CENTRAL BANK OF MONTENEGRO

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1. INFLATION INDICATORS

Consumer prices continued to grow at the global level over the third quarter of 2022, and the projections of international institutions indicate that the peak of inflation is to be expected at the end of the year. Global events caused by the situation in Ukraine, sanctions against Russia, and problems in global supply chains have resulted in a crisis in the energy market and their price increase. Food prices on the world market, measured by the FAO[1] Food Price Index, have declined in recent months, mostly as a result of the July Russian-Ukrainian Agreement on the export of agricultural products, which enabled the export of grains and fertilizers from several Black Sea ports. Nevertheless, food prices are still higher than last year, and their movement in the coming period remains uncertain. As for Montenegro, it is obvious that we will see the highest rate of inflation since the regaining of independence. In the first nine months of 2022, consumer prices were 11.6% higher year-on-year, while they were 16.0% higher on average in September this year compared to the same month last year. In the reporting period, consumer prices rose 3.1%, primarily owing to price increase in the categories of *food and non-alcoholic beverages* of 5.2% and *housing, water, electricity gas and other fuels* of 4.6% (table 2). Monthly trends of consumer prices shows that the price increase was recorded in all three months of the third quarter: 1.5% in July, 0.2% in August, and 1.4% in September.

Table 1

Inflation in Montenegro in the period March 2021 – September 2022, in %

	2021				2022		
	III	VI	IX	XII	III	VI	IX
Change in relation to to the previous year-end	1.4	2.4	3.3	4.6	6.3	11.1	14.5
Annual change	0.8	2.4	2.9	4.6	9.7	13.5	16.0

Source: MONSTAT

In Q3, price growth in Montenegro was recorded in eleven out of twelve categories that accounted for 88.23% of total consumer basket (table 2). The main contributor to the price growth with 1.84 pp was the category *food and non-alcoholic beverages* that rose 5.2%. Prices in this category were driven primarily by the growth in the prices of vegetables of 15.7%, milk, cheese and eggs of 9.2%, fruit of 7.0%, meat of 3.3%, and bread and cereals of 1.3%. Due to the rise in the prices of food staples, the Law Amending the Value Added Tax Law was adopted in May this year and it reduced the VAT rates on flour and sunflower oil (from 7% to 0%) and salt (from 21 % to 7%)[2], followed by additional amendments in June[3] that reduced VAT on bread (from 7% to 0%). During the reporting quarter, the prices of flour and other cereals dropped by 1.8% and those of oil and fats declined by 4.1%.

[1] *The Food and Agriculture Organization of the United Nations.*

[2] Parliament of Montenegro session of 5 May 2022.

[3] Parliament of Montenegro session of 15 June 2022.

Price growth in the category *housing, water, electricity gas and other fuels* of 4.6% contributed to total inflation increase with 0.62 pp, primarily as a result of growing prices of solid fuels of 14.9% (mostly due to price increase of firewood). In the period of preparation for the upcoming heating season, in August this year, the Government of Montenegro adopted the Decision on supplementing the Decision with temporary measures to limit the prices of products of special importance for the life and health of people and the list of products[4] that limits the price of wood pellets. As there has been a significant year-over-year increase in the prices of this product on the wood pellet market, the limiting of the selling price to a maximum of 269 euros per ton at the manufacturer and 320 euros in retail trade will contribute to the protection of standard of domestic consumers and, additionally, to the export competitiveness of this product in relation to countries in the region. Price increase in the reporting period was also recorded with the following categories: *hotels and restaurants* of 10.3%, *miscellaneous goods and services* of 4.6%, *furnishing, household equipment and routine household maintenance* of 2.9%, *recreation and culture* of 2.4%, *health* of 2.2%, *clothing and footwear* of 1.3%, *alcoholic beverages and tobacco* of 0.5%, *communications* of 0.2%, and *education* of 0.1%. Price decline of 4.3% was registered in the category *transport*, primarily owing to a decline in the prices of fuels and lubricants for motor vehicles of 9.1% as a result of the drop in oil prices on the international market. With a view to protecting the standard of living of citizens as well as preserving the stability of the prices of oil derivatives, the Decision Amending the Decision on the reduction of excise duties on the sale of unleaded gasoline and gas oils[5] extended the reduction of these excise duties until 1 November 2022.

Table 2

Growth rate and contribution of individual categories in total inflation (%)[6] in Montenegro

	Weights	IX 2022 / VI 2022	Growth rate	Contribution
TOTAL	1,000.0	103.1	3.1	3.1
Food and non-alcoholic beverages	353.8	105.2	5.2	1.8
Alcoholic beverages and tobacco	39.8	100.5	0.5	0.0
Clothing and footwear	87.3	101.3	1.3	0.1
Housing, water, electricity gas and other fuels	135.0	104.6	4.6	0.6
Furnishing, household equipment and routine household maintenance	39.0	102.9	2.9	0.1
Health	40.3	102.2	2.2	0.1
Transport	117.7	95.7	-4.3	-0.5
Communications	48.5	100.2	0.2	0.0
Recreation and culture	32.3	102.4	2.4	0.1
Education	18.3	100.1	0.1	0.0
Hotels and restaurants	46.5	110.3	10.3	0.5
Miscellaneous goods and services	41.4	104.6	4.6	0.2

Source: MONSTAT and CBCG calculations

[4] Source: Cabinet session of 3 August 2022.

[5] Cabinet session of 29 September 2022.

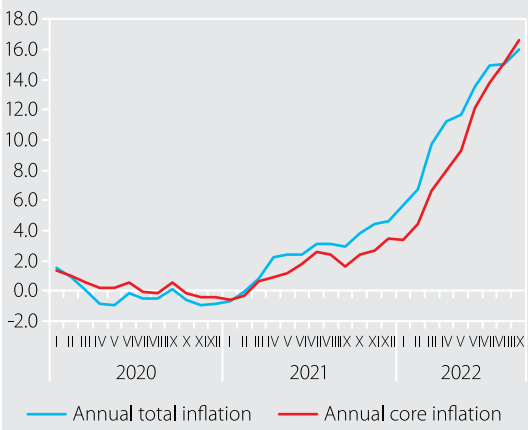
[6] It should be noted that, regardless of the index changes, the contribution of the share of certain categories is not recorded before the second and/or third decimal due to the weight structure.

The annual core inflation rate stood at 16.7% in September this year and it was 0.7 pp higher than total annual inflation[7]. The annual core inflation rate was higher than total annual inflation in September due to the rise in the prices of almost all groups of food products that are not excluded, as well as the prices of other product groups that determine core inflation on an annual level. The largest spread between total annual and core inflation during the third quarter was recorded in July due to price changes of certain products that are included in the annual inflation calculation, but not in the core inflation calculation such as the prices of a large number of agricultural products, tobacco, fuels and lubricants, and the like. Graph 1 shows the trend of total and core inflation rates.

Oil prices were much higher in the first nine months of the current year when compared to the same period last year. In Q3 this year, the OPEC reference basket price averaged at 101.92 USD/barrel, being 9.33% lower than the average price recorded in the previous quarter. The average price of Brent oil stood at 100.69 USD/barrel or 11.43% less than in Q2. Oil prices fell in the reporting quarter due to concerns about a potential recession in 2023 and the tightening of financing conditions at the global level. In September, the price of Brent oil dropped to its lowest level since January this year to 89.82 USD/barrel. However, due to the announcement of OPEC+ members on reducing the production to 2 million barrels/day, oil prices rose again in October. The previous EU sanctions against Russia due to the situation in Ukraine affected the reduction of Russian production which, according to the International Energy Agency, accounted for some 14% of the global oil supply. The latest report of the World Bank[8] forecasts crude oil price to average at 100 USD/barrel in 2022 and 92 USD/barrel in 2023.

