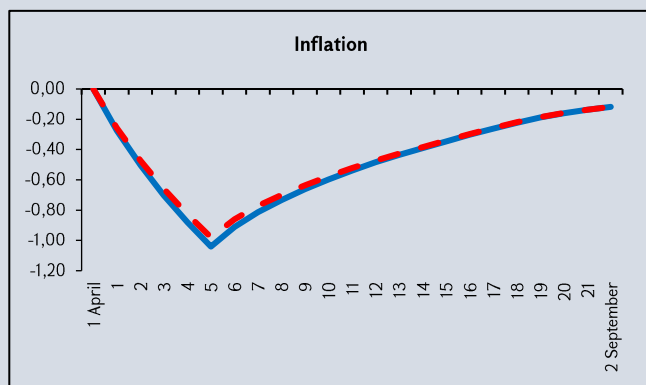


From the point of view of monetary policy, it is important to understand what impact the monetary policy of additional stimulus (deviation from the rule) in the conditions of coronavirus shock will have on the economy, the number of infected people and the sectoral income gap. Here it is assumed that the Central Bank further reduces the interest rate (more than required by the rule) in an attempt to stimulate economic activity and inflation. The combination of this simulation (red dotted line) with the baseline version (solid blue line) is shown in Chart 12. As a result of the additional expansionary monetary policy, the decline in GDP is lower compared to the baseline version. Here a low decline is observed both in the social and other sectors. As a result of the decline in economic activity, the number of infected people increases (consumption and employment decrease less). Nevertheless, since the interest rate is a general macroeconomic tool, therefore it impacts all sectors of the economy. As a result, the additional expansionary monetary policy has a neutral effect on the sectoral income gap and is not able to address the disproportionate sectoral effects caused by the pandemic. Therefore, in order to solve this problem, it is necessary to use sectoral fiscal tools.

Chart 12

Outcomes of the Scenario with Additional Expansionary Monetary Policy





Labor market¹². According to the Central Bank, the deep economic downturn in the labor market in 2020 will be mainly reflected in the adjustment of hours worked and wages, and the impact on employment will be small due to the implementation of relevant government programs. In 2020, the nominal wage growth rate of the private sector will remain low at around 3.1% due to the sharp decline in labor productivity, but already in the medium term, the growth of nominal wages in the private sector will be in line with economic growth and inflation. In 2021 therefore, the rise is projected at 3.4% level and at the end of the forecast horizon it will stabilize around 6%.

As productivity slows, the impact of the economic downturn on unemployment will be limited due to government measures to maintain jobs in certain sectors of the economy. Therefore, in 2020, a small increase in unemployment is expected at 20.2%. In 2021, along with the reduction of measures aimed at eliminating the economic

Chart 13

Nominal wage growth in private sector, y/y, %

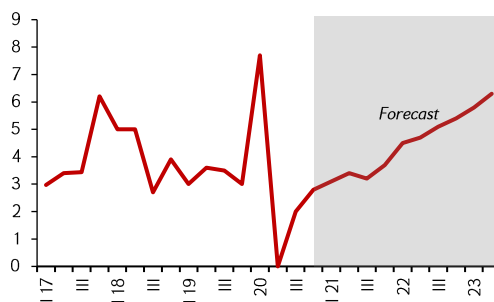
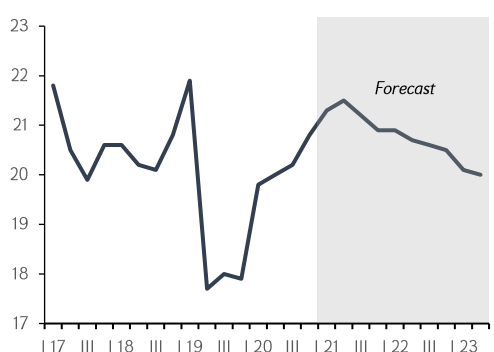


Chart 14

Unemployment rate (%)



Source: Armenia's Statistics Committee, CBA forecast

¹² The labor market data for 2020-2023 are the Central Bank projections based on the actual 2020 first and second quarter data. The growth indicators presented in this sub-section are relative to the same reference period last year, unless otherwise specified.

consequences of the coronavirus pandemic, the unemployment rate is expected to gradually increase. Subsequently, the unemployment rate is projected at 21.2% in 2021. In the medium term, along with the recovery of economic activity, the unemployment rate will fall by about 0.5 percentage points per year, approaching the level of 20.0% at the end of the forecast horizon.

In 2020, the growth of unit labor costs of enterprises will accelerate, as the decline in productivity is deeper than the slowdown in private sector wages, and at the end of the forecast horizon it will stabilize around its fundamental measure, the target inflation rate of 4%.

In conclusion, in the short run, the labor market will experience inflationary effects, which will gradually phase out in the medium term, as a result of accelerated economic growth and restored productivity.

2.2.3. Comparison with the Previous Forecast

During the third quarter, due to the increase in coronavirus disease in the United States, the European Union, and a number of other countries (some increase in the rate of spread of the infection), uncertainties about overcoming the pandemic and, consequently, the future remain high. Where this situation persists for a long time, economic agents are more conservative, risk-averse, delaying and partially canceling investment programs, reducing economic activity (temporary or long-term reductions in labor supply), or increasing the propensity for private savings.

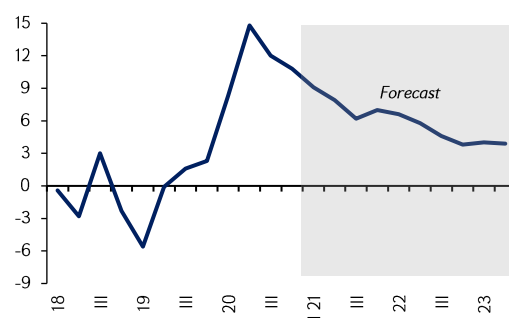
The above-mentioned factors, the previous concerns about which have started to materialize in recent months, will have a negative impact on the main partner economies of Armenia not only in the short but also in the medium and long term (see Box 2), reducing productivity and potential growth rates in these economies. as well as the projected medium-term real growth rates).

The US economy will experience a slightly smaller-than-expected economic downturn this year due to more robust fiscal stimulus policies, and in the medium term, with high levels of uncertainty, private spending will still be restrained, creating a slower recovery trajectory.

In the European Union, due to both the above fundamental factors and the slower lifting of short-term economic constraints or the

Chart 15

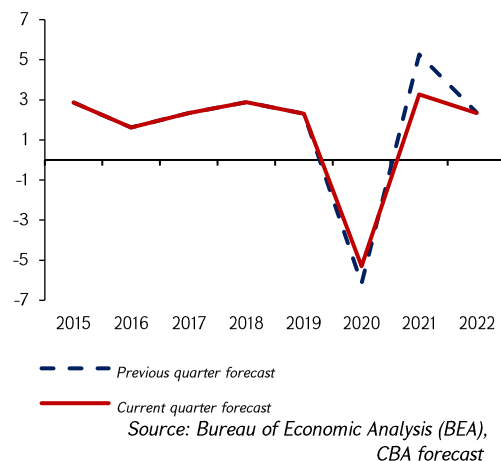
Unit labor costs growth, y/y (%)



Source: Armenia's Statistics Committee, CBA forecast

Chart 16

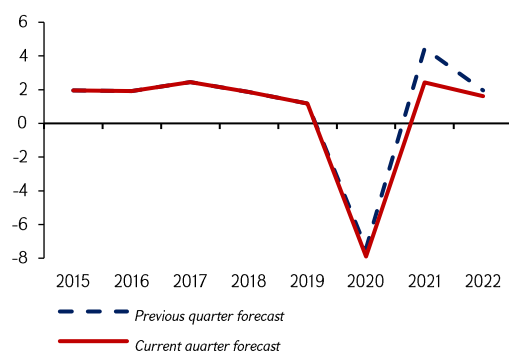
US economic growth forecasts (%)



Source: Bureau of Economic Analysis (BEA), CBA forecast

Chart 17

EU economic growth forecasts (%)



Source: Bureau of Economic Analysis (BEA), CBA forecast

introduction of new, local constraints ensuing from recent developments in some economies, real economic growth has been revised downwards over the forecast horizon. It should also be noted that, regardless of the actual imposition or elimination of economic constraints, in the face of uncertainty over the development of the pandemic, economic agents adjust their behavior, influencing the prospects for economic activity and demand recovery.

In Russia, in contrast to the other two economies, real economic growth rates will be slightly higher along the forecast horizon, due to higher-than-expected growth rates and levels of oil prices, as well as milder-than-expected manifestations of the economic consequences of the pandemic.

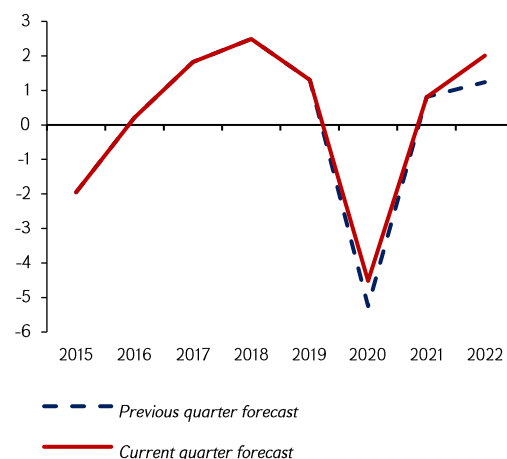
Due to the long-term effects of economic uncertainty (investment delays, declining productivity, etc.) in the above economies, real economic growth will slow down at the end of the forecast horizon, stabilizing at a lower level than before, except for Russia, where the impact of these factors was offset by rising oil prices. Subsequently, economies will bounce back to the pre-crisis levels of output not earlier than in the second half of 2022, with the exception of the European Union, where output levels will remain low for much longer.

It should also be noted that as a result of the slower recovery of demand in the forecast horizon, after the elimination of short-term factors, inflation in the US and the European Union will be lower than previously expected, while in Russia - slightly higher.

Commodity and food prices, largely due to the much faster-than-expected recovery of China's economy (industry) as well as the weaker US dollar, will be at higher levels than before in almost the entire projected horizon. In the current quarter, due to the risks accumulated by the Chinese economy on raw materials and foodstuffs and possible acceleration of the spread of the virus (new outbreak), there is an additional short-term precautionary demand with corresponding inflationary effects. In the near future, the prices of the mentioned goods or their growth will decrease to some extent, then, in the medium term, they will come close to their long-term stable growth rates, parallel to the recovery of world demand.

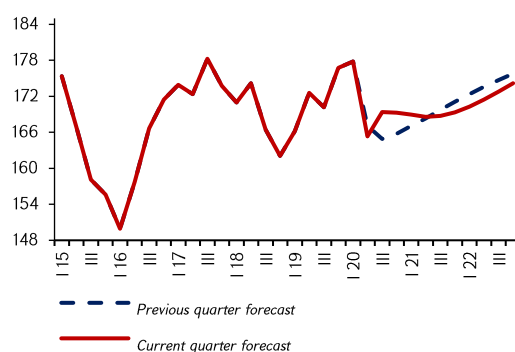
Medium-term price forecasts in the international food market have generally not changed significantly. Over the next few quarters, food prices will be higher than previously projected due to positive effects for almost all subgroups (except meat), and in the medium term, under weaker global demand, they will continue to grow at a slower pace than before.

