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1. INFLATION INDICATORS

Consumer prices recorded a slight increase of 0.1% during the third quarter of 2019. During this period, prices in the categories clothing and footwear, housing, water, electricity, gas and other fuels and other goods and services recorded the highest increase (Table 2). Observation of the monthly price trends reveals that consumer prices growth was recorded in August (0.1%) and September (0.1%), whereas in July consumer prices declined (-0.1%). Average consumer prices rate (first nine months of 2019 in relation to the same period of 2018) stood at 0.3%, while at the annual level, the prices declined by 0.2%.

Table 1

Inflation, %							
	2018				2019		
	III	VI	IX	XII	III	VI	IX
Change in relation to the previous year-end	1.5	2.0	2.2	1.6	0.7	0.3	0.4
Annual change	2.9	3.4	1.9	1.6	0.8	-0.1	-0.2

Source: MONSTAT

In Q3 2019, prices growth in Montenegro was recorded in four out of twelve categories that make up 32.3% of the consumer basket. The highest price increase was recorded in the *clothing and footwear* category (2.6%) due to an increase of 4.4% in the prices of footwear and 1.1% increase in apparel. Prices were also increased in *other goods and services* (0.7%), *housing, water, electricity, gas and other fuels* (0.6%) and *alcoholic beverages and tobacco* (0.1%). The largest drop in prices was recorded in the category *transport* (-0.9%), due to the fall in the prices of fuels and lubricants for personal transport equipment (-1.8%) as a result of the fall in oil prices at the international market in the third quarter. The decline was also reported in the categories: *recreation and culture* (-0.5%), *communications* (-0.4%), *hotels and restaurants* (-0.3%) and *food and non-alcoholic beverages* (-0.2%). Prices in the categories *furniture, household equipment and routine home maintenance, health* and *education* remained unchanged in the third quarter.

Table 2

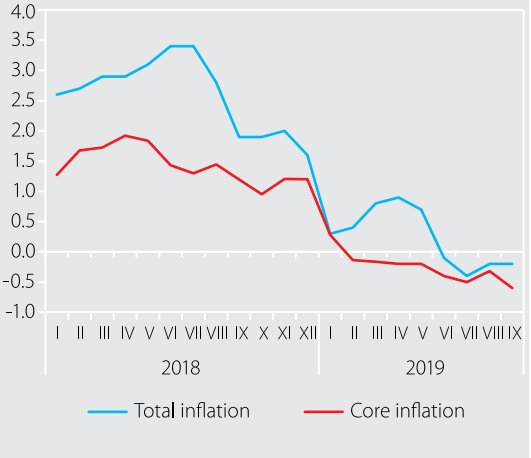
Share of selected categories in total inflation[1]

	Weights	IX 19/VI 19	Growth rate	Contribution
TOTAL	1000	100.1	0.1	0.1
Food and non-alcoholic beverages	341.1	99.8	-0.2	-0.1
Alcoholic beverages and tobacco	40.4	100.1	0.1	0.0
Clothing and footwear	86.1	102.6	2.6	0.2
Housing, water, electricity gas and other fuels	154.0	100.6	0.6	0.1
Furnishing, household equipment and routine household maintenance	39.4	100.0	0.0	0.0
Health	40.8	100.0	0.0	0.0
Transport	109.4	99.1	-0.9	-0.1
Communication	48.5	99.6	-0.4	0.0
Recreation and culture	32.0	99.5	-0.5	0.0
Education	18.7	100.0	0.0	0.0
Restaurants and hotels	47.6	99.7	-0.3	0.0
Miscellaneous goods and services	42.0	100.7	0.7	0.0

Source: MONSTAT and CBCG calculations

Graph 1

Total and core inflation trends, annual rate (%)



Source: MONSTAT and CBCG calculations

During the third quarter *monthly core* inflation was above the official monthly inflation for all three months and had a positive rate, while the official monthly inflation in July was negative.