Graph 1

Annual rate of total and core inflation in Montenegro, January 2020 – September 2022, in %



Source: MONSTAT and CBCG calculations

Graph 2

Fuel and lubricant prices in Montenegro and OPEC oil prices, January 2020 – September 2022, monthly rate, in %

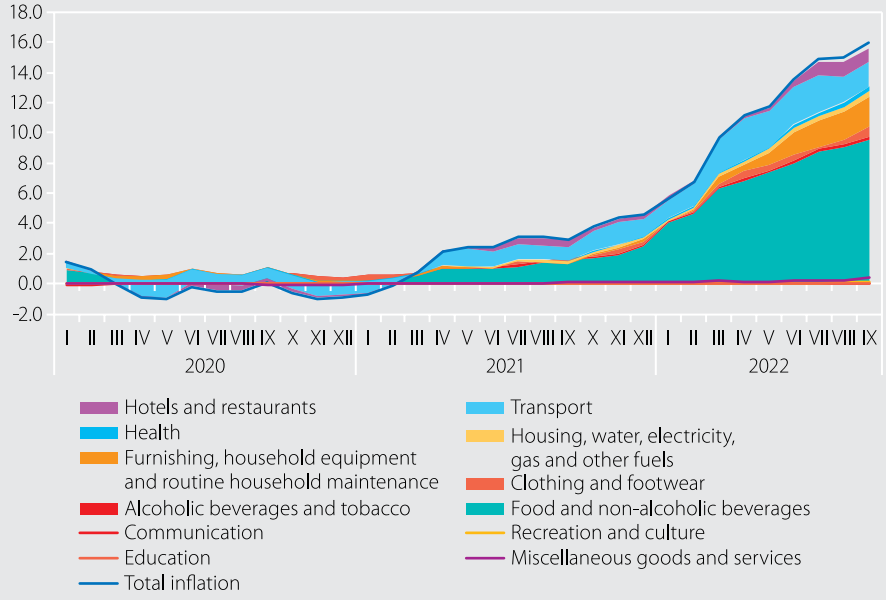
Source: MONSTAT and OPEC "Monthly Oil Market Reports"
(*North Sea Dated)

[7] Core inflation is used as an indicator of the trend of the long-term or future rate of inflation, that is, it enables the distinction between temporary price shocks and long-term inflation. Read more on the methodology *https://www.cbcg.me/slike_i_fajlovi/eng/fajlovi/fajlovi_publikacije/radne_studije/obracun_bazicne_stope_inflacije_english.pdf*

[8] Source: World Bank: *Commodity Markets Outlook*, October 2022.

Graph 3

Consumer prices' components: contribution to annual growth rate

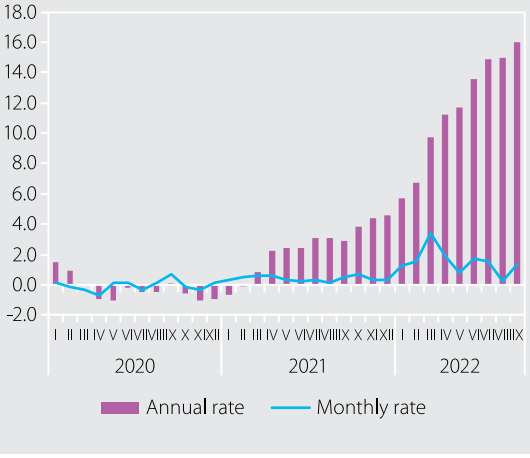


Source: MONSTAT and CBCG calculations

According to MONSTAT data, the annual price growth of 26.9% in the *food and non-alcoholic beverages* category was the biggest contributor (with 9.48 pp) to total annual inflation growth of 16.0% in September this year (graph 3). The annual price increase was also recorded with the following categories: *restaurants and hotels* of 17.6%, *housing, water, electricity gas and other fuels* of 14.4%, *transport* of 14.2%, *furnishing, household equipment and routine household maintenance* of 9.7%, *miscellaneous goods and services* of 9.6%, *clothing and footwear* of 7.7%, *health* of 7.1%, *alcoholic beverages and tobacco* of 5.8%, *recreation and culture* of 2.6%, and *communications* of 0.1%. The annual price decline of 0.1% was recorded in *education*.

Graph 4

Consumer prices in Montenegro, January 2020 - September 2022

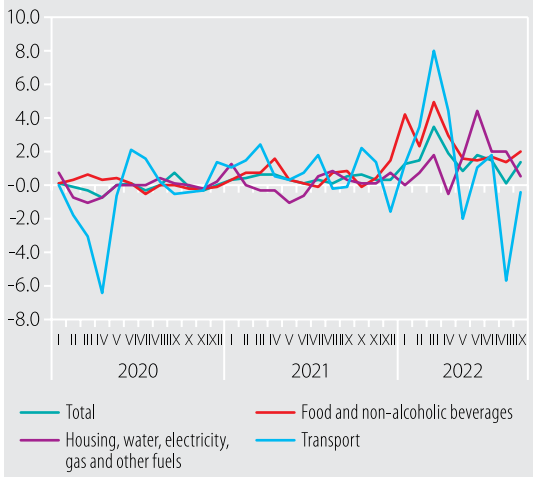


Source: MONSTAT

In September this year, the **producers` prices of manufactured products** recorded at 11.4% growth in relation to December 2021 due to the price growth recorded in manufacturing industry and the mining and quarrying sector of 16.8% and 15.6%, respectively, while the prices in the sector electricity, gas and steam supply remained unchanged. On the annual level, the producers' prices of manufactured products increased by 15.7%.

Graph 5

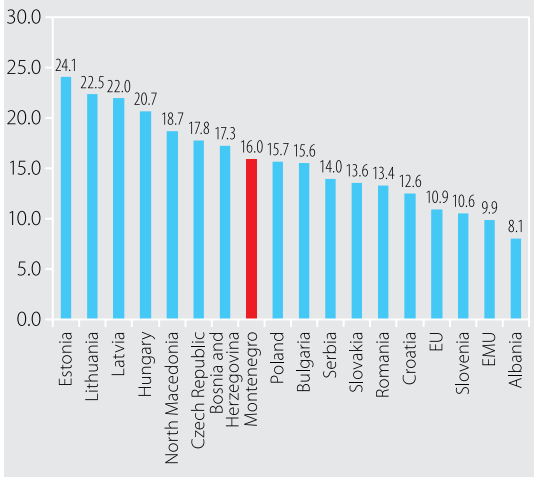
Movement of selected categories of consumer prices, monthly growth rate



Source: MONSTAT

Graph 6

Annual inflation rate in selected countries, September 2022



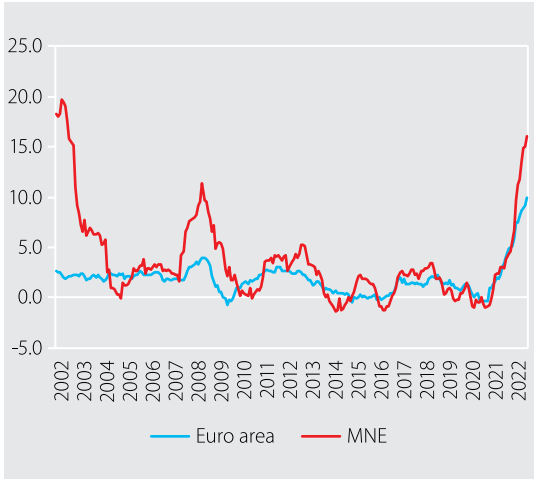
Source: National statistical offices and Eurostat

Significant inflation surges were recorded in all acountries in the region and the EU in September this year. The highest annual rate of consumer prices among countries in the region was recorded in North Macedonia (18.7%), followed by Bosnia and Herzegovina (17.3%), Serbia (14.0%), while the lowest was in Albania (8.1%). The highest annual inflation in the EU was registered in Estonia and Lithuania of 24.1% and 22.5%, respectively (graph 6).

The annual HCPI inflation recorded in the euro area was 9.9%. With the growth of 40.7%, the annual price increase of energy generating products was the main contributor to the annual growth of inflation with 4.19 pp. CPI inflation in Montenegro stood at 16.0%, while the annual HCPI amounted to 14.7% in September this year. In its November report[9], the European Commission forecasted inflation in the euro area of 8.5% in 2022 and 6.1% in 2023. The forecasts were revised upward compared to the July report mostly as a result of higher wholesale prices of gas and electricity, which put pressure on the retail prices of energy generating products and most goods and services in the consumer basket.

Graph 7

Inflation in the euro area (HICP) and Montenegro (CPI)[10] since the introduction of the euro (annual rate, %)



Source: MONSTAT and Eurostat

[9] Source: European Commission: *European Economic Forecast - autumn 2022.*

[10] Cost of living has been used for measuring inflation in Montenegro until 2009, after which consumer prices were introduced.