Chart 18
Russia economic growth forecasts (%)



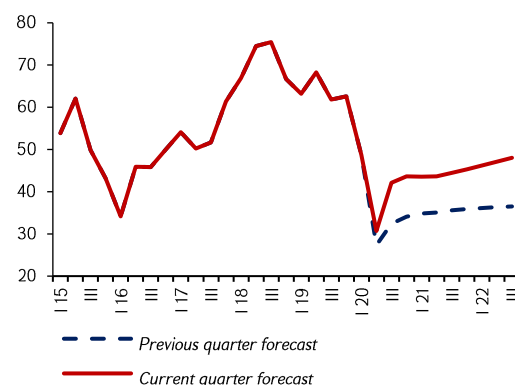
Source: Rosstat, CBA forecast

Chart 19
International food price forecasts



Source: FAO, CBA forecast

Chart 20
International oil price forecasts



Source: World Bank, CBA forecast

Projections for international oil prices for the entire time horizon have been revised upwards, mainly due to current oil prices, which are affected by a faster-than-supply pace of recovery in demand for oil as a result of the reopening of economies. It should be noted that in June, OPEC + member and partner countries agreed to extend cutting oil production under the first phase of the "Cooperation Agreement" for another month (until July 31), as well as to compensate for the failing to cut the oil production by some countries in May and June through additional cuts in July-September. These factors, together with the continued increase in the effectiveness of the implementation of the agreement in recent months, have had a significant impact on oil prices, holding back the aggregate supply. During the projected time span, prices for Brent oil will be in the range of 40-50 US dollars per barrel.

Due to the rapid recovery of China's economy, international copper prices prevailed at significantly higher levels than previously expected. According to current projections of the Central Bank, following mitigation of current short-term factors copper prices will somewhat decrease, and then return to the long-term steady growth path in line with global demand and will be around \$ 6,300 per ton at the end of the projected time horizon.

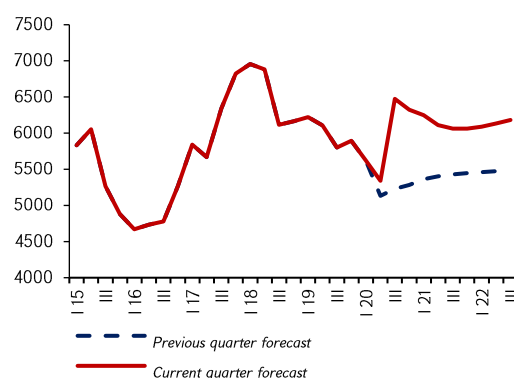
Armenia's economic growth projections were revised downward along the forecast horizon.

In 2020, economic activity was revised significantly downward, and is currently estimated at -6.2%. The revision was prompted by both the low actual economic activity in July and the perception of economic recovery. In particular, it is assumed that given the current trends of the pandemic, uncertainties and cautious behavior in the economy will persist longer, the recovery of international tourism will proceed at a slower pace, and domestic tourism will only partially offset its decline. As a result, the services and construction sectors, although somewhat restored in the second half of the year, will remain sluggish. No significant slowdowns are expected in industry and agriculture, due to both the high growth of mining production and processing in industry, as well as the impact of governmental programs directed to agriculture and the limited impact of the pandemic on farming.

In the forecast horizon, economic growth will remain below the level of long-term sustainable growth, owing both to the delay and the low level of current investments, which will negatively affect the potential growth of the economy in the near future, as well as the decline in productivity because of prevailing uncertainties (see Box 2).

Chart 21

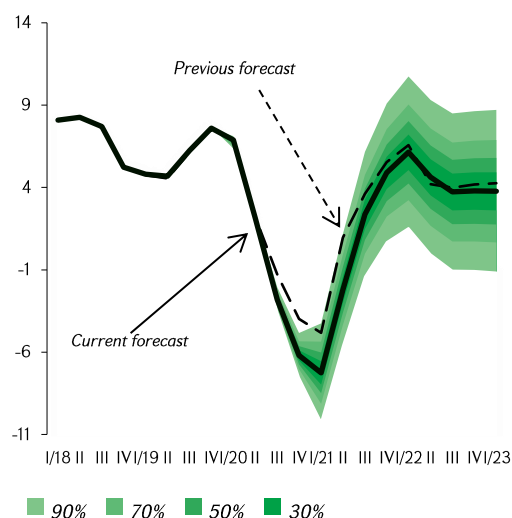
International copper price forecasts



Source: World Bank, CBA forecast

Chart 22

Real GDP (cumulative)¹³ growth forecast probability distribution for 3-year horizon.



Source: RA Statistics Committee, CBA forecast

¹³ The growth rate of each quarter is calculated as the cumulative growth rate for the last four quarters.

Table 2

Probability Distribution of Real Growth (Cumulative) Forecast		
Period	30% Probability Interval	90% Probability Interval
January-December 2020 / January-December 2019	(-6.5) - (-5.9)	(-7.5) - (-4.8)
January-December 2021 / January-December 2020	3.9 – 5.9	0.7 – 9.1
January-December 2022 / January-December 2021	2.6 – 4.9	(-1.1) - 8.6
January-June 2023 / January-June 2022	2.7 – 5.0	(-1.1) – 8.8

Box 2 ¹⁴

**Assessing the Medium-Term Economic Impact of Uncertainty in
Overcoming the Pandemic in the United States and Armenia**

The continuing spread of coronavirus in both developing and developed countries caused a significant increase in uncertainty about its neutralization in future and economic impact. Uncertainty is usually an countercyclical phenomenon and grows during crisis periods. There is a fairly extensive empirical literature¹⁵ that assesses the negative correlation between uncertainty and economic growth.

There are also many theoretical studies that reveal the nature of the link between uncertainty and economic growth. Uncertainty mainly affects economic growth through three main channels: real options¹⁶, risk

¹⁴ Prepared by Haykaz Igityan from the Models Improvement Division of the Monetary Policy Department of the Central Bank of Armenia (haykaz.igityan@cba.am):

¹⁵ Ramey, Gary and Valerie Ramey (1995). "Cross-country evidence on the link between volatility and growth". *The American Economic Review* 85(5), pp. 1138–1151, Baker, Scott and Nicholas Bloom (2013). "Does uncertainty reduce growth? Using disasters as natural experiments". NBER Working Paper 19475, Bloom, Nicholas (2009). "The impact of uncertainty shocks". *Econometrica* 77(3), pp. 623–685, Handley, Kyle and Limao, Nuno (2012), "Trade and Investment under policy uncertainty: Theory and Firm Evidence", NBER working paper 17790, etc.:

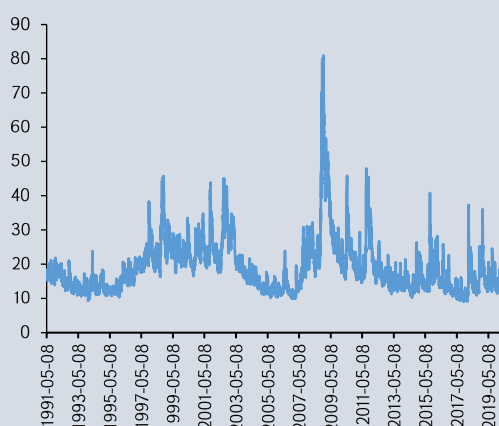
¹⁶ Bernanke, Ben (1983). "Irreversibility, uncertainty, and cyclical investment". *The Quarterly Journal of Economics* 98(1), pp. 85–106., Dixit, Avinash and Robert Pindyck (1994). "Investment under uncertainty". Princeton: Princeton University Press., Carroll, Chris and William Dunn (1997). "Unemployment expectations, jumping (s,s) triggers, and household balance sheets". In *NBER Macroeconomics Annual 1997, Volume 12*, NBER Chapters, pp. 165–230. National Bureau of Economic Research, Inc., Bertola, Giuseppe, Luigi Guiso, and Luigi Pistaferri (2005) "Uncertainty and consumer durables adjustment" *The Review of Economic Studies* 72(4), pp. 973–1007., etc.

premium¹⁷ and precautionary savings¹⁸. One of the directions of real options is manifested through the response of enterprises¹⁹: when uncertainty is high, high-productive firms are less willing to expand, while low-productive firms are less willing to shrink. This has a deterrent effect on the redistribution of resources between firms, which in other equal conditions could increase or leave productivity unchanged. Because resource redistribution is one of the key factors in increasing productivity among firms, high levels of uncertainty lead to decline in productivity. The essence of the risk premium mechanism is that uncertainty increases the price of debt incurred in order to compensate for the high level of risk. Subsequently, the probability of default increases, which creates a negative link between uncertainty and economic growth. The logic of the third direction is that in the face of growing uncertainty, households reduce their consumption and increase precautionary savings in an attempt to insure themselves against a decline in future incomes, which has a negative impact on economic growth.

The VIX index²⁰ used in the literature was taken as an indicator characterizing the uncertainty of the US economy. During the coronavirus period, the average value of the index is about 100% higher than in ordinary times, which was taken as the magnitude of the shock of the current uncertainty.

To assess the impact of the shock on US potential economic growth Ascari and Sbordone (2014) model²¹, calibrated for the US economy, was used. Uncertainty was modeled as the standard deviation shock of the productivity shock²². It is noteworthy that the economic impact of uncertainty is non-linear in nature, and this phenomenon is evident in Taylor's third-order approximation of the model. The shock of uncertainty reduces the productivity of firms. In an environment of uncertainty, price

Chart 23
Volatility index (VIX)



¹⁷ Arellano, Cristina, Bai, Yan and Patrick Kehoe (2010), "Financial markets and fluctuations in Uncertainty", Federal Reserve Bank of Minnesota Research Department Staff Report., Christiano, Lawrence, Roberto Motto, and Massimo Rostagno (2014). "Financial factors in economic fluctuations", American Economic Review, American Economic Association, vol. 104(1), pages 27-65, January., Ilut, Cosmin and Martin Schneider (2011). "Ambiguous business cycles", NBER WP 17900 etc.

¹⁸ Fernandez-Villaverde, Jesus, Pablo Guerron-Quintana, Juan Rubio-Ramirez, and Martin Uribe (2011). Risk matters: the real effects of volatility shocks. The American Economic Review 101(6), 2530– 2561., Leduc, Sylvan and Liu, Zhang, (2012), "Uncertainty shocks are aggregate demand shocks", Federal Reserve Bank of San Francisco, Working Paper 2012-10., Basu, Susanto and Brent Bundick (2011), "Uncertainty shocks in a model of effective demand", Boston College Working Papers in Economics 774. etc.

¹⁹ King, Robert and Sergio Rebelo (1999), "Resuscitating Real Business Cycles", in Handbook of Macroeconomics, John B. Taylor and Michael Woodford (eds.), Elsevier., Bloom, Nicholas, Max Floetotto, Nir Jaimovich, Itay Saporta-Eksten, and Stephen Terry (2012). "Really uncertain business cycles", NBER WP 18245.

²⁰ It is a real-time market index that shows the expected volatility of the next 30 days and is calculated based on the S&P 500 index.