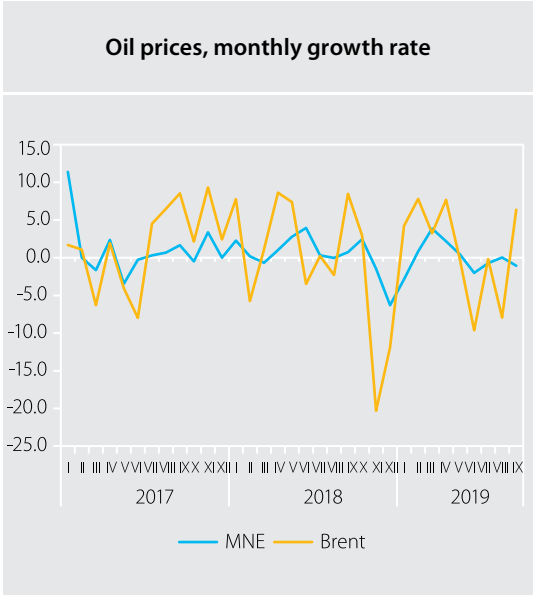
The annual core inflation rate in September 2019 stood at -0.6% or 0.4 percentage points below the total inflation. Annual core inflation was below total inflation in all three months of Q3, maintaining the negative rate throughout that period. (Graph 1)

In Q3 2019, oil prices at global markets recorded quarterly decrease. In the observed quarter, the OPEC reference basket price averaged 62.2 USD/barrel, being 8.3% lower than the average price seen in the previous quarter. In this period, the average price of Brent stood at 61.8 USD/barrel, or 10.1% less compared to the average price in the Q2. August recorded the lowest price (58.83 USD/barrel) after December of the previous year (when it was 56.96 USD/barrel). In

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

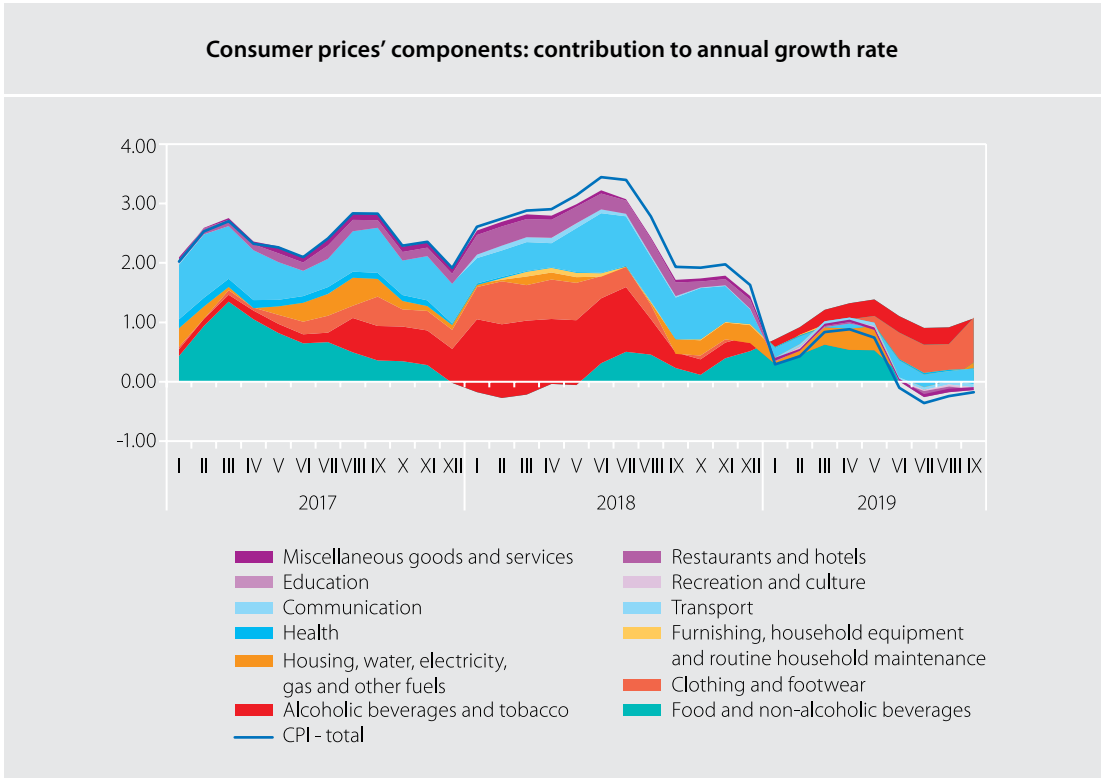
its report for 2020, the World Bank[2] forecasts a mild oil price decrease, from the average price of 60 USD/barrel estimated to 58 USD/barrel for 2019. The projected fall in prices is the result of expectations of weaker global economic growth and thus lower demand for this energy product, while supply side expects the increase of the USA production by putting new oil pipelines into operation.