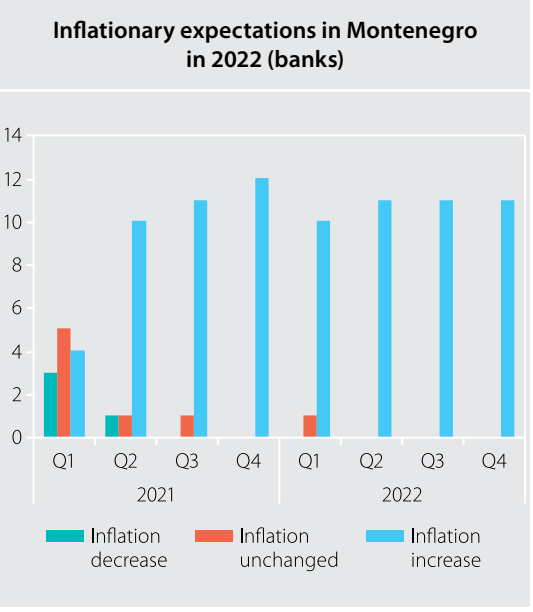
2. INFLATIONARY EXPECTATIONS

2.1. Banks' expectations

As for inflation expectations of banks, based on the survey conducted in November this year, all eleven banks expect the year-over-year inflation growth in 2022 (graph 8).

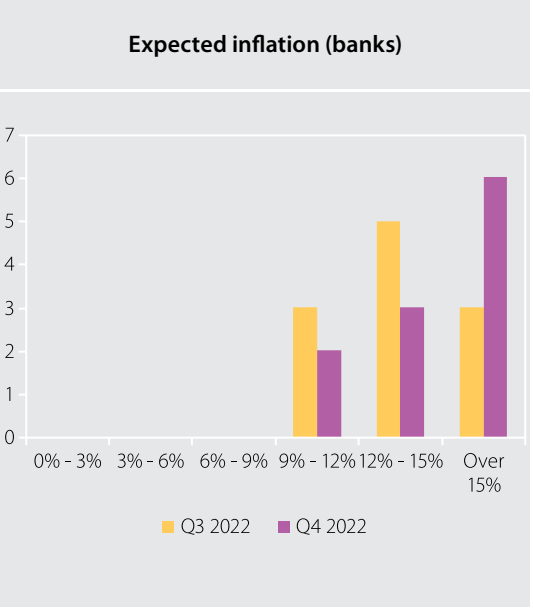
When it comes to banks' expectations regarding inflation levels, six banks expect inflation higher than 15%, three banks expect it to range between 12% and 15%, and two banks believe it would be between 9% and 12% (graph 9).

Graph 8



Source: Central Bank Survey

Graph 9

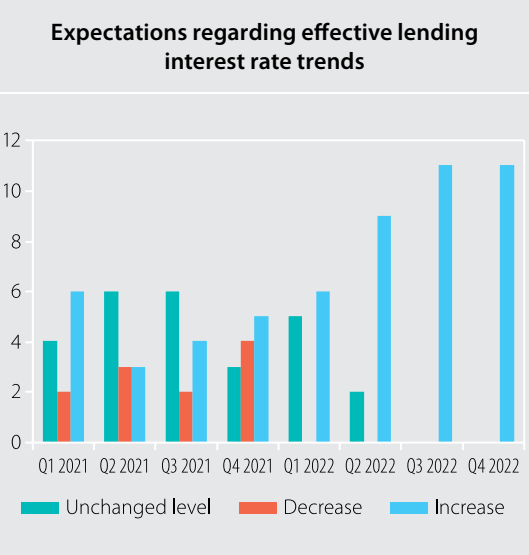


Source: Central Bank Survey

As for expectations regarding the nominal lending interest rates all banks also expect they will rise. Expectations are the same regarding the effective lending interest rate (graph 10).

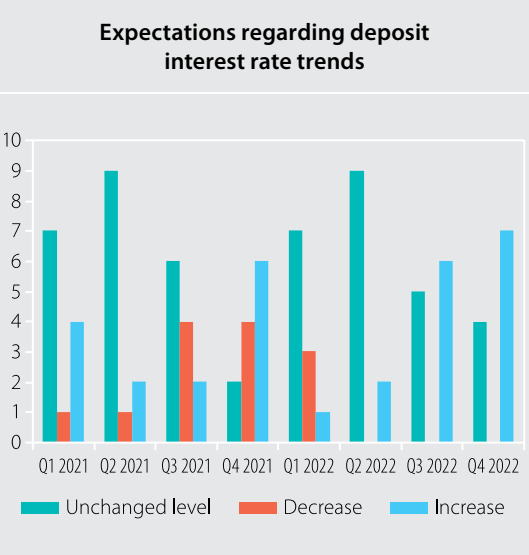
The situation with deposit interest rates` trends is that seven banks expect their increase, four banks expect no change, while none expect their decline (graph 11).

Graph 10



Source: Central Bank Survey

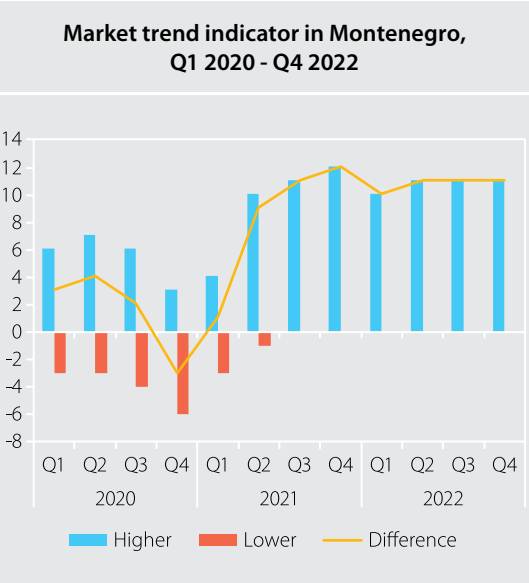
Graph 11



Source: Central Bank Survey

For the purpose of calculating inflation forecasts we use the market trend indicator (horizontal line in graph 12) that is calculated as the difference between the number of banks expecting inflation growth and those expecting inflation decline. If the market trend indicator has a negative value, a decrease in the inflation rate is expected in the upcoming period. However, if its value is positive, then an increase in the inflation rate can be expected. If it has a zero value, the same inflation rate can be expected in the upcoming period. The more negative value of the market trend indicator, the lower the inflation expectations, and vice versa, higher positive value means higher inflation level expectations. The surveys conducted in 2022 point to an increase in banks' inflation expectations in the current year.

Graph 12



Source: Central Bank Survey

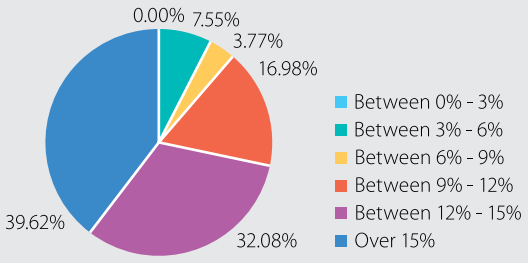
2.2. Expectations of economy (banks excluded)

Inflation

Of the total number of surveyed companies, 39.62% expect the inflation to exceed 15% in 2022. Inflation in the range between 12% i 15% is expected by 32.08% companies, while 16.98% of the respondents expect it to be between 9% and 12% (graph 13).

Graph 13

Expected inflation in Montenegro in 2022 (responses based on percentage share)

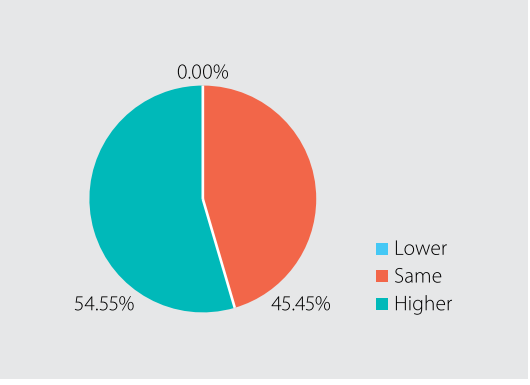


Source: Central Bank Survey

As much as 54.55% of the surveyed companies expect earnings to rise in 2022 in relation to the previous year, while the remaining 45.45% expect them to remain the same (graph 14). With regard to employment, 54.55% of the respondents expect it to remain the samed, 34.55% expect this number to increase, and 10.90% expected it to decline in relation to the previous year (graph 15).