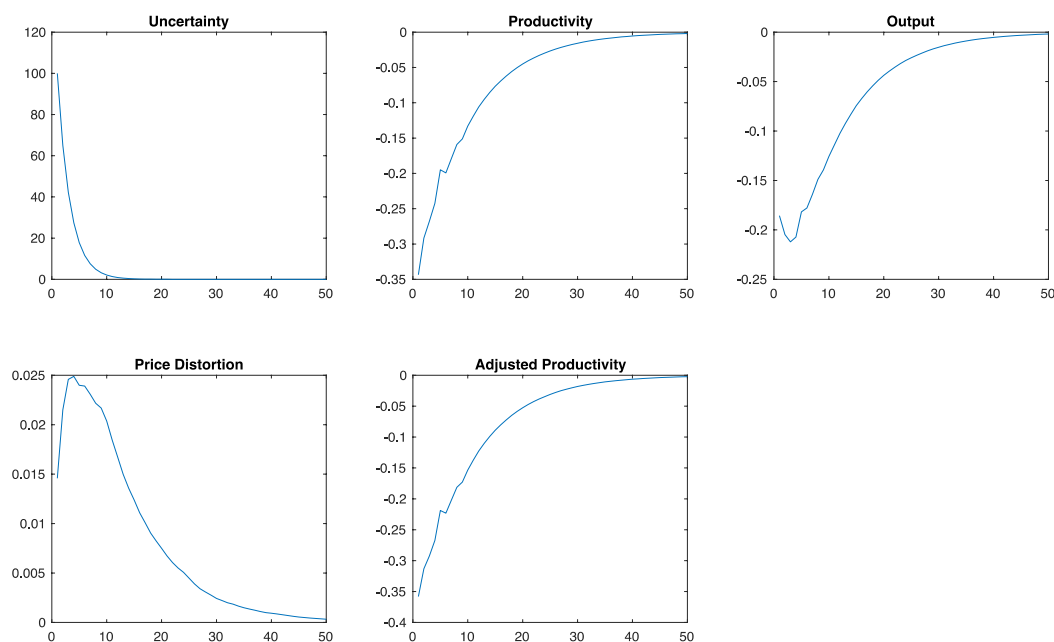
²¹ Ascari, Guido, and Argia M. Sbordone (2014), "The Macroeconomics of Trend Inflation." Journal of Economic Literature, 52 (3): 679-739

²² Born, Benjamin, and Johannes Pfeifer. 2014. "Risk Matters: The Real Effects of Volatility Shocks: Comment." American Economic Review, 104 (12): 4231-39., Leduc, Sylvan and Liu, Zhang, (2012), "Uncertainty shocks are aggregate demand shocks", Federal Reserve Bank of San Francisco, Working Paper 2012-10

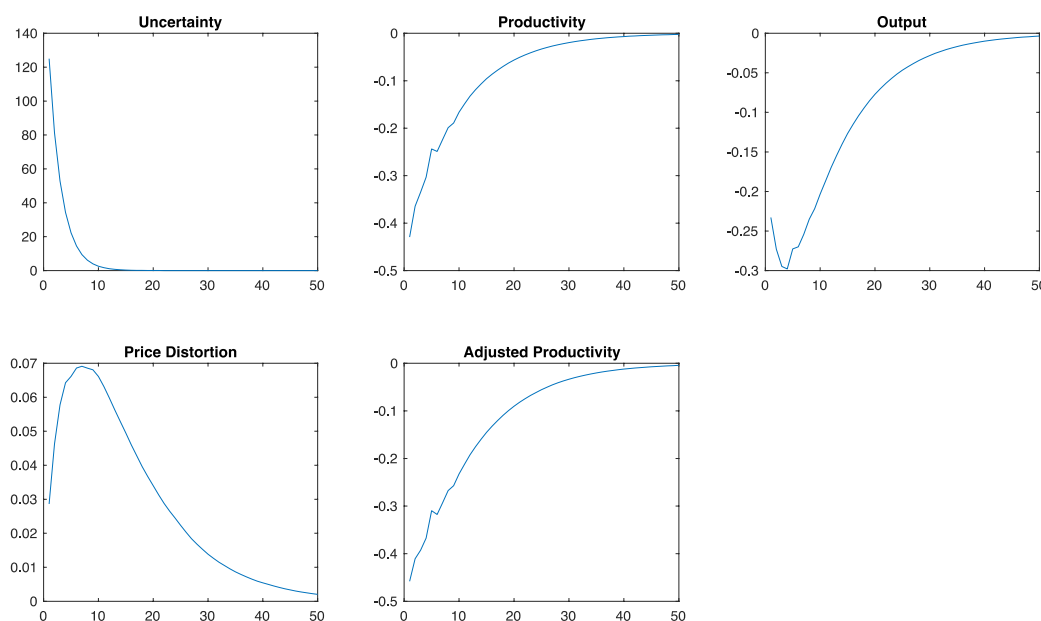
dispersion also occurs, which further exacerbates the decline in productivity (see Chart 22). Thus, according to the results of the model, under the current estimates of uncertainty, the potential economic growth of the United States in the medium term will be lower than the pre-crisis period by an average of 0.8-1.0 percentage points per year.

Chart 24

The Impact of Uncertainty on US Productivity



The same model then was calibrated for Armenia using the results of several researches conducted at the Central Bank of Armenia. The relative volatility of developing country bonds (BB) relative to the volatility of US private equity bonds with the same rating was taken as a measure of uncertainty shock. That ratio has been 1.25 for the previous 5 years. Consequently, the shock in Armenia was calibrated by 125% in respect of the above 100% shock in the United States. Increased uncertainty reduces productivity growth, as well as a larger increase in the price spread compared to the change in the magnitude of the shock takes place. This is mainly due to the higher inflation target rate (4%) in Armenia compared to the 2% target in the United States. As a result, Armenia's medium-term productivity growth is estimated to be 1.2-1.4 percentage points lower than the pre-crisis (or long-term equilibrium) growth rate. The impact of the shock on the economy is shown in Chart 25.



In 2020, the current account deficit-to-GDP ratio will be lower compared to previous forecast mainly as a result of improved terms of trade, revisions of remittances from individuals and weaker domestic demand.

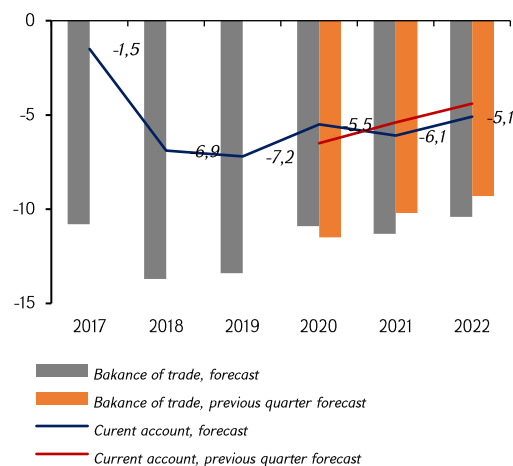
In terms of fiscal policy, compared to the previous forecast, the impact on the gross demand is slightly larger, expanding by 5.7 percentage points (Government anti-crisis measures are likely to increase spending and net lending to economy and significantly reduce taxes):

Current forecastst suggest that The GDP gap will still be in the negative range in the coming quarters, but as uncertainty subsides, as well as under the influence of current and expected monetary and fiscal stimulus policies, it will close in the forecast horizon and deflationary pressures from the real sector will be neutralized.

According to the current projection, 12-month inflation in the short term will be slightly higher than the previous forecast, reaching 2.5% at the end of the year due to some increase in seasonal food prices, while core inflation will weaken slightly compared to previous forecasts, remaining low until the end of the

Chart 26

Mid-term current account-to-GDP ratio forecasts, (%)

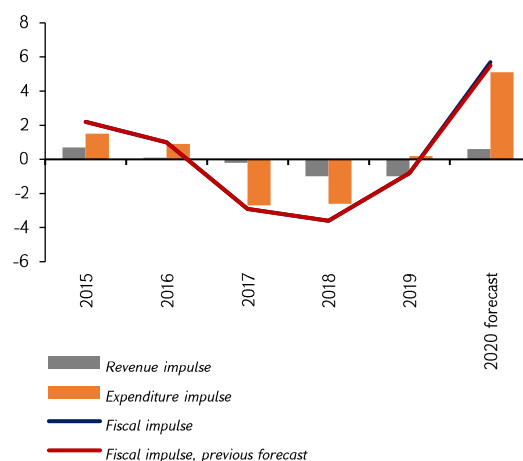


Source: World Bank, CBA forecast

year. In the medium run, the recovery of inflation will be hampered by the influences of further deflationary pressures expected from the outside world and a slower restoring of domestic demand amid growing uncertainty. Accordingly, in order to reach with the inflation target leveraging stimulative stance of monetary policy is warranted. This would continue facilitating the recovery of aggregate demand while helping inflation stabilize around the target at the end of forecast horizon (see the Chart 1. Inflation Forecast Probability Distribution).

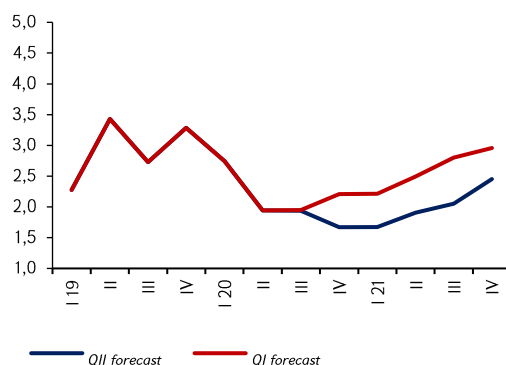
Short-term inflation expectations will linger at a level somewhat lower from previous projections, which is determined mainly by the prospect of a relatively slow recovery of core inflation.

Chart 27
Fiscal impulse forecast (percentage point)



Source: CBA estimate

Chart 28
Short-term inflation expectation estimates (%)



Source: CBA estimate

2.2.4. Main Assumptions and Risks

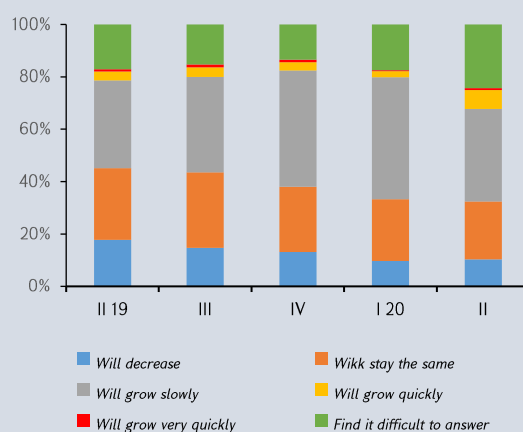
This section presents the main assumptions underlying the Monetary Policy Program for the second quarter of 2020, and the risks to implementation of the program stemming from external sector developments, fiscal policy, emerging trends and short-term projections.

Box 3

The results of survey on expectations by households and the financial system

The second quarter 2020 survey on selected macroeconomic indicators the Central Bank carried out through surveys among households and financial sector organizations denote that inflation expectations prove steadfast and are much the same compared to the previous quarter. Specifically, the share of households expecting high and very high inflation rates for a one-year horizon continues to be small in total respondent base. In addition, the surveys also reflect the objective reality that uncertainties about the expected inflation has increased to some extent.