Graph 2



Source: MONSTAT and "Monthly Oil Market Reports", OPEC

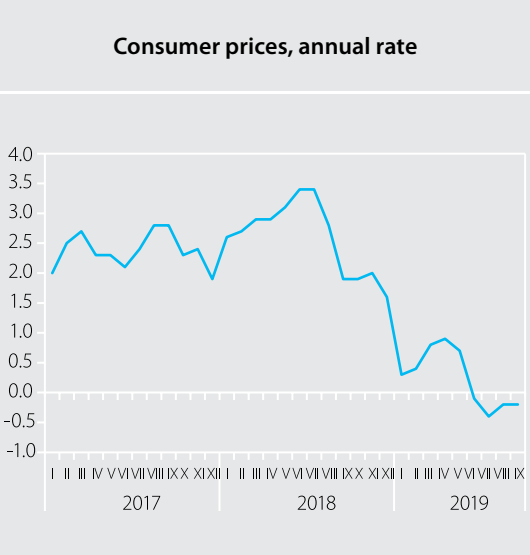
Graph 3



Source: MONSTAT and CBCG calculations

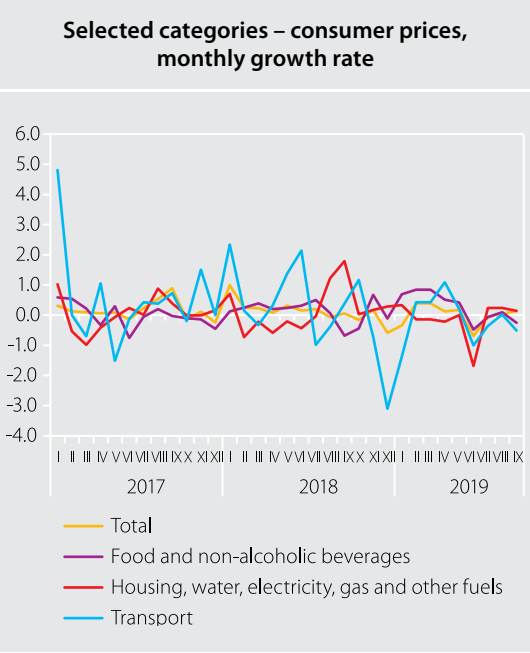
[2] "Commodity Markets Outlook" - October 2019

Graph 4



Source: MONSTAT

Graph 5



Source: MONSTAT

The price drop, at he annual level, in the *clothing and footwear* category of 8.8% contributed most to the fall (0.8 percentage points) to the overall annual inflation rate of (-0.2%). The annual fall in prices was also recorded in the following categories: *transportation* (-2.4%), *communications* (-1.1%), *recreation and culture* (-1.0%), *housing, water, electricity, gas and other fuels* (-0.8%) and *hotels and restaurants* (-0.3%). Annual price growth was reported in the *food and non-alcoholic beverages* (3.1%), *other goods and services* (1.2%), *furniture, household equipment and routine home maintenance* (0.6%), *alcoholic beverages and tobacco* (0.3%) and *health* (0.2%), while prices in the *education* category remained unchanged.

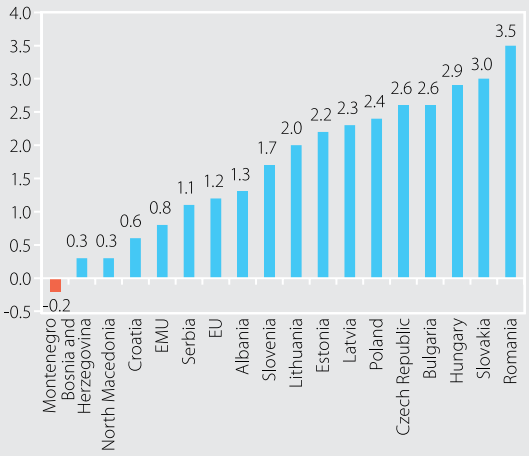
In September, **producers` prices of manufactured products** recorded 2.4% growth in relation to December 2018. This was due to the price growth recorded in the electricity, gas and steam supply sector (3.8%) and mining and quarrying sector (0.6%). At the annual level, producers' prices of manufactured products rose by 2.8%.

Comparison of annual inflation recorded in Montenegro with inflation recorded in selected countries shows that negative annual rate was recorded only in Montenegro. The highest positive annual inflation rate was recorded in Romania (3.5%) while the Republic of North Macedonia and Bosnia and Herzegovina recorded the lowest positive annual inflation rate (0.3% each).

The annual HICP inflation rate reported in the euro area amounted to 0.8%, while the CPI inflation in Montenegro amounted to -0.2%, and the annual HICP inflation in Montenegro was 0.3% in September.