Graph 14

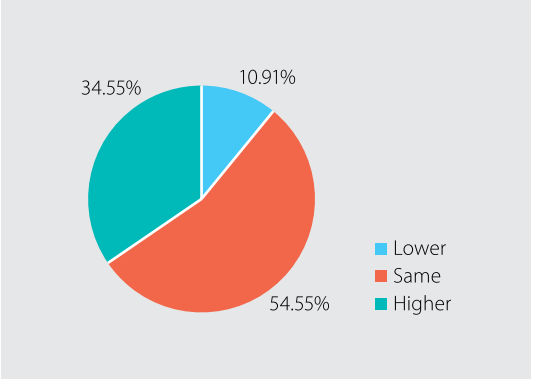
Expected earnings in 2022 in relation to 2021



Source: Central Bank Survey

Graph 15

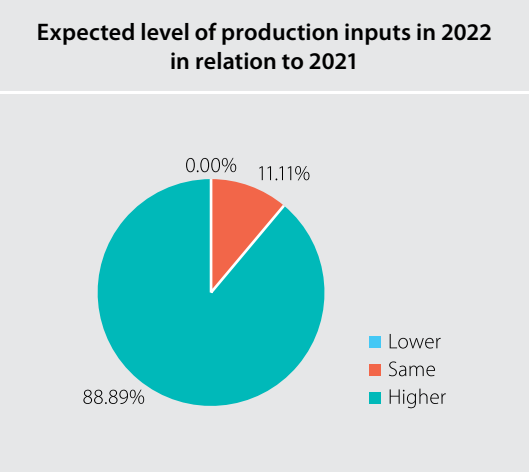
Expected number of employed persons in 2022 in relation to 2021



Source: Central Bank Survey

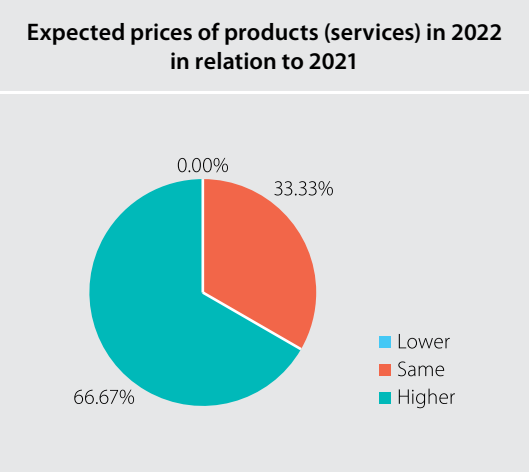
The majority of surveyed companies (88.89%) expect higher prices of production inputs they use (graph 16), and 66.67% plan to increase the prices of their products and/or services in 2022 (graph 17).

Graph 16



Source: Central Bank Survey

Graph 17



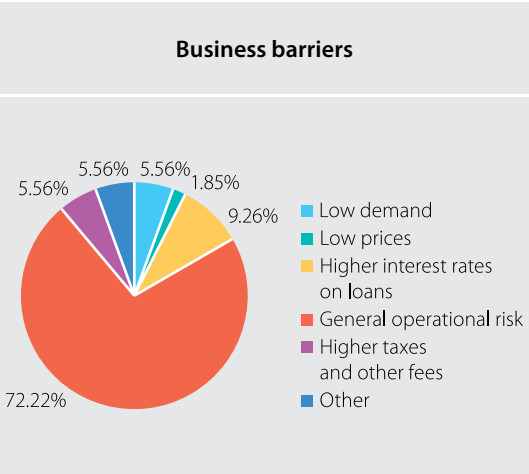
Source: Central Bank Survey

Business Environment

In the area of business barriers (graph 18), the survey results show that most of the surveyed companies (72.22%) see general operational risks as the major obstacles, then high lending interest rates (9.26%), poor demand, too high taxes and other forms of duties, and other barriers (5.56% for each).

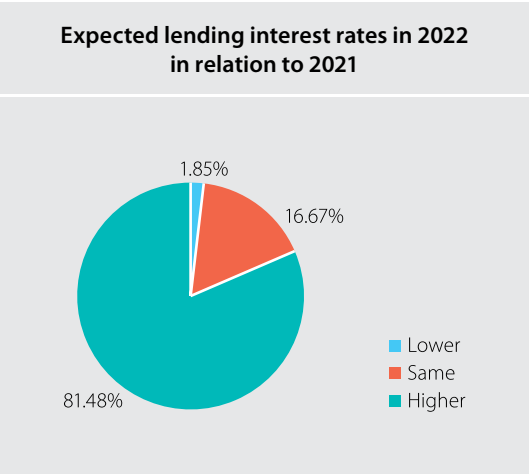
With regard to the lending interest rates, 81.48% of the respondents expect them to increase, 16.67% expect unchanged levels, and a mere 1.85% expect them to decline in the current year relative to 2021 (graph 19).

Graph 18



Source: Central Bank Survey

Graph 19

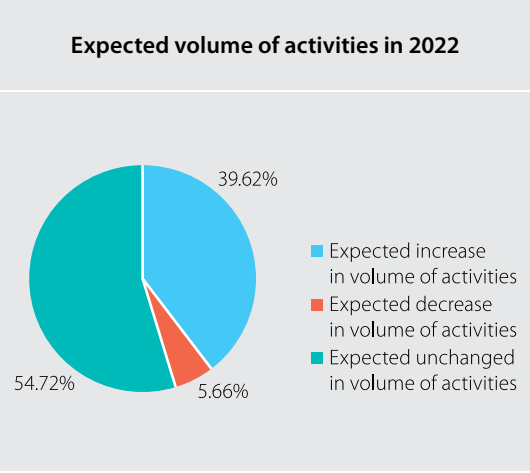


Source: Central Bank Survey

Investments

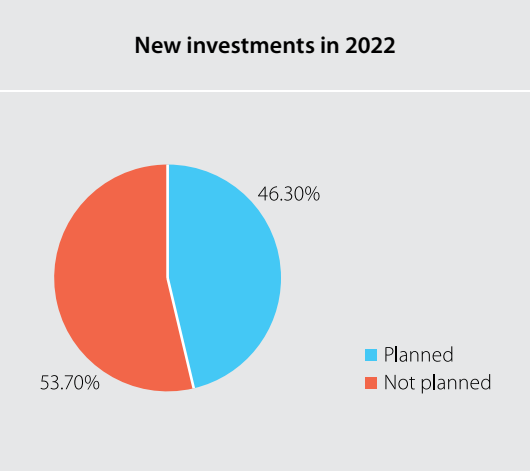
Of the total number of surveyed companies, 54.72% do not plan to change the volume of their activities by end-2022 (graph 20) and 53.70% do not plan new investments (graph 21). Most of the new investments (75.86%) will be used to increase fixed assets (graph 22), while low demand, insufficient exploitation of existing capacities and other were indicated as the main barriers to new investmebts (graph 23).