Chart 29
Household inflation expectation estimates



Source: CBA

Forecast Assumptions

Table 3

Main judgments and assumptions	Possible developments, if this assumption proves correct
The spread of coronavirus in partner countries will accelerate to some extent, but there will be only sectoral and local restrictions on economic activity. The pandemic and the high level of uncertainty due to it will be maintained at least until the end of the year. Persisting high uncertainty will have the effect of reducing productivity and neutral interest rates, which will slow down the recovery of economies. OPEC + and partner countries will fulfill their obligations under the "Cooperation Agreement" to limit oil production.	✓ While certain signs of economic activity will be manifested in the short term, persisting high uncertainty about the future amid growing rates of spread of the coronavirus pandemic will lead to a slow recovery of both the US and Eurozone, and the global economy in the medium term. ✓ Low inflationary environment, slow recovery of the former conditions of the labor market as well as conditions for longer persistence of restrained demand will further lead to pursuing low interest rate policies in developed countries. ✓ In the time of a profoundly slackened global demand and in anticipation of slow recovery in future, a low inflationary environment in main commodity markets is expected. ✓ Certain increases in international oil prices due to more effective supply constraints and their stabilization at higher levels, will determine the slower pace of decline of Russian economy in the short run and its faster recovery in the medium term.
Armenia's country risk premium will still be at a certain level below the long-term stable level.	✓ Armenia's country risk premium is currently estimated to be somewhat below the long-term steady state. It is expected to rebound to its long-term steady state gradually over the forecast horizon as a result of the estimated increase of the country's external debt.
Inflationary expectations diminish.	✓ It is estimated that the public short-term inflation expectations have decreased to some extent due to the current decline in demand and the prospect of slow recovery in future.
A more stimulative fiscal policy for 2020.	✓ A significant 5.7 percentage point expansionary impact of fiscal policy is projected for 2020 in the event of full implementation of anti-crisis program proposed by the Government and some shortfall in the externally financed expenditures. The estimate of a stimulative effect is based on the following key assumptions: notable decrease in tax revenues, and growth in government spending and net lending to the economy. In the medium term, based on the estimates of baseline scenario of the MTEF 2021-2023, an overall neutral effect of the fiscal policy on demand is estimated.
Continuing impact of the pandemic in Armenia until the end of the year.	✓ It is expected that the spread of the pandemic, albeit at a slow pace, will continue until the end of the year, but there will be no need for additional restrictions, and it will be in the area of control. However, the resulting uncertainties and cautious behavior will also persist through the end of the year, affecting private demand and productivity.

Continuing impact of the pandemic in Armenia until the end of the year.	✓ It is also expected that the volume of international tourism by the end of 2020 will be very small (almost zero) and the latter will reach pre-crisis levels only gradually, by the end of 2021.
Measures to bolster potential GDP growth	✓ The activities of Amulsar mine and Alaverdi copper smelter are not factored in the monetary policy scenario. Their potential impact is considered in the framework of forecast risks.
Maintaining the normal growth rates of lending.	✓ While some increase in non-performing loans is expected in the near future, macroprudential policy actions will be aimed at the normal enforcement of the lending process by banks throughout the entire time horizon.

Forecast Risks

Current developments denote that quite serious risks that the pandemic would take much longer and come even with deeper negative economic impact are persisting both in the world and in Armenia. In some countries, there is talk of a so-called second wave after the easing of restrictions, and some experts believe that in many cases even the first wave has not yet been overcome. The extremely high level of uncertainty continues to be reflected in substantial widening of ranges of forecasting the central value of inflation and other key macro indicators (see inflation and economic growth forecast probability distribution charts (1 and 2)). The economic development risks and uncertainties around the baseline scenario of forecast stem from many factors, including the duration and intensity of the pandemic in Armenia, as well as the effectiveness of anti-pandemic measures taken all over the world, possible changes in their duration, short and long-term effects of the economy, changes in demand and supply structure, shifts in households' consumer behavior, etc. Accordingly, quantitatively, the most significant risks are described below.

In terms of aggregate demand, the following risks stand out:

- External demand may post a much deeper decline and remain low for a long while due to further developments in the pandemic situation in the world and the anti-pandemic policies effectiveness carried out.
- On the other hand, as a counterbalance to the above-mentioned negative risks, the Central Bank also considered a scenario of essentially optimistic developments from the beginning of next year. The latter is based on the possible risk of economic growth and

significant recovery of demand indicators against the background of favorable developments in the pandemic situation both in the outside world and in Armenia. Under other things being equal, deflationary pressures can be offset much sooner, and some inflationary risks may even arise. In this case, the need to maintain the CBA stimulus position for a longer period of time will disappear, and inflation will bounce back to the target at a faster rate than the baseline scenario.

- Household behavior is further adjusting from consumption to savings and the demand for secondary goods is shifting to goods of basic necessities. If pandemic lasts longer, these structural changes may be of longer-term and permanent nature than projected in the baseline scenario, which can lead to relative price changes, on the one hand, and influence the steady state of neutral interest rate, on the other.
- Although curfew-imposed restrictions on a number of economic activities have been largely lifted, demand in some sectors is very low largely because of the wariness of people. Accordingly, households who used to earn a living in sectors most suffered (tourism, restaurant business, etc.) may still face liquidity problems in the coming months, which could lead to a further reduction in demand by these entities. Moreover, there is likelihood that the decline in demand for these services may take a longer-term nature, and recovery will be rather sluggish. Of course, the extent of this risk largely depends on the developments in the pandemic situation in the country, as well as on the volume, effectiveness and continuity of the anti-crisis measures targeted by the Government at these groups. On the other hand, the deficit demand, if maintained longer, can start affecting the level of potential in these sectors through pushing it down, and can have chain effects on other sectors of the economy.
- The extent of the fiscal policy's simulative impact on aggregate demand largely depends on the course of state budget performance, and in the event expenditures are somehow underperformed or lending to the economy is less than planned, the public sector's impact will be less expansionary than outlined. And if the adjusted spending plan is fully implemented, the public sector will have a more stimulative effect.

In terms of supply, risks to the inflation are as follows

- In terms of supply in the short run, risks to the inflation are being assessed as balanced.
- Short-term risks to raw materials and food product prices are being assessed as balanced. On the one hand, there are some general deflationary risks related to the global economy shrinking. On the other hand, in the short run, there are certain inflationary risks to

food and raw materials, which are conditioned by a certain increase in demand for them in a number of countries in the world markets, especially China.

In the medium-term perspective, risks that inflation would deviate from the projection path mostly prevail and are rather sizeable quantitatively (see Chart 1: Inflation Forecast Probability Distribution).

In addition to the risks mentioned above, there are other mid-term risks (which unfold in either direction, but downside risks prevail, however) to potential economic growth. These risks, in particular, are associated with the following domestic factors:

- The uncertainties over further operating of Amulsar mine and Alaverdi copper smelter.
- Uncertainties over the course of the pandemic and of the anti-pandemic measures may result in a low level of confidence in consumer and business environment, which, if persisted over a long period of time, would create additional risks to the mid-term GDP potential.
- In the event of long-lasting pandemic, changes in the structure of consumption may be inevitable – in particular, the share of services prone to social interaction may decrease, which poses additional risks in terms of redistribution of labor force in the medium term and may contribute to an increase of structural unemployment.
- The pace of Government-led reforms and the extent and content of medium-term growth measures.

In general, as there are major uncertainties about the healthcare situation, hence further developments in the economy, the Central Bank is trying to reduce the potential risks deriving from these uncertainties by developing and discussing various scenarios while viewing the possibilities of policy response, which would allow to react to the situation accordingly at the very first signs when these risks materialize.

3. ACTUAL DEVELOPMENTS IN Q2, 2020

3.1. Inflation

3.1.1. Fulfillment of the Inflation Target

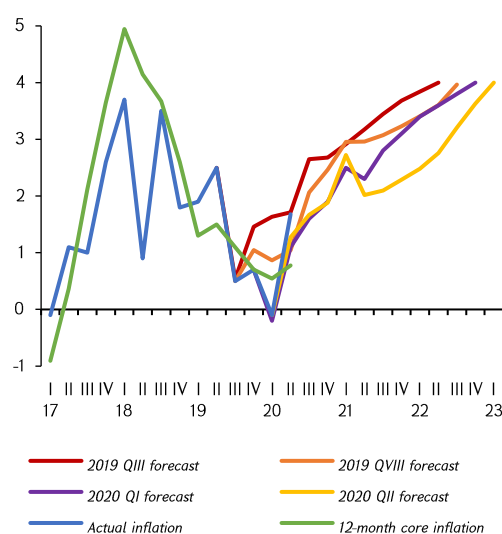
According to the MP program, for the third quarter of 2019, a low inflationary environment was predicted for the year preceding the third quarter of 2020, in view of the anticipated weak aggregate demand. The latter, in turn, had to incur the impact of contractionary fiscal policy to be implemented and the impact of a low inflationary environment transmitting from the external sector. Under such conditions, the Central Bank would have to continue pursuing an expansionary monetary policy, opting for inflation to recover gradually. Under such a policy, the 12-month inflation would still be low in the short-term and stabilize around the 4% target in the medium term.

In the period under review, 12-month inflation deviated from the projected path downside, mostly because of deflationary developments. The deviation was due to both demand and supply factors during that period. Thus, in the second half of 2019, the Government implemented a more restrictive fiscal policy than expected. However, during that period, domestic demand grew faster than expected due to higher growth in private consumption, which in turn was due to the relatively large increase in consumer loans provided to the economy by the financial system under the stimulus monetary policy. The restraint of inflation in the second half of 2019 was also facilitated by some supply factors, such as the impact of low world prices on domestic prices, increased efficiency of resource use in the non-export sector of the economy and growing competition in commodity markets, which changes the pricing behavior of organizations and reduces their markups. In view of above, the Central Bank revised its quarterly inflation forecast and recovery path.

Inflationary developments in the first half of 2020 were mainly affected by the New Coronavirus (COVID-19) pandemic, which broke out in several countries around the world at the beginning of the year. In Armenia, as in many countries around the world, it spread rapidly in the first half of March, initially reflected in a simultaneous reduction in aggregate supply and demand, which did not have a significant impact on current inflation developments. In the second quarter, despite the stimulus fiscal policy implemented, in the face of the uncertainty caused by the pandemic, a weakening of domestic and external demand was observed, as a result of which the inflationary environment remained low.

Chart 30

According to the Central Bank projections, 12-month inflation would still be low in the short-term and stabilize around the 4% target in the medium term



Source: Armenia's Statistical Committee, CBA

During the reporting period, taking into account the current low inflation situation and sluggish gross demand, the Central Bank of Armenia pursued a stimulative monetary policy, continuing to focus on gradual recovery of inflation since, according to the Central Bank, low inflation in the current macroeconomic situation contributes to the anchoring of long-term inflation expectations and the growth of public confidence in the monetary policy pursued by the Central Bank. During the reporting year, the Central Bank lowered the refinancing rate by a total of 1.25 percentage points, of which 1 percentage point due to expectations of a slow recovery of external and domestic demand amid high uncertainty created by the spread of the pandemic.