Graph 6

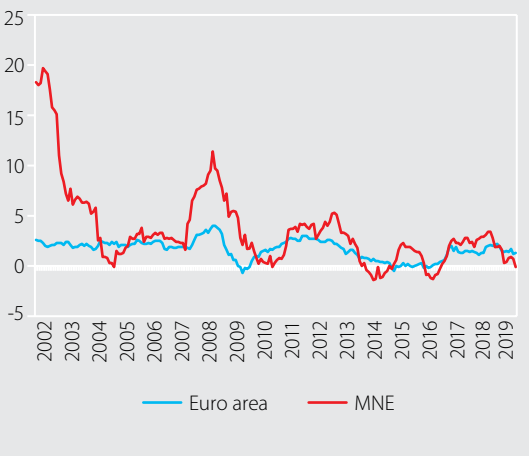
Annual inflation in selected countries, September 2019



Source: National statistical offices and Eurostat

Graph 7

Inflation in the euro area (HICP) and Montenegro (CPI)[3] since the introduction of the euro (annual rates)



Source: MONSTAT and Eurostat

[3] Costs of living were used for measuring inflation in Montenegro until 2009, after which consumer prices were introduced.

2. INFLATIONARY EXPECTATIONS

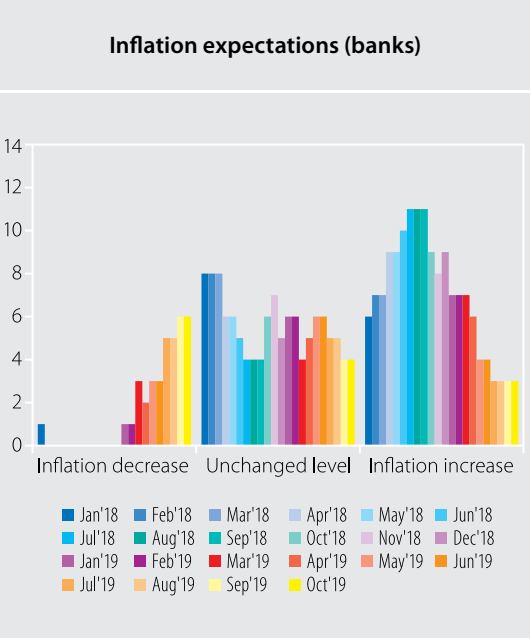
2.1. Banks' expectations

In reference to inflation expectations of banks, based on the survey conducted in October this year, six banks expected inflation to fall, four banks expected inflation at the same level as in 2018, while three banks expected inflation to increase in relation to 2018. (Graph 8)

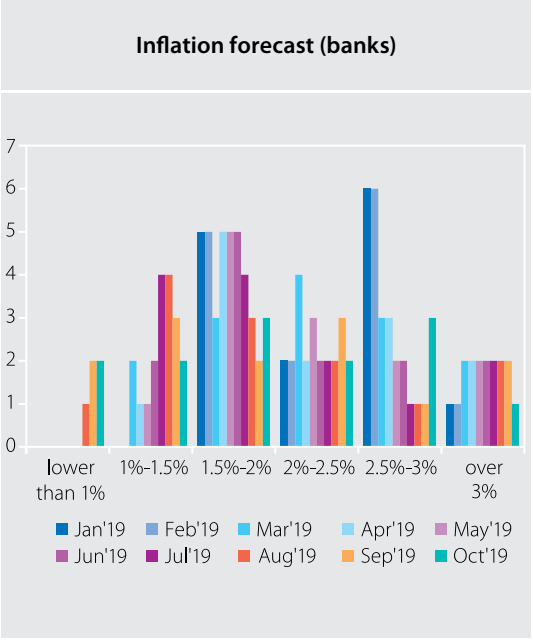
When it comes to inflation levels, expectations varied among banks. Three banks expect inflation rate between 1.5% and 2% and between 2.5% and 3%, two banks expect inflation lower than 1%, then between 1% and 1.5% and between 2% and 2. 5%, while one bank expects inflation above 3%. (Graph 9)

Concerning the expectations on the nominal lending interest rate trends, four banks expect this rate to decline, while nine banks expect it to remain at the same level. The banks' expectations regarding the effective interest rates are the same.