Graph 20



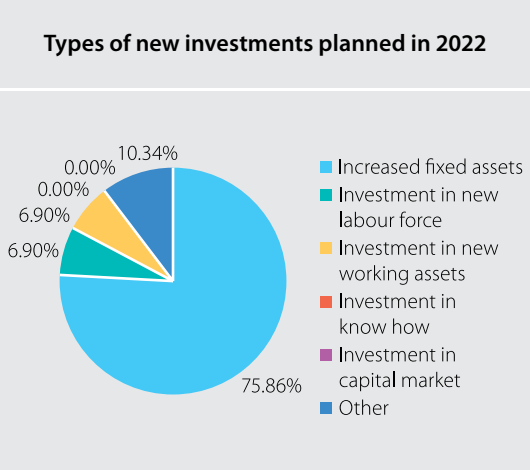
Source: Central Bank Survey

Graph 21



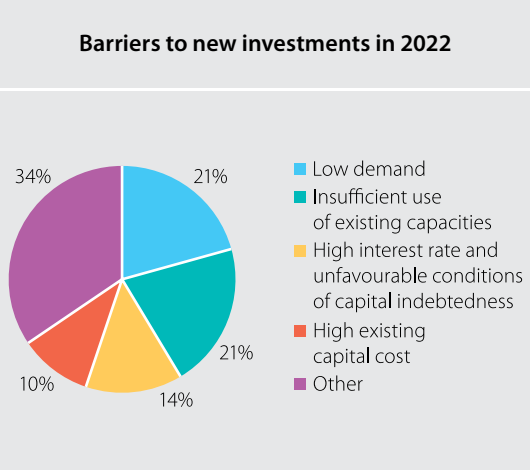
Source: Central Bank Survey

Graph 22



Source: Central Bank Survey

Graph 23



Source: Central Bank Survey

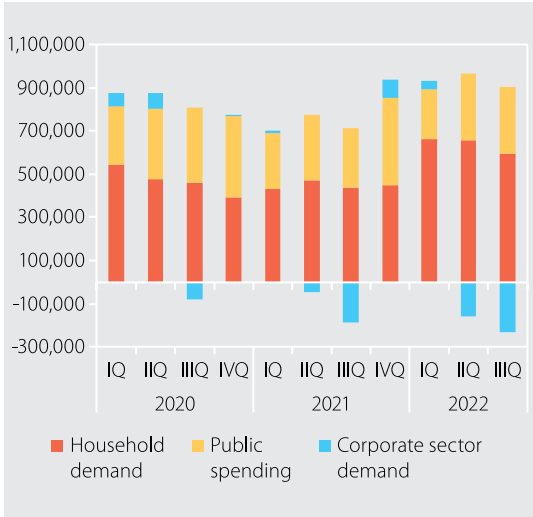
3. INFLATION DETERMINANTS

3.1. Demand

According to preliminary data, aggregate demand recorded quarterly decline and the year-on-year growth in the third quarter of 2022. Observing the structure of total demand in the reporting period, the share of retail demand and public spending increased compared to the previous quarter, while that of wholesale demand declined (graph 24).

Graph 24

Aggregate demand in Montenegro, Q1 2020 - Q3 2022, in thousand euros



Source: Central Bank calculations

Graph 25

Aggregate demand in Montenegro, Q1 2020 - Q3 2022, quarterly change, in %

Source: Central Bank calculations

Box 1 – Aggregate demand calculation methodology

For the purpose of a more complete monitoring of aggregate demand as a determinant of inflation, the Central Bank has developed the aggregate demand calculation methodology. The starting point of this methodology is that the aggregate demand represents the sum of the demand of three sectors: personal spending (households), investment spending (corporate sector), and public spending. However, taking into account the lack of numerous data necessary for calculating the aggregate demand, the existing data should not be treated as the indicator of the exact amount of aggregate

demand, but as an indicator showing the aggregate demand trend. In the existing methodology, a number of substantial data were not available, such as: corporate investments, revenues from share sales, non-market income, non-observed economy revenues, and the like. Methodology of aggregate demand calculation is expressed by the following equation:

$$AD = C + I + G$$

C = sum of paid salaries + sum of paid pensions + paid frozen foreign currency deposits + net compensations to households – retail sector net savings (savings – loans granted)

I = -wholesale net savings (deposits – loans)

G = public spending – paid pensions – salaries paid from the budget – net Government savings (deposits – loans – Treasury bills)

AD – aggregate demand, C – personal spending, I – investment spending, G – public spending

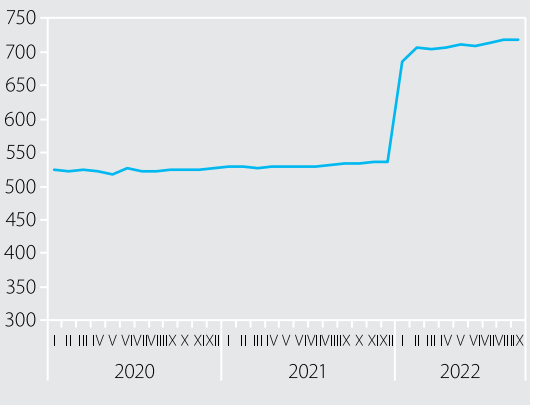
3.1.1. Earnings and other available demand determinants

In Q3 2022, an average gross earnings in Montenegro amounted to 885 euros, while an average earnings without taxes and contributions amounted to 716 euros. In relation to the previous quarter, the average gross and net earnings rose by 1.26% and 1.13%, respectively. Compared to Q3 2021, average earnings increased by 11.46% and average earnings without taxes and contributions rose by 34.59%, as a result of the implementation of the Government programme "Europe Now!".

Taking into account the consumer prices, i.e. monthly trends in earnings in real amounts during the third quarter of this year, it can be concluded that the real earnings grew in August, while they declined in July and September.

Graph 26

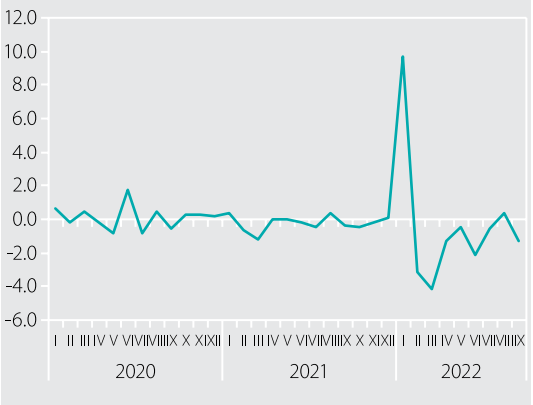
Average earnings without taxes and contributions in Montenegro, January 2020 - September 2022, in euros



Source: MONSTAT

Graph 27

Real earnings in Montenegro, January 2020 - September 2022 (monthly change, in %)



Source: MONSTAT

Retail loans[11] recorded a positive trend during the first nine months of 2022. Loans to this sector grew at a monthly average rate of 0.73% during the reporting period, while this rate was 0.24% in the comparative period of the previous year.

At end-September 2022, retail loans amounted to 1,527.53 million euros, which is 100.30 million euros or 7.25% more than in same month last year and 96.02 million euros or 6.71% more than in December 2021 (graph 28).

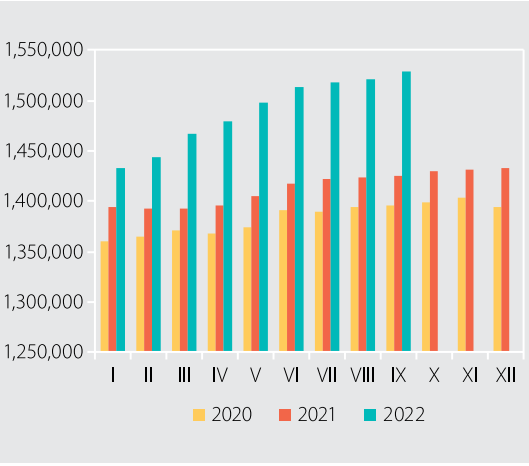
Debt *per capita*[12] amounted to 2,473.00 euros at the end of the reporting period, recording an increase of 178.59 euros or 7.78% year-on-year and a 166.87 euros or 7.24% increase in relation to end-2021.

At end-September this year, total MFI loans granted to the retail sector amounted to 64.08 million euros, which is 2.52 million euros or 4.10% more than in same period of the previous year, and 1.05 million euros or 1.66% more than at the end-2021.

Retail deposits amounted to 1,613.26 million euros, being 262.39 million euros or 19.42% higher than at end-September last year and 170.77 million euros or 11.84% higher than at end-2021.

Graph 28

Retail loans, in thousand euros, 2020 - 2022, end-month balance



Source: CBCG calculations

The loans to deposits ratio of the non-financial sector was 0.95 at end-September this year and it decreased year-on-year when it was 1.05 and compared to the end of the previous year when it stood at 0.99.

At end-Q3 2022, the retail sector net savings amounted to 85.73 million euros, which is far more favourable than in the comparative period of the previous year when this sector recorded a net debt of 73.36 million euros. At end-December 2021, the retail sector recorded net savings in the amount of 10.99 million euros.

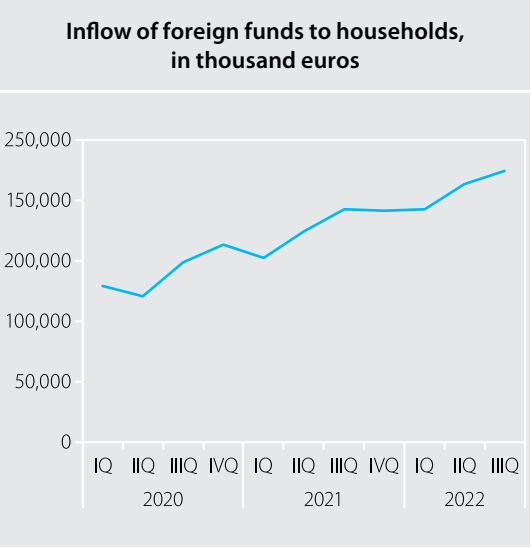
[11] The retail sector includes resident natural persons and entrepreneurs.