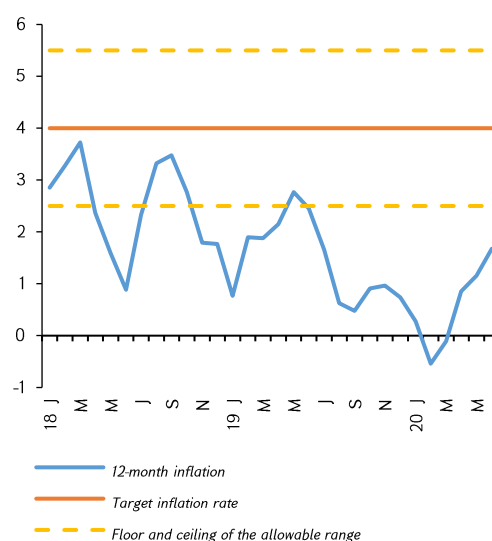
At the same time, responding to the significant increase in the demand for dram liquidity and the consequent increase in interest rates in the financial market, the Central Bank injected, through its main instrument, the required amount of dram liquidity into the system, helping short-term interest rates keep around the policy rate of the Central Bank. In the period under review, the Central Bank constantly signaled the financial market that in view of predicted macroeconomic developments, the expansionary stance of the monetary policy will continue as long as necessary to fulfil the inflation target in the medium run.

3.1.2. Prices

In the course of the year preceding the third quarter of 2020, the 12-month inflation remained low, but behaved volatile amid a change in agricultural product prices primarily due to the shift in crop seasonality. This, in the second half of 2019 and already in the beginning of 2020 a drop of seasonal food prices, contributed to a certain decrease in inflation, which amounted to -0.1%, y/y in March. Starting from the second quarter of 2020, inflation started to recover gradually, which is again a result of the seasonal increase in the prices of seasonal agricultural products, fruits in particular. At the same time, 12-month core inflation rate slightly dropped, and by June 2020 amounted to about 0.8%. The growth of tariffs for regulated services and prices of seasonal food products totaled 1.5% and 7.9%, y/y respectively. Price deflation of seasonal food products was driven by the rise in prices of items “Vegetables” (4.6%, y/y) and “Fruits” (14.2% y/y) and, and the fall in prices of the item “Eggs” (19.2%, y/y). The core inflation was mainly determined by prices of items “Bread and

Chart 31

The inflation rate has remained low over the past year



Source: Armenia's Statistical Committee

Cereals”, “Alcoholic Beverage” and “Tobacco”, having grown by 3.49%, 11.98% 8.78% y/y, respectively, tariffs for items "Outpatient Care Services", "Hospital Services" and "Education Services " having grown by 2.87%, 1.8% and 3.57% y/y, respectively, and prices on items “Meat”, “Sugar” and “Fuel” having dropped by 3.35%, 5,25% and 5.59% y/y, respectively. The rise in prices of “Tobacco” and “Alcoholic Beverage” continues to incur the inflationary impact of a change in excise duty rates at the beginning of the year. It should be noted that the inflationary impact of a change in customs rates on some goods in the beginning of 2020, as was estimated, amounted to about 0.2 percentage point.

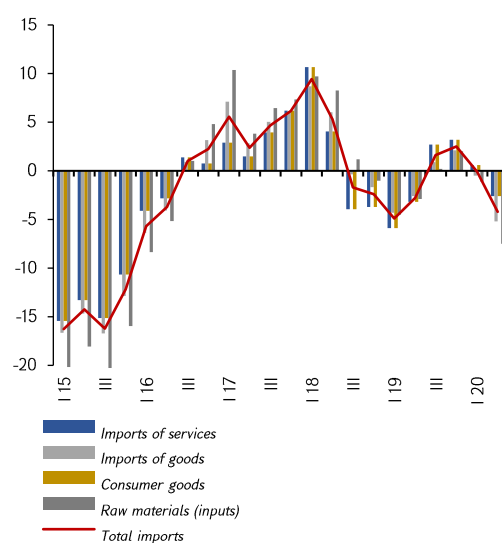
Table 4

Consumer price inflation by commodity items as key contributors			
Designation	Weights	12-month inflation	Contribution
Core inflation	72.7	0.78	0.57
Bread and cereals	7.73	3.49	0.27
Meat	9.58	-3.35	-0.32
Oils and fats	2.37	-0.31	-0.01
Sugar	0.53	-5.25	-0.03
Alcoholic beverages	2.79	11.98	0.33
Tobacco	1.39	8.78	0.12
Clothing	2.45	1.38	0.03
Footwear	1.32	3.12	0.04
Medicines and health products	4.62	1.32	0.06
Fuel	5.29	-5.59	-0.3
Air passenger transportation services	0.48	-13.66	-0.07
Education	3.14	3.57	0.11
Hospital services	2.66	1.80	0.05
Outpatient care services	2.37	2.87	0.07
Seasonal food products	11.47	7.90	0.91
Eggs	1.15	-19.19	-0.22
Fruits	4.19	14.19	0.59
Vegetables	6.13	4.63	0.28
Regulated services	15.88	1.51	0.24

Import prices: During the second quarter of 2020, the dollar prices formed in the external market had a deflationary effect on the prices of the domestic economy in Armenia. Prices of imports to Armenia posted 3.9% decrease relative to the previous quarter, with y/y decrease by 4.2%. Decrease in dollar prices of both consumer

Chart 32

In the second quarter of 2020, the dollar prices for imports of goods and services decreased compared to the same quarter of the previous year, y/y



Source: Armenian Statistics Committee

goods and intermediate consumption goods was observed. The decline in y/y consumer prices was mainly due to the sharp depreciation of the nominal exchange rates of the Euro, the Russian ruble and the Turkish lira. The decrease in the prices of intermediate goods compared to the second quarter of the previous year was conditioned by the emergence of a significant deflationary environment in the commodity markets, in particular the decrease in the prices of oil, aluminum and sugar.

3.2. Economic Developments

3.2.1. Economy Position

In the reporting quarter, the GDP gap lingered in a negative territory. Economic fall in the second quarter of 2020 (see Section 3.2.3) totaled 13.7%, as both the aggregate supply and aggregated demand slackened (see Section 3.2.2). As a result of the accumulated uncertainties and cautious behavior, the decline in demand was deeper, hence the negative GDP gap widened slightly compared to the previous quarter, increasing the deflationary impact on the consumer market. It should be noted that the impact of GDP potential in the reporting period is estimated to be temporary and will recover somewhat in the coming quarters, but in the medium term, the risks to the potential growth still trend downward (see Section 2.2.4). The negative GDP gap is largely a result of slowed down private demand, and is reflected in a weak inflationary environment (see Section 2.2.1). The stimulating effect of the state budget had a positive contribution to the GDP gap.

Economic fall in the second quarter of 2020 totaled 13.7%, as both the aggregate supply and aggregated demand slackened

3.2.2. The Expenditure Aspect of the Economy

The economic downturn in the second quarter of 2020 was largely driven by declining private spending, which is the result of increasing uncertainties due to the spread of the pandemic, cautionary behavior, and decisions to delay consumption and investment. It should be noted that the decline in private consumption and gross accumulation of fixed assets was deeper than the CBA forecasts and amounted to 18.8% and 41.9%, respectively, which makes the depth of the crisis and the change in the behavior of the private sector more pronounced. The decline in private spending has been somewhat mitigated by the stimulative effect of the state budget. Private expenditures in the reporting period were

also affected by reduced remittances from abroad. Thus, private spending slowed significantly, falling by 21.6% instead of the projected 18.0%.

According to the Central Bank aforementioned estimates, the impact of private consumption is generally deflationary, but the reporting quarter saw no significant deflation of consumer goods due to a number of factors, in particular, the difficulties of recording inflation as a result of non-transactions in some types of activities during the period of economic restrictions, as well as the fact that because of growing uncertainties businesses respond to demand developments with a certain lag.

As a result of the sharp decline in the global and domestic economy, as well as tourism restrictions, in the second quarter of 2020 a significant decline in real exports and imports of goods and services took place. The decrease in real import volumes slightly exceeded the decrease in real export volumes. Subsequently, the net real export contribution to GDP was positive. Thus, in the second quarter of 2020, the decrease in real exports of goods and services was 34.7% y/y, and the decrease in real imports of goods and services was 35.7% y/y. The decline in exports was due to slackened global demand, as well as preventive measures in the domestic economy, although developments in copper mining and exports were more positive than expected. The decrease in imports was affected by a significant reduction in domestic private demand.

Net remittances of individuals (seasonal workers' income and personal transfers inclusive) in the second quarter of 2020 in US dollars dropped by estimated around 28.0% y/y, which was less than expected. There have been structural shifts in the remittances of individuals by countries: the decrease in remittances from Russia was almost offset by the growth in remittances from the United States and other countries. The decrease in remittances is mainly due to the application of migration flow restrictions.

According to the Central Bank estimates, in the second quarter of 2020, relative to the same reference period last year, the current account deficit-to-GDP ratio grew by around 1.3 pp, mainly due to the large decline in GDP in the second quarter. It should be noted that in parallel with the reduction of remittances from individuals, the decline in exports and imports of goods and tourism services offset each other, having a neutral effect on the current account.

Fiscal Policy²⁴. In the second quarter of 2020, the actual budget revenues deviated from the Central Bank's projections²⁵ being

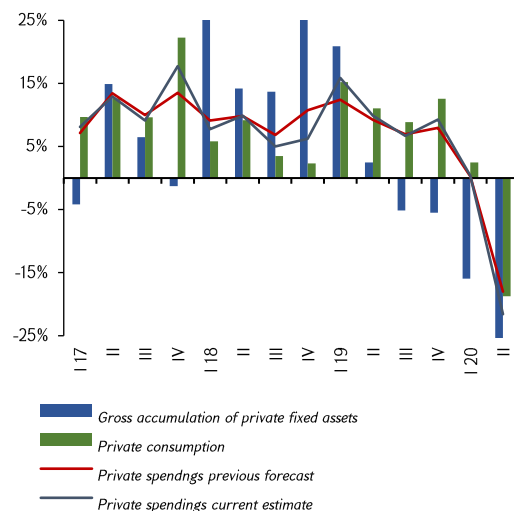
²³ The 2018-2019 spending series has been revised by the RA Statistics Committee.

²⁴ The review of the fiscal sector used actual consolidated budget indicators at the second quarter of 2020.

²⁵ The revenue projection was based on the adjusted 2020 plan by the Government.

Chart 33

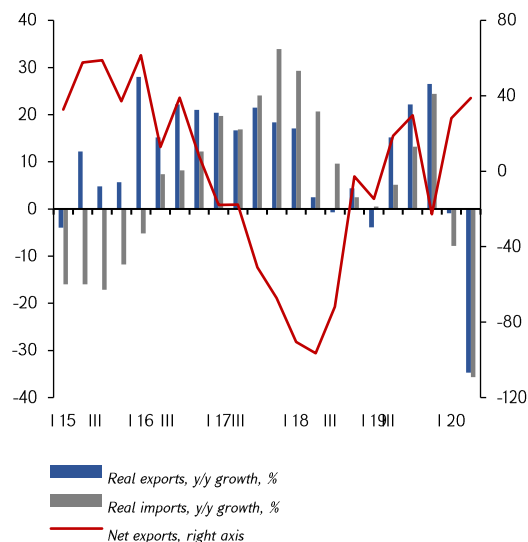
Private spending structure²³ (y/y growth)



Source: Armenia's Statistical Committee, CBA

Chart 34

The net export position improved in the second quarter of 2020 as import reduced faster than export did



Source: Armenia's Statistical Committee

underperformed, whereas the actual expenditures were in line with the Central Bank projections for the second quarter. The fiscal policy's impact on aggregate demand for the quarter was 8.8 percentage point expansionary, instead of the expansionary forecast of 8.4 pp, which was primarily attributable to deviated revenues.