[12] Population estimate for 2022 as at 1 January 2022 amounts to 617,683, Source: MONSTAT.

In the first nine months of 2022, the balance of payments statistics recorded the year-on-year increase in the inflow of monetary resources arising from compensations to employees as well as remittances (graph 29).

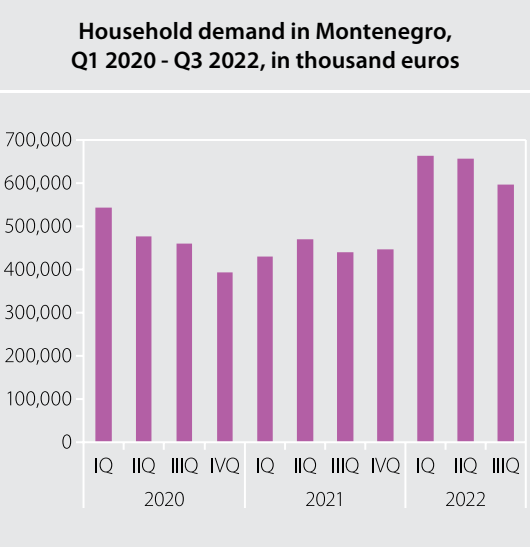
The comparison of the total retail sector demand by quarters shows that it was lower in Q3 this year than in the previous quarter but higher than in Q3 2021 (graph 30).

Graph 29



Source: Central Bank

Graph 30



Source: Central Bank calculations

3.1.2. Budget analysis

Budget of Montenegro

According to the Ministry of Finance preliminary data, total revenues[13] of the Budget of Montenegro amounted to 1,532.45 million euros in the first nine months of 2022.

Current revenues amounted to 1,459.26 million euros or 25.60% of the projected GDP[14] and they were 5.01% higher in relation to the plan, and 8.55% higher year-on-year, which is the result of greater tax discipline, growth of citizens' disposable income through the implementation of the „Europe Now!" programme, and consumer prices` growth. In the structure of current revenues, tax revenues accounted for the main share of 71.30%, followed by contributions with 21.06%, fees with 3.01%, donations with 1.61%, other revenues with 1.47%, receipts from loan repayment and funds transferred from the previous year with 0.85%, and duties with 0.70%.

[13] Revenues include current revenues (direct and indirect taxes and non-tax revenues), borrowings and loans from domestic and foreign sources, as well as revenues from property sale.

[14] Source: Ministry of Finance; estimated GDP for 2022 amounts to 5,700.4 million euros.

Tax revenues amounted to 1,040.39 million euros, recording a 10.04% increase relative to the plan and a 20.79% increase year-on-year. All taxes other than personal income tax increased in the reporting nine-month period compared to the same period of the previous year. The highest nominal increase of 171.62 million euros was recorded in VAT collection.

Revenues arising from contributions amounted to 307.35 million euros or 5.86% less than planned and 18.33% less than in the comparative period in 2021.

Consolidated budget expenditure amounted to 1,495.25 million euros or 26.23% of GDP in the first nine months of the current year. Recorded expenditures were 4.51% lower than planned but also 6.07% higher year-on-year.

Current budget expenditures amounted to 612.04 million euros and they were 2.31% lower in relation to the plan and they also recorded a slight decline year-on-year. The largest decrease compared to the plan of 9.61 million euros or 25.78% was seen in other expenses, whereas compared to the last year`s nine-month period, interests saw the largest decline of 21.77 million euros or 27.37% owing to the reduction of obligations arising from interests on issued Eurobonds that were repaid in March 2021.

Capital expenditures amounted to 152.24 million euros or 2.67% of GDP. Compared to the plan, they were 18.92% lower, while compared to the same period of the previous year, capital expenditures rose 44.87%, as a result of interest payment in January and July this year for the loan taken from the Chinese EXIM bank for the highway construction.

In the first nine months of 2022, *cash deficit* of the Budget of Montenegro is estimated at 35.99 million euros or 0.63% of GDP.

3.1.3. Non-financial sector

Lending to the non-financial sector[15] saw positive trends during the first nine months of 2022, albeit with certain fluctuations. Loans to this sector grew at a monthly average rate of 0.94% during this period, while this average amounted to 0.22% during the same period of the previous year.

At end-September 2022, total loans extended to the non-financial sector amounted to 1,257.27 million euros, which is 126.39 million euros or 11.18% more year-on-year and 99.81 million euros or 8.62% more compared to end-2021.

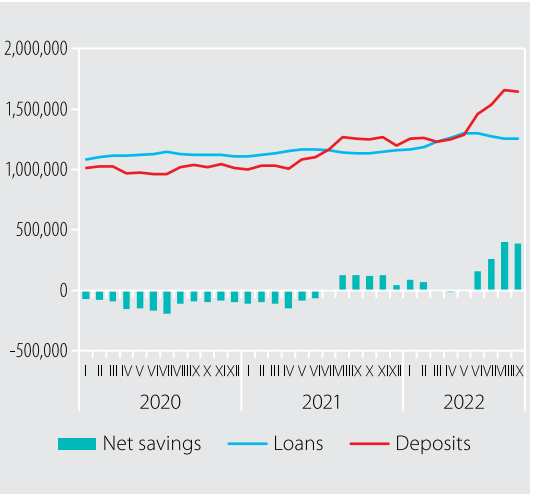
Long-term loans accounted for the main share in the structure of loans to the sector with 79.19%, which indicates that loans to the corporate sector were mainly used for increasing the volume of economic activity.

Deposits of the non-financial sector stood at 1.644,99 million euros at end-September this year, recording an increase of 388,04 million euros or 30.87% in relation to the comparative period last year, while they were 455.22 million euros or 37.11% higher than in December 2021.

[15] The non-financial sector includes state companies and private companies.

Graph 31

Net savings/indebtedness of the non-financial sector, in thousand euros, 2020 - 2022, end-month balance



Source: CBCG calculations

The loans to deposits ratio of the non-financial sector was 0.76 at end-September this year and it decreased year-on-year when it was 0.90 and compared to the end of the previous year when it stood at 0.96.

Due to the lack of data on the non-financial sector investments, we can use the sector's net savings/indebtedness as an approximation.

At end-September this year, net debt of the non-financial sector amounted to 387.72 million euros, which is more favourable compared to same period last year when it was 126.06 million euros and compared to end-December 2021 when it amounted to 42.30 million euros (graph 31).

3.1.4. External demand and the current account

Preliminary data shows that the current account deficit amounted to 478.06 million euros in the first nine months of 2022, which is the year-on-year increase of 90.44%. This deficit increase is a result of an increased deficit on the goods account and it was partially offset by an increase in surpluses on the services account and primary and secondary income accounts.

The goods account recorded a deficit of 1,994.19 million euros or 41.18% more than in the comparative period last year. Total visible exports amounted to 568.90 million euros, recording an increase of 53.31%, whereas total visible imports amounted to 2,563.09 million euros, being 43.70% higher year-on-year. The services account recorded a surplus of 1,072.46 million euros, which is 33.13% more than in the same period last year. The surplus in the primary income account amounted to 102.19 million euros, which is the year-on-year increase of 33.52%. This trend is the result of a higher inflow based on compensations to employees. The secondary income account ran a surplus of 341.48 million euros, which is the year-on-year increase of 22.23%.

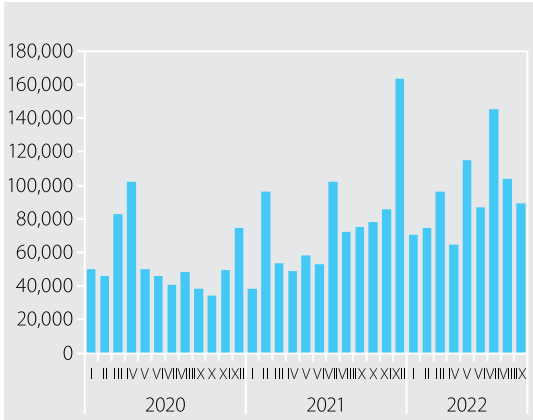
Preliminary data suggests that net foreign direct investments (FDI) inflow for the period January-September 2022 amounted to 599.03 million euros, which is the year-on-year growth of 70.03%.Total FDI inflow stood at 847.83 million euros, recording an increase of 41.32% (graph 32). Equity investments amounted to 465.05 million euros (a 53.55% increase), while the inflow in the form of intercompany debt added up to 316.28 million euros or 36.73% more year-on-year. In the structure of equity investments, investments in companies and banks amounted to 142.85 million euros (a 20.44% increase), while real estate investments reached 322.20 million euros (a 74.86% increase). The inflow arising from the withdrawal of funds invested abroad amounted to 66.50 million euros.

In the structure of total FDI inflow, the share of real estate investments amounted to 38.00%, followed by intercompany debt with 37.30%, while 16.85% were investments in companies and banks. Total FDI outflow in the observed period reached 248.80 million euros, which is almost at the same level as in the comparative period last year. The outflow from residents' investments abroad amounted to 92.48 million euros, while the withdrawal of non-residents' funds invested in Montenegro amounted to 156.32 million euros.

In the first three quarters of 2022, the portfolio investments account recorded a net outflow of 102.04 million euros, while the net outflow from the other investments account amounted to 339.62 million euros.

Graph 32

Total FDI inflow in the balance of payments in Montenegro, January 2020 - September 2022, in thousand euros



Source: Central Bank

3.2. Supply and production

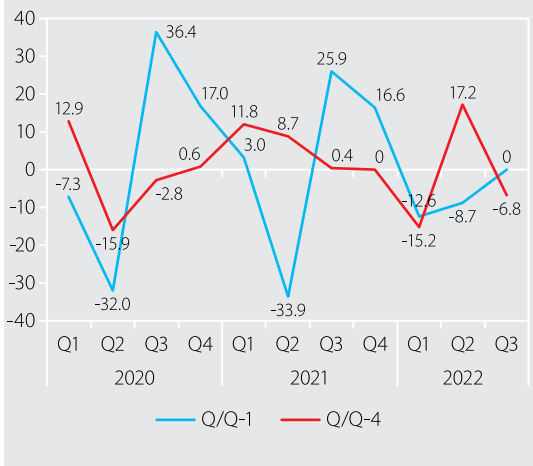
Premininary MONSTAT data indicates that in the first three quarters of 2022, industrial production declined 3.8% year-over-year. Electricity, gas and steam supply sector dropped by 17.8%, while the mining and quarrying sector and manufacturing industry recorded respective output growths of 11.1% and 4.5%.

During the same period, a total of 987,524 tourists stayed in collective accommodation establishments, which is an increase of 56.26% year-on-year. The number of domestic tourists arrivals in collective accommodation establishments increased by 47.37%, while foreign tourist arrivals grew by 57.51%. Tourist overnights amounted to 3.8 million, which is the year-on-year increase of 43.66%.

Some 142,951 m³ of forest assortments were produced in the state-owned forests in the first nine months of 2022, which is 63.3%[16] more than in the same period last year.

Graph 33

Industrial production, Q1 2020 - Q3 2022, quarterly rates, in %



Source: MONSTAT

[16] Presented through weighted index.

According to preliminary MONSTAT data, construction recorded a 3.08% year-on-year decline in the value of executed construction works and a 3.14% decline in effective working hours.

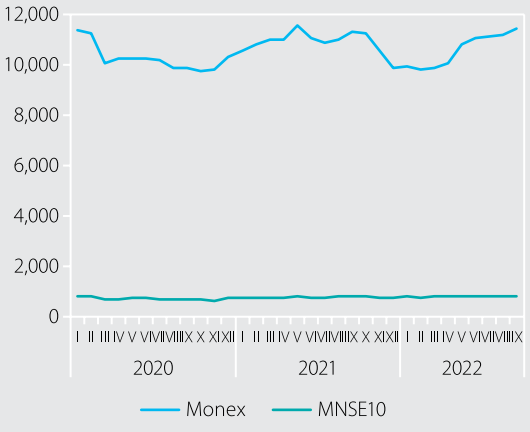
Preliminary MONSTAT data also indicate that passenger transport recorded a significant year-on-year growth in all types of transport: railway transport rose by 41.72%, road transport by 58.14%, and passenger traffic at airports increased by 41.47%. Growth was also recorded in railway and road freight transport of 69.48% and 3.55%, respectively, while cargo transport at airports dropped by 10.98%.

3.3. Stock exchange indices

At end-September this year, the MONEX[17] and MNSE10[18] indices rose compared to the same period last year as well as compared to end-2021 (graph 34).

Graph 34

Movement of Montenegro Stock Exchange indices, in index points, 2020 - 2022, end-month



Source: Montenegro SE calculations

At end-September 2022, the SE index MONEX reached 11,463.83, recording a growth of 149.43 index points or 1.32% year-on-year, while compared to the end of the previous year it recorded a growth of 1,596.46 index points or 16.18%.

At the same time, the SE index MNSE10 reached 807.87, recording a growth of 12.57 index points or 1.58% year-on-year, while compared to the end of the previous year it recorded a growth of 43.15 index points or 5.64%.

[17] The MONEX is the benchmark Montenegro Stock Exchange index aimed at providing a more precise description of the share price trends in the official and in the free market of Montenegro Stock Exchange AD Podgorica. The MONEX index is the successor to the MONEX20 and, according to the new methodology, it contains more companies in its index basket.

[18] The MNSE10 is the blue-chip index of the Montenegro SE that describes the movement of prices of shares at the Stock Exchange and Free market of "Montenegro Stock Exchange" AD Podgorica. It includes the top ten companies from the Montenegrin market.

4. MONETARY POLICY

During the first nine months of 2022, there were no changes to the existing monetary policy instruments nor were any new decisions passed regarding the Central Bank of Montenegro`s monetary policy instruments.

5. INFLATION FORECAST FOR THE LAST QUARTER OF 2022 AND THE FIRST THREE QUARTERS OF 2023

5.1. Model assessment

Montenegro's inflation fan chart is a graphic representation of inflation forecast probability distribution presented by the consumer price index. In that respect, instead of determining specific points, the fan chart also takes into account potential risks and uncertainties through probability distribution that might influence the inflation trend in the following period. The very purpose of the fan chart is to indicate and consider uncertainties in the real economy flows, which are consequently reflected in the inflation rate trend (increase in energy prices, increase/decrease in foreign trade deficit, and the like.).

Montenegro's fan chart for the last quarter of 2022 and the first three quarters of 2023 is based on three estimated constituent parts:

1. **Central projection values** – the values of the fan chart central projection derived from the ARIMA model.
2. **Degree of uncertainty** – determines the Fan Chart width. The uncertainty degree ratios are obtained through analytical assessment and calculation of the relative impact of potential internal and external shocks that are possible in the Montenegrin economy over the one-year period and which are reflected through the "thickness" of the band around the central projection.
3. **Fan chart skewedness** –based on the level of skewedness of the distribution of inflation projection, the fan chart is adjusted to the forecast to show whether the values of the central projections have overestimated or underestimated the inflation rates. The position of the mean value of inflation distribution will also depend on this.

Central projection of fan chart - ARIMA model for the last quarter of 2022 and the first three quarters of 2023

With a view to developing the inflation fan chart, an ARIMA (Autoregressive Integrated Moving Average) model of time series of inflation of Montenegro presented via the Consumer Price Index[19] was developed.