In the second quarter of 2020 actual budget revenues totaled 93.3% of the planned figure, primarily because of the shortfall in tax revenue collection. As a result, the revenue impulse equaled 0.5 pp expansionary, instead of the projected 0.4 pp contractionary.

The state budget expenditures in the second quarter were in line with the Central Bank's projections, and the expenditure impulse was 8.2 percent, instead of the projected 8.8 percentage points (under the new GDP potential assessment). Within the structure of state budget expenditures, some of the items were overperformed and **public sector consumption** amounted to 97.0% of the projected indicator. Actual expenditures on **non-financial assets** amounted to 86.0% of the projection, which is primarily attributable to shortfall of funds intended for capital expenditures underperformed.

With revenues and expenditures performance described above, the state budget deficit amounted of AMD 88.0 billion in the second quarter of 2020, surpassing the Central Bank projection. Within the sources of covering the deficit external financing prevailed, of which AMD 135.6 billion was the direct budget support loan from the International Monetary Fund, aimed at securing the financing of socio-economic measures to mitigate the economic consequences of the new coronavirus pandemic.

In the second quarter of 2020, local budgets recorded a surplus, so, subsequently, the consolidated budget deficit totaled AMD 83.7 billion.

To sum up, fiscal policy in the second quarter of 2020 had a slightly more expansionary effect than expected in terms of demand and inflation.

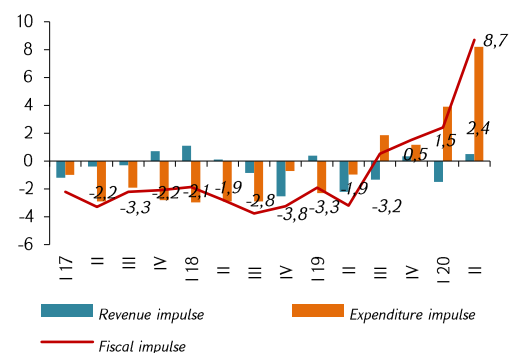
3.2.3. Production Aspect of the Economy

In the second quarter of 2020, GDP dropped by 13.7%, which is in line with the CBA projection, despite certain deviations on sectoral level. In particular, construction and net indirect tax declines were deeper than expected, at 39.5% and 21.6%, respectively. Due to the decisions to postpone investments amid uncertainties construction financed by the population and organizations has dropped significantly. The decline in services was by 1 percentage point milder than the

The impact of fiscal policy on gross demand for the second quarter of 2020 was estimated as 8.8 percentage points, instead of the projected 8.4 percentage points.

Chart 35

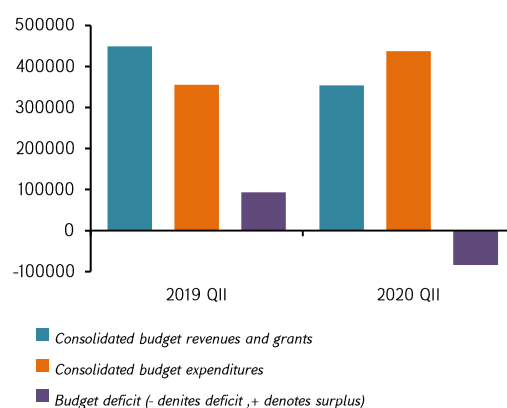
The expanding impact of fiscal policy in the second quarter of 2020 is mainly due to rising spending



Source: CBA estimate

Chart 36

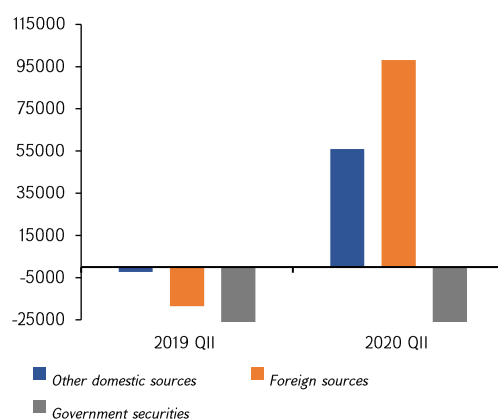
Main indicators of the consolidated budget (AMD billion)



Source: CBA estimate

Chart 37

In the second quarter of 2020, the state budget deficit has occurred, and the volume of external financing and net inflows from government securities has grown. (AMD million)



Source: Ministry of Finance

previous projection, amounting to -14.4%. It should be noted that the highest declines in the services sector were recorded in the sub-sectors of accommodation and public catering, administrative and support activities, as economic restrictions were relatively stricter in these fields, and the sector was riskier in terms of the spread of the pandemic, therefore, consumers were particularly reluctant to consume these services. Compared to other sectors of the economy, a relatively small decline was registered in industry - 5.6%, thanks to 22.4% growth in mining in the same quarter, and the least affected by the pandemic was agriculture, which grew by 0.3%.

The decline in economic activity in July was slightly deeper than in June and amounted to 10.2%, which was attributable to 23.3% decline in construction, 10.4% in trade, 21.6% in services, 2.3% in industry and 4.0% in agriculture.

3.2.4. Labor Market

In the second quarter of 2020, economic growth was concomitant with the labor productivity decline of 14.8%. This negatively affected the private sector nominal wage growth rate, which resides within 0%, below the previous forecast by the Central Bank. As a result, the growth rate of real wages in the private sector was higher than productivity, creating inflationary pressures by the labor market, which were accompanied by a decline in demand.

With economic growth and productivity developments described above, the unemployment rate in the second quarter of 2020 is estimated at 20%, which is below the previous projections of the Central Bank. The latter is mainly attributable to the influence of the Government's job support programs, which resulted in the number of registered employees to be higher than in the pre-crisis period in June, according to the publications of the RA Statistics Committee²⁶.

Subsequently, the slowdown in economic growth has been accompanied by adjusted working hours and wages rather than contraction of employment.

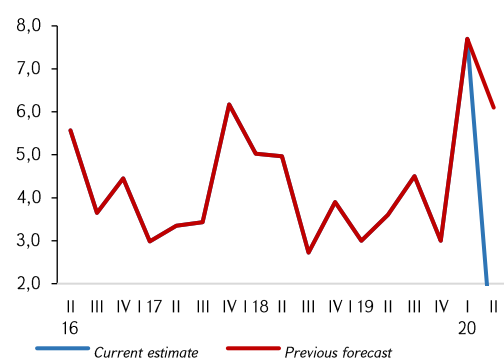
In the period under review the firms' unit labor costs grew by 14.8%, with private wage rate growth rate pacing faster than the output growth per unit of private labor.

Chart 38
GDP sectoral structure (y/y growth, %)



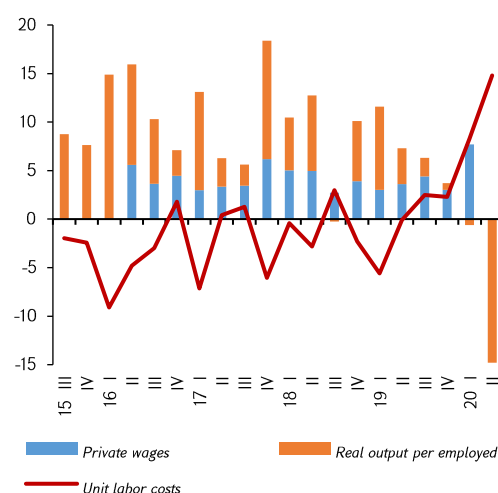
Source: Armenia's Statistical Committee, CBA

Chart 39
Private nominal wages (y/y growth, %)



Source: Armenia's Statistical Committee, CBA estimate

Chart 40
Unit labor costs (y/y growth, %)



Source: Armenia's Statistical Committee, CBA estimate

²⁶ https://www.armstat.am/file/article/sv_06_20a_141.pdf

3.3. Financial Market Developments

Given the high level of uncertainty created by the health crisis in the second quarter of 2020, the current low inflation environment and sluggish demand in the following period, in April and June 2020, the Board of the Central Bank of Armenia raised the amount of monetary stimulus, cutting the refinancing rate by 0.25 and 0.5 percentage points, respectively.

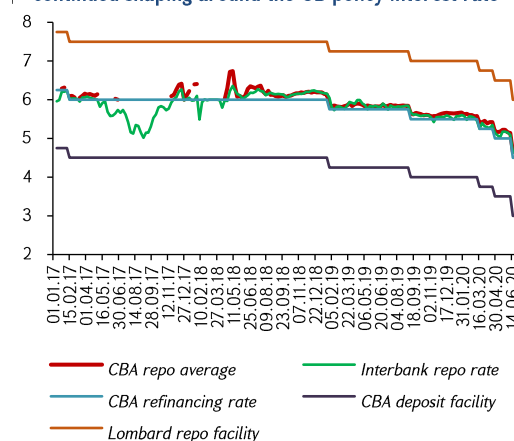
The negative effects of the coronavirus spread on the financial sector, as expected, were quite strong in Armenia as well, especially during the second quarter. In parallel with the measures taken by the Government of the Republic of Armenia, amid great uncertainties, the Board of the Central Bank also found it expedient to expand its monetary stimulus position by continuously lowering the refinancing rate. An important contributing factor to the decisions and actions was the fact that in the face of inflationary expectations anchored under the previous low inflation policy, it was possible to respond to the weakening of the overall demand through a stimulus policy. Furthermore, the Central Bank Board expressed the opinion that the easing of monetary conditions in the current situation will also have a positive impact on financial stability.

In addition, the Board had signaled the financial market participants that the Central Bank stands ready to respond appropriately to any developments and emergence of risks to safeguard stability of prices in the medium-term.

In April and June 2020, the Board of the Central Bank of Armenia raised the amount of monetary stimulus, cutting the refinancing rate by 0.25 and 0.5 percentage points, respectively.

Chart 41

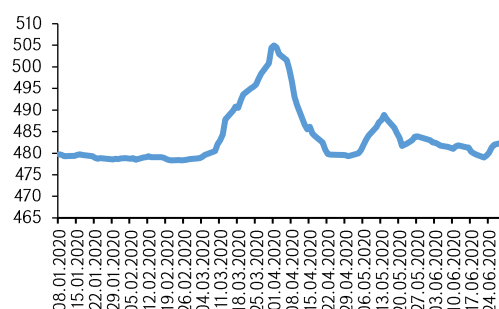
During the quarter short-term interest rates continued shaping around the CB policy interest rate



Source: CBA

Chart 42

USD/AMD exchange rate dynamics during 2020



Source: CBA

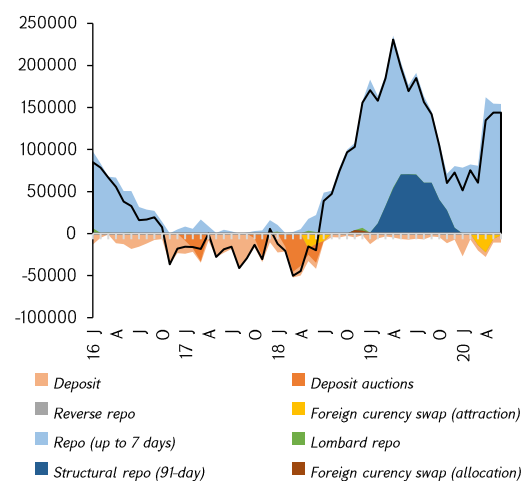
Table 5

Average quarterly interest rates in Armenia's financial market					
Indicators	Q II, 2019	Q III, 2019	Q IV, 2019	Q I, 2020	Q II, 2020
Central Bank refinancing rate (end of quarter)	5.75	5.50	5.50	5.25	4.5
Central Bank repo rate	5.86	5.80	5.63	5.57	5.16
Interbank repo rate (up to 7-day)	5.86	5.78	5.54	5.52	5.04
Yield of government securities on a yield curve (as of end-quarter)					
Short-term treasury bill (1 year)	6.36	6.26	6.01	5.83	5.8
Medium term notes (5 year)	8.39	7.99	7.44	6.90	6.98
Long-term bonds (30-year)	11.13	10.99	10.46	9.93	9.04

Both in the reporting period and in the third quarter, the statements and tools used by the Central Bank were aimed at mitigating the negative effects of the pandemic on the financial market and ensuring market stability. The demand for money liquidity was met

Chart 43

Liquidity absorbed and injected through CBA transactions, average monthly inventory, AMD million



Source: CBA

through the CBA's main instrument, accompanied by setting of short-term interest rates in the vicinity of the CBA policy interest rate.

The Central Bank's actions have notably mitigated the effects of short-term high demand on liquidity in the foreign exchange market since the end of the first quarter, which was also reflected by the emergence of exchange rate depreciation pressures. Some high demand for foreign currency liquidity was observed mainly in April, which was largely satisfied with the use of the currency swap instrument, as well as with the purchase and sale of US dollars by the Central Bank during the quarter (net sales amounted to USD 23.9 million). Provision of foreign exchange liquidity through the above-mentioned channels has made it possible to ensure normal functioning of foreign exchange market.

Cutting of the refinancing rate by the Central Bank, and the full coverage of the demand for liquidity in drams have somewhat stabilized situation in the financial system. Despite the high level of uncertainty, the demand for mid-term and long-term government bonds was high during the quarter, so the yields gradually decreased during the quarter. As for the short-term T-bill market segment, growing uncertainty has somewhat weakened the impact of CBA policy on market participants' decisions, and only in June, with a large cutting in the refinancing rate, interest rates did fall in the short-term segment of the yield curve.

During the second quarter of 2020, negative impact of the coronavirus pandemic on the credit market was quite large. Despite credit payment holidays to borrowers by banks and credit organizations, new lending conditions have been significantly tightened, mainly due to pessimistic expectations of economic activity. However, in the case of business lending, the negative impact was significantly mitigated by the introduction of state support programs and, as a result, no reduction in lending was observed in this area. More than that, lending growth trend emerged during the quarter and the 12-month growth of loans to businesses in June totaled 13.6%. Uncertainties about the future income of customers were mainly reflected in the reduction of the consumer loans volumes.

Total lending volumes gradually recovered in May-June, with a 17.5% 12-month increase in June 2020.

Chart 44

In the second quarter of 2020, government bond yields dropped significantly in the long-term segment of the curve

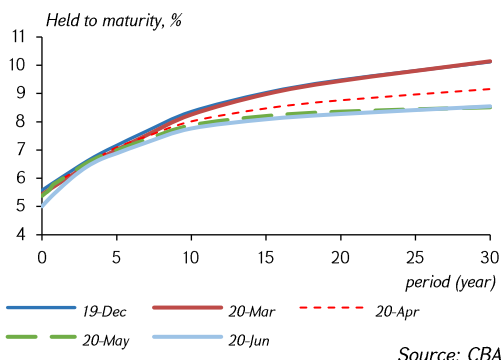


Chart 45

Dynamics of the CBA refinancing rate and government securities returns

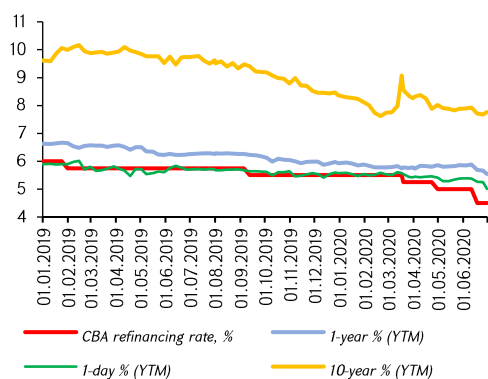


Chart 46

Dynamics of 12-month growth of lending provided by banks

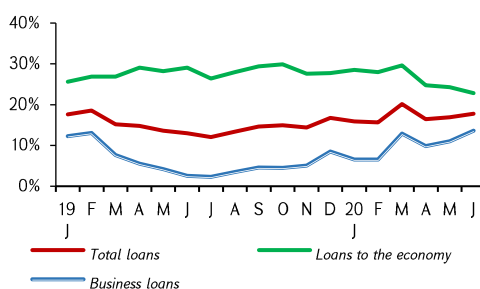
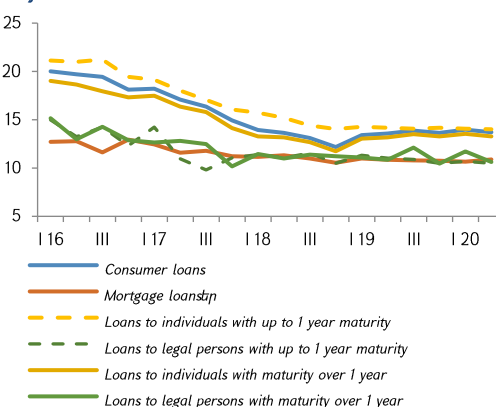


Chart 47

Dynamics of interest rates on AMD loans



4. SUMMING-UP

The inflation environment will remain low in the upcoming period of time, according to Q3 2020 monetary policy program, due to the prevailing impact of weak private demand on domestic prices attributable to the large uncertainties surrounding the final recovery period of the pandemic. To that end, in parallel with the implemented fiscal stimulus policy, the Central Bank will continue pursuing a stimulative monetary policy in the short term and, if need be, will carry on with that policy in the medium run.

In the forecast horizon, risks that inflation would deviate from the projection path are generally downside. The Central Bank is monitoring these risks and stands ready to react once they emerge, while maintaining price stability in the Republic of Armenia.

BOARD MEETING OF THE CBA

MINUTES

(15.09.2020)

On the Refinancing Rate

The CBA Board Meeting of September 15, 2020 attended by Governor Martin Galstyan, Deputy Governors Nerses Yeritsyan and Vakhtang Abrahamyan, and Board Members Hasmik Ghahramanyan, Arthur Stepanyan, Armenak Darbinyan, Oleg Aghasyan and Hovhannes Khachatryan

The Board meeting opened with a report of the situation as of September 15, 2020. It addressed the developments on inflation, external environment and real, fiscal and monetary sectors of the economy in the context of assessing the impacts and consequences of the coronavirus pandemic.

There was 0.1% deflation in August 2020, compared to 0.4% deflation observed in the same month last year, **with the 12-month inflation expanded to 1.8%**. The month's negative inflation figure was mainly due to 0.9% drop in prices of item "Food and non-alcoholic beverage " (contribution to inflation: - 0.35 pp), within the structure of which the prices of "Fruit" and "Vegetables" product groups decreased by 4.9% and 3.3%, respectively. Among non-food products, the prices of "Clothing and Footwear" item decreased significantly by 1.7%, which contributed to the inflation by -0.07 percentage points. Tariffs for services grew during the month, with the tariffs for "Transport" and "Restaurants and Hotels" services rising by 2.2% and 0.7%, respectively. In August, **the 12-month core inflation** also grew slightly, mainly driven by the growth in the prices of the "Fuel" item and made **1.1%**.

In the external sector, global economic activity posted certain recovery during the third quarter, but as the uncertainty surrounding the final overcoming of the pandemic remains, the Central Bank considers that in these conditions the recovery of economic activity and gross demand of the main partner countries of Armenia will be significantly delayed. In particular, due to persistent uncertainties and possible labor market distortions, private spending in the US and the Eurozone will be restrained for longer, slowing economic recovery. In Russia, the medium-term negative effects will be partially offset by a faster recovery in oil prices over the previous forecasts. Such economic developments also affect the trends of the main commodity markets, maintaining the low inflationary environment. Taking into account the

above, along with the largely stimulating fiscal policy, central banks of the main partner countries of the Republic of Armenia, will continue to pursue a stimulative monetary policy.

While discussing the current state of the Armenian economy, it was noted that in the first half of the year, the economic growth was fully in line with the Central Bank's projection and made -5.7%, however, some deviations were observed in sectoral developments. In particular, instead of the projected 30.1%, the decline in the construction sector was higher - 39.5%, but at the same time, the industry and services sectors experienced smaller-than-expected declines of 5.6% and 14.4%, respectively, instead of the projected 10.6% and 15.4%, respectively. In July, a deeper decline in economic activity was observed compared to the previous month, which was primarily attributable to the decline in services. In addition, from the point of view of future forecasts, the importance of discussion of the health scenario was emphasized, where the judgment was accepted that even after the lifting of restrictions, the spread of the infection will be within the manageable limits and there will be no need for new ones. At the same time, uncertainty and cautious behavior of households will continue to have a restraining effect on demand recovery.

In the context of the above, the Central Bank revised its economic growth forecasts downwards: in 2020, a decline of 6.2% is expected instead of the previously projected 4.0%, and in 2021, a 4.9% growth instead of the previously projected 5.5%. The slowdown in medium-term growth will be mainly attributable to a certain loss of GDP potential due to the delay in investments and declining productivity amid the uncertainty created by the pandemic. In the first half of the year, along with the decline in economic activity, domestic demand also weakened significantly, which was reflected in notable reductions in both private consumption and private investment. These trends continued in July as well, and, despite the stimulative fiscal and monetary policies promoted by the Government and the Central Bank somewhat eased the restraint of domestic demand, but uncertainties over the final neutralization of the pandemic remain high, prompting people to exercise more cautious consumer and investment behavior. Under this situation, the Central Bank considers that domestic demand will remain sluggish in the coming quarters, and the expected recovery will be somewhat delayed. It was also noted that a certain positive trend was registered in the structure of remittances from abroad, as remittances from the United States and other countries are growing, partially offsetting the impact of reduced remittances from Russia on aggregate demand. The Board also noted that the certain activation of domestic tourism observed in recent months has only to a small extent and partially offset the negative developments in the sector.

Concerning developments in the financial market of the Republic of Armenia, during the third quarter also, market interest rates appropriately responded to changes in the refinancing rate of the Central Bank. Thus, short-term interest rates have decreased and were constantly in line with the policy (refinancing) interest rate. It was noted that albeit relatively slower the yield on government bonds in the short run also declined. Interest rates on loans and deposits in the banking system have manifested a generally stable behavior, primarily due to high competition on the one hand and the high risk to the economy in the current economic downturn on the other. Business lending rates were exception, which fell slightly due to government measures to mitigate the pandemic. This is evidenced by the results of a survey conducted by the Central Bank among financial institutions on credit terms, which also confirm the factor of prevailing influence of public support programs on business lending volumes and interest rate trends. In this context, issues related to the lending process were also discussed, and it was noted that currently the implementation of economic assistance programs by the Government contributes significantly to the growth of lending.