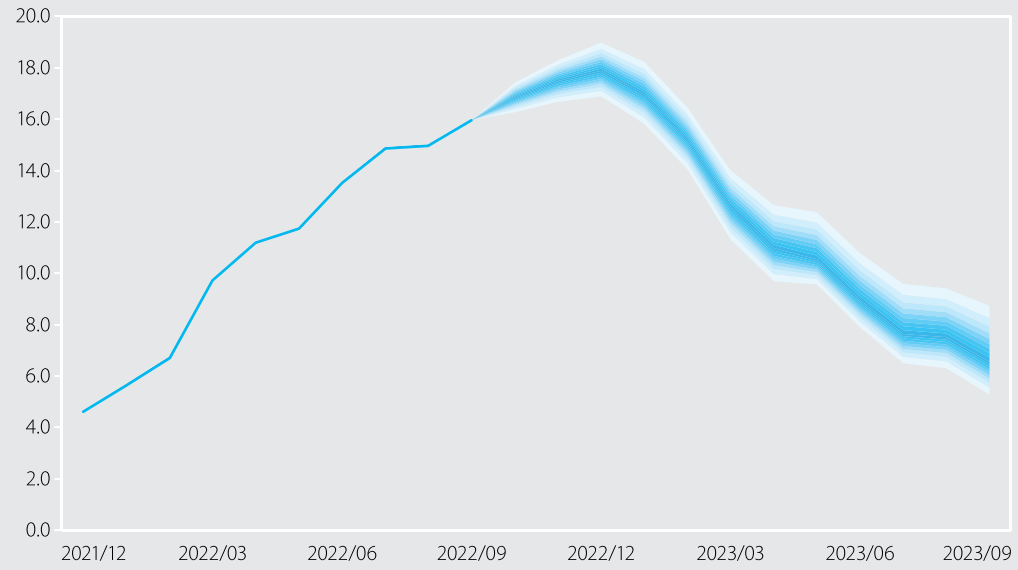
[19] A detailed explanation of the ARIMA model of Montenegro was presented in the working study of the Central Bank no. 11 "*Inflation Forecast: Empirical research on the retail price index trend of Montenegro for 2007 - applying the ARIMA model.*"

The ARIMA model was used for short term forecasts (12 months), whereby iteration of several ARIMA models was made, which were ranked based on their efficiency and diagnostics quality. The selected ARIMA model, ARIMA (3,1,3)[20] has a sufficient confidence level for the forecast purposes.

The monthly forecasts value was used as the value of central projection of the CPI graph for Q4 2022 and the first three quarters of 2023. Obtained values represent the distribution mode, i.e. values with the highest frequency in the distribution of this time series.

Graph 35

Montenegro's CPI projections for the last quarter of 2022 and the first three quarters of 2023



Source: CBCG, 2022

Mean value of the obtained model is 12.4. The value of the coefficient of asymmetry varies in the range of 0.5 to 1, and the relative standard deviation is 0.35. Model projection of inflation is located in the lower band of the distribution. This indicates that the corresponding range of uncertainty of future inflation is set towards higher levels. The Fan Chart presents a 90% probability of inflation distribution. The central projection is usually in the deepest shade of the Fan Chart, i.e. in the central 10% of probability.[21] The fan chart has an equal number of bands (eight) on either side of the central band whereby every band of the same colour, both above and below the central band, cumulatively describe

[20] ARIMA model is generally referred to as an ARIMA (p,d,q) where p represents the number of autoregressive variables, d refers to the level of dependent variable that needs to be made stationary, and q is the number of variables, moving averages, in the certain model.

[21] The mode values (central projection) are usually in the deepest band shade, but in case of a significant risk level, it can happen that the central projection does not cover either of these values. (*Britton, E, Fisher, P.G. and Whitley, J.D. (1998), 'The Inflation Report projections: Understanding the Fan Chart', Bank of England, Quarterly Bulletin, 38, pp. 30–37*).

the next 10% of inflation trend probability. As the degree of uncertainty grows over time, so the fan chart spreads.

The model projection assumes an increase in inflation in 2022, while it indicates a gradual decrease starting next year. The fan chart of inflation in Montenegro, based on the ARIMA model assessment for 2022, indicates that there is a 90% probability that the CPI inflation will range between 5.7% and 18.9%, depending on the month, with the central projection at 13%. Inflation projected for December 2022 ranges between 16.2% and 18.9%, with the central projection at 17.8%. The fan chart central projection (the darkest part) represents a 10% probability span (graph 35).

The fan chart of inflation, based on the ARIMA model assessment for the first three quarters of 2023 indicates that there is a 90% probability that the CPI inflation will amount to 10.5%.

High inflation will persist until the end of 2022, as a result of high global prices of energy and food raw materials, and their spillover to high input costs for a wider set of products and services. A gradual decrease in the prices of energy generating products and other raw materials on the world market is expected in 2023 and, consequently, a decrease in overall inflation. Nevertheless, bearing in mind the emphasized geopolitical tensions and great uncertainty, the risks for the realisation of the inflation projection are also pronounced. The risks related to the projected inflation rate shown on the fan chart are asymmetric to the upside, indicating that inflation could exceed the projected rate. Inflation will largely depend on the situation in Ukraine and to a lesser extent on the epidemiological measures that are periodically introduced in certain Chinese cities, which could reflect on the mismatch between supply and demand.

The projection is based on the following assumptions:

1. High inflation in the countries that are the main foreign trade partners, mostly driven by the prices of energy generating products, raw materials and food and inflated by the developments in Ukraine. Their growth is the main reason for the inflation increase because it encourages price growth in many other sectors. Also, this situation increases the pressure on global supply chains and contributes to price growth and growing uncertainty in the supply in commodity markets.
2. Food prices have been much higher in 2022 due to high cost of raw materials and upsurge in gas and electricity prices. However, food prices have stabilized over the past few months of the year. Looking at the agricultural futures, food prices are expected to start declining in 2023 with the loosening of growth pressures coming from the inputs such as energy costs, fertilizer prices, and feedstock prices.
3. Oil and other raw material futures in the world markets currently point to inflation slowdown in 2023 starting from Q1. The contribution of fuels should slowly decline in 2023, due to base effects, and the price of a barrel of Brent crude oil is expected to decrease to around 80 USD/barrel by 2024.

4. According to the ECB[22] baseline scenario forecasts from December, the average inflation in the euro area will amount to 8.4% this year. Inflation growth in 2022 will, for the most part, be triggered by the rise in energy prices, primarily higher gas and electricity prices. According to the ECB's baseline scenario, total inflation will remain at a high level during the current year, going on a downward trend as of next year to come down to 6.3% in 2023 and 3.4% in 2024. Due to the increased uncertainty related to the situation in Ukraine, the baseline scenario was supplemented with an adverse scenario that assumes more serious disruptions in the supply of energy generating products to the European market, which would lead to a further increase in energy prices. According to this scenario, the inflation rate would average at 7.4% in 2023, declining to 3.6% in 2024.
5. The ECB has started with the normalization of its monetary policy, which implies an increase in the reference interest rates. After 11 years, the reference interest rate, the rate for main refinancing operations, was increased by 0.5 bp. It was increased by additional 0.75 bp in September. The ECB expects to continue raising interest rates because projections and market expectations indicate that inflation will remain high and is likely to remain above the target in the medium term.

Finally, the Russian-Ukrainian conflict could trigger new inflationary trends that would take time to materialise and that are not covered under the present projection. Changes of any of the abovementioned parameters would require the forecast revision.

[22] Source: ECB (2022): *ECB staff macroeconomic projections for the euro area*, December 2022.

6. EXPECTED INFLATION IN 2022

Inflation trends in 2022 indicate that Montenegro will see the highest inflation this year since the regaining of independence. However, it should be highlighted that this is for the most part imported inflation and the result of international market factors and to a lesser extent a result of domestic imbalances. The expectations of both surveyed businessmen and bankers also point to inflation increase. Also, the aggregate demand in Q3 this year was higher than in the same quarter last year, which additionally confirms inflationary pressures. The high level of global uncertainty, which due to import dependence is transferred to prices in Montenegro, makes it difficult to make inflation forecasts not only in Montenegro, but also in a large number of other countries. The key uncertainties still revolve around the duration and impact of the situation in Ukraine and the related sanctions, the movement of prices of a whole range of products, such as energy, food, etc., a further course of the pandemic (although everything points to a decreasing pandemic risk), as well as whether we will see a recovery or further disruptions in the global supply chains. During the third quarter, in response to high inflation in the euro area, the ECB tightened its policy and increased the reference interest rates at its July[23] meeting. However, measures of the key central banks in the fight against inflation carry the risk of economic slowdown or even sliding into recession. Our model estimate for end-2022 projects inflation within the range from 16.2% to 18.9%, with the central projection at 17.8%. Our expert assessment forecasts an inflation rate ranging from 16% to 20%.

Table 3

Projected inflation in 2022		
Lower inflation threshold	Central projection	Upper inflation threshold
16%	18%	20%

This assessment is based on the same assumptions as the model assessment and a change in any of the assumptions would require the forecast revision.

[23] By the time of writing this report, the ECB has increased interest rates two more times.