Following a discussion of the situation report and external and domestic macroeconomic developments, the Board proceeded to addressing the monetary policy directions and making decision on the policy rate. Given the continuing low inflation environment, the slowdown and delay in the recovery of external and domestic demand in the outside world and in Armenia due to the current uncertainty over the final stages of the pandemic, ***the Board reviewed two options for easing monetary conditions: by 0.25 and 0.5 percentage points.*** After scrutinizing all the above-mentioned arguments about the actual and expected macroeconomic situation, the CBA Board largely agreed with cutting of the refinancing rate. However, on the other hand, the Board remained of the view that, in addition to monetary stimulus, a stronger fiscal stimulus policy is key to restoring aggregate demand, as the results of the survey submitted to the Board showed that different sectors of the economy in the current situation have suffered severe disproportionate losses, while monetary policy has a general impact. Subsequently, a decision ***to cut the refinancing rate by 0.25 percentage points*** was approved by the majority of votes. In the event of projected economic developments, the Board is inclined to continue easing monetary conditions in the near future. At the same time, the Board stressed that the stimulus position would need to be maintained in the medium term, as a result of which inflation would gradually grow and stabilize around the target at the end of the projected period.

The Board approved the decision on interest rates of monetary instruments of the Central Bank and the proposed press release, which are attached hereto.

The Central Bank of the Republic of Armenia

Board Decision

Interest Rates of the Republic of Armenia Central Bank Operations in Financial market

By virtue of Article 2.3 (20) “c” and “f” of the Republic of Armenia law “On the Central Bank”, and provisions of the Republic of Armenia law “On Normative Legal Acts”, the Board of the Republic of Armenia Central Bank, herewith enacts:

1. Set the refinancing rate of the Central Bank of the Republic of Armenia at 4.25%.
2. Set the lombard repo facility rate offered by the Central Bank of the Republic of Armenia at 5.75%.
3. Set the deposit facility rate offered by the Central Bank of the Republic of Armenia at 2.75%.
4. This decision shall enter into force on the day following the day of its publication on the website of the Central Bank of the Republic of Armenia.

***Martin Galstyan,
Governor of the Central Bank***

***September 15, 2020
c. Yerevan***

PRESS RELEASE
15.09.2020

At the October 27 meeting, the CBA Board decided to keep the refinancing rate unchanged at 4.25%.

Inflation in September 2020 stood at -0.2%, compared to 0.2% in the same month of the previous year. As a result, the 12-month inflation amounted to 1.4%. At the same time, the 12-month core inflation somewhat increased to 1.3%.

Despite some positive developments in the global economy in the third quarter, it is estimated that in September-October, in light of the new pace of coronavirus spread and resulting high uncertainties, the recovery of global demand and economic activity will be somewhat delayed. At the same time, a weak inflationary environment persists in the commodity markets. Under such conditions, central banks of main partner countries will continue pursuing expansionary monetary policy. Hereby, the CBA Board estimates that no significant inflationary impact is expected from the external sector on the Armenian economy.

Low economic activity prevailed in Armenia in the third quarter and a 7.5% decrease in economic activity compared to the same month of the previous year was registered in September, which was mainly a result of a significant reduction in the services sector. Despite the expansionary fiscal policy, domestic demand was slightly weaker than expected during the quarter, mainly due to a deeper reduction in private consumption. The large-scale military attack by Azerbaijan along the entire line of contact of Artsakh (Nagorno Karabakh) on 27th September, as well as the incomparably rapid spread of the coronavirus in the first half of October, created a negative environment for both supply and demand developments. It is estimated that along with a somewhat reduction in output, uncertainty regarding economic growth outlook will increase, thus delaying the recovery of economic activity and domestic demand. In this situation, the Government outlines the implementation of a sizable fiscal expansion, mainly due to the increase in military spending and expenses aimed at overcoming the pandemic.

Taking into account the above-mentioned actual and expected macroeconomic developments, as well as the fact that the country's risk premium has increased to some extent during the military actions and certain risks of inflation destabilization have arisen, the CB Board considers it convenient to leave the refinancing rate unchanged. Under these circumstances, inflation will gradually increase and stabilize near the 4% target at the end of the forecast horizon.

The Board estimates that the risks of inflation deviating from the projection are balanced. In case risks materialize, the Central Bank is ready to respond accordingly to ensure price stability in the medium term.

Detailed information underlying the decision on the level of interest rate will be available in the Press release (Minutes of the CBA Board meeting), to be published on 10th of November 2020

CBA Public Relations Service

MAIN MACROECONOMIC INDICATORS OF ARMENIA

Items	2012	2013	2014	2015	2016	2017	2018	2019***	2020	2021	2022
	actual	actual	actual	actual	actual	actual	actual	actual	program	program	program
Prices											
Inflation (y/y, end of period, %)	3,2	5,6	4,6	-0,1	-1,1	2,6	1,8	0,7	2,5	1,7	3,0
Consumer price index (y/y, average, %)	2,6	5,8	3,0	3,7	-1,4	1,0	2,5	1,5	1,5	1,9	2,2
Core inflation (y/y, average, %)	5,3	5,8	1,9	5,1	-2,0	0,8	4,0	1,2	1,0	1,6	2,5
Gross product											
GDP (billion Armenian dram)	4266,5	4555,6	4828,6	5043,6	5067,3	5568,9	6017,0	6569,0	6130,9	6559,9	7013,4
GDP (% real growth)	7,2	3,3	3,6	3,2	0,2	7,5	5,2	7,6	-6,2	4,9	3,8
Supply											
Industry (% real growth)	6,4	6,3	-0,9	6,2	7,7	11,7	4,9	8,3	-2,0	4,9	5,1
Agriculture (% real growth)	9,5	7,6	6,1	13,2	-5,0	-5,1	-6,9	-2,6	-1,1	3,2	2,6
Construction (% real growth)	4,5	-7,4	-4,5	-3,1	-14,1	2,8	0,6	3,7	-18,7	9,1	1,9
Services (% real growth)	6,3	3,1	6,7	1,6	3,2	10,6	9,1	10,7	-6,1	4,2	3,8
Taxes, net (% real growth)	9,9	3,6	1,8	-5,1	-3,7	9,7	8,0	7,1	-12,1	8,5	4,3
Demand											
Consumption (% real growth)	7,7	2,3	1,2	-6,0	-2,1	11,6	3,8	11,8	-7,2	4,8	3,4
Public consumption (% real growth)	-1,4	7,6	-1,2	4,7	-2,4	-2,1	-3,0	12,5	7,4	1,0	4,2
Private consumption (% real growth)	9,1	1,7	1,6	-7,5	-2,1	14,0	4,8	11,7	-9,4	5,5	3,3
Gross accumulation of fixed assets* (% real growth)	-1,9	-7,0	-2,2	2,5	-11,4	9,7	4,8	4,4	-17,5	10,0	4,9
Public investment** (% real growth)	-22,4	-13,8	10,0	13,6	5,0	31,7	-37,4	31,1	-6,9	9,5	13,6
Gross accumulation of private fixed assets (% real growth)	0,9	-7,8	-3,4	1,2	-13,9	6,2	19,6	-0,5	-20,0	10,3	2,7
Export of goods and services (% real growth)	12,0	8,6	6,4	4,9	21,3	19,3	5,0	16,0	-31,4	18,6	6,0
Import of goods and services (% real growth)	4,7	0,0	-2,7	-15,3	6,3	24,6	13,3	12,0	-30,9	16,2	3,8
External sector											
Balance of trade ((million US dollar))	-2111,9	-2196,2	-2055,4	-1186,4	-944,4	-1376,1	-1789,1	-2051,2	-1454,0	-1527,5	-1542,8
Balance of services ((million US dollar))	-101,6	-124,3	-113,0	-94,5	-71,4	-35,6	-157,8	79,9	36,5	15,9	58,3
Remittances ((million US dollar))	1539,8	1755,1	1616,1	1082,4	989,6	1179,3	1136,2	1157,3	931,1	1013,2	1073,9
Current account ((million US dollar))	-1057,9	-812,9	-883,1	-279,1	-238,1	-344,4	-1165,3	-1118,4	-710,3	-814,2	-726,2
Balance of trade (share in GDP, %)	-19,9	-19,7	-17,8	-11,3	-8,9	-12,2	-15,7	-14,4	-10,9	-11,3	-10,4
Balance of services share in GDP, %)	-1,0	-1,1	-1,0	-0,9	-0,7	-0,3	-1,3	0,6	0,3	0,1	0,4
Remittances (share in GDP, %)	14,6	15,8	14,0	10,3	9,3	10,2	9,1	8,5	7,2	7,6	7,5
Current account (share in GDP, %)	-10,0	-7,3	-7,6	-2,7	-2,2	-3,0	-9,4	-8,2	-5,5	-6,1	-5,1
Public sector											
Revenues and grants (billion Armenian dram)	946,2	1071,4	1144,8	1167,7	1171,1	1237,2	1341,7	1559,1	1451,6	-	-
Tax revenues (billion Armenian dram)	878,4	1000,9	1064,1	1067,9	1079,7	1158,1	1258,1	1464,3	1355,9	-	-
Expenditures (billion Armenian dram)	1006,1	1142,9	1235,1	1409,0	1449,1	1503,9	1447,1	1623,0	1803,1	-	-
Deficit (billion Armenian dram)	-59,9	-71,5	-90,3	-241,3	-278,0	-266,7	-105,4	-63,9	-351,5	-	-
Revenues and grants (share in GDP, %)	22,2	23,5	23,7	23,2	23,1	22,2	22,3	23,7	23,7	-	-
Tax revenues (share in GDP, %)	20,6	22,0	22,0	21,2	21,3	20,8	20,9	22,3	22,1	-	-
Expenditures (share in GDP, %)	23,6	25,1	25,6	28,0	28,6	27,0	24,1	24,7	29,4	-	-
Deficit (share in GDP, %)	-1,4	-1,6	-1,9	-4,8	-5,5	-4,8	-1,8	-1,0	-5,7	-	-
Monetary sector											
Broad money (y/y, end of period, %)	19,5	14,8	8,3	10,8	17,5	18,5	7,4	11,2	-	-	-
Dram broad money (y/y, end of period, %)	11,9	14,9	-3,5	5,2	24,8	28,9	13,2	21,5	-	-	-
Loans to economy (y/y, end of period, %)	27,6	12,9	20,8	-3,3	6,0	16,5	17,2	18,5	-	-	-
USD/AMD (Armenian dram for one US dollar)	401,8	409,6	415,9	477,9	480,5	482,7	483,0	480,4	-	-	-

* From now on the Central Bank will only present the indicator of gross fixed asset accumulation instead of gross accumulation, since the change in tangible working capital inventories is considered by Armenia's Statistics Committee as a balancing item and it does not show the true level of gross accumulation. See https://www.armstat.am/file/article/sv_04_19a_112.pdf.

** Actual indicators of public investment are the capital expenditures of the consolidated budget, and the forecasts are based on the draft Mid-Term Expenditures Framework, 2021-2023.

*** The 2020 budget indicators are the indicators of the revised law.

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