Graph 8

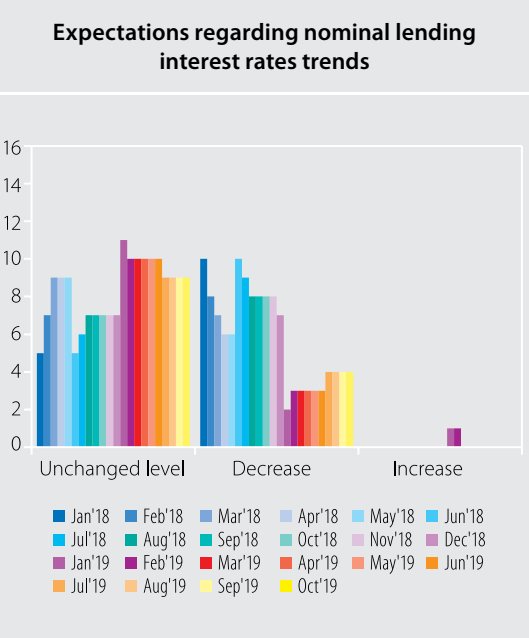


Graph 9

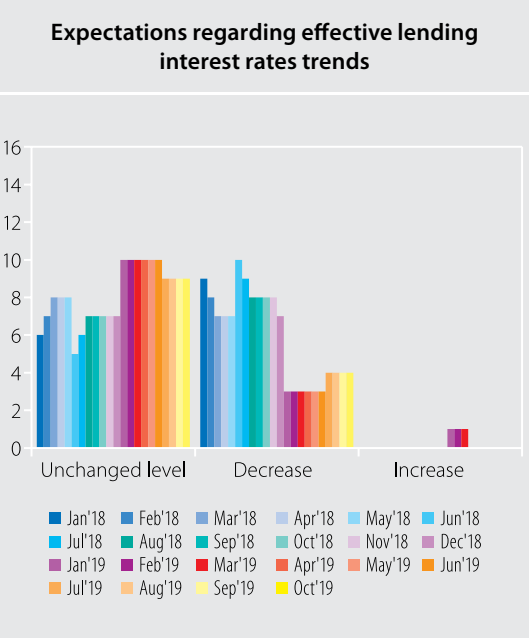


In reference to deposit interest rates trends, seven banks expect them to remain at the same level, five banks expect decline, while one banks expects an increase in deposit interest rates.

Graph 10

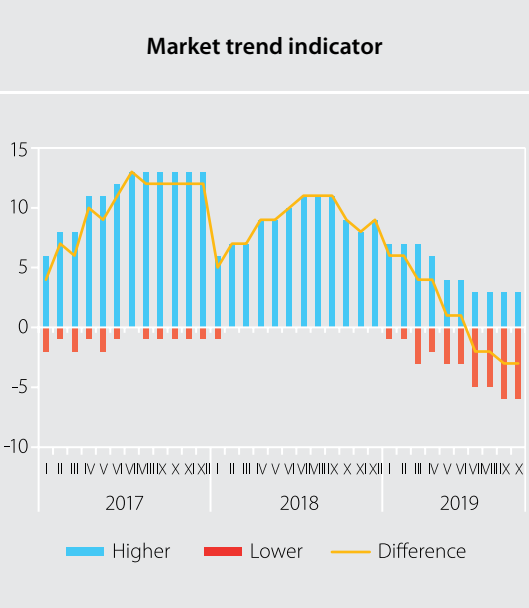


Graph 11



For the purpose of calculating inflation forecasts we use market trend indicator (line in Graph 12). It is calculated as the difference between the number of banks expecting inflation growth and the number of banks expecting inflation decrease. If the market trend indicator has a negative value, a decrease in the inflation rate is expected in the upcoming period. If its value is positive, then an increase in the inflation rate can be expected. If it has a zero value, an unchanged inflation rate can be expected in the upcoming period. The more negative its value is, the lower the inflation expectations are, and vice versa, higher positive value means higher inflation level expectations. Inflation expectations were quite high throughout the previous year, with some minor oscillations, and in the first ten months of 2019 these expectations decreased.

Graph 12



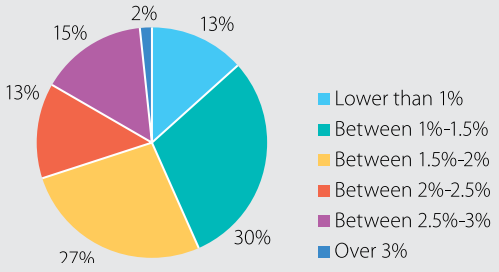
2.2. Expectations of economy (except banks)

Inflation

In the total number of surveyed companies, majority (30%) expect the inflation to range between 1% and 1.5% in 2019. Inflation is expected to fluctuate between 1.5% and 2% by 27% of companies, while 15% of business entities expect inflation between 2.5% and 3%. Inflation lower than 1% is expected by 13% of respondents, while 13% expects inflation between 2% and 2.5%. Inflation above 3% is expected by only 2% of the surveyed companies. (Graph 13)

Graph 13

Expected inflation in 2019 in relation to 2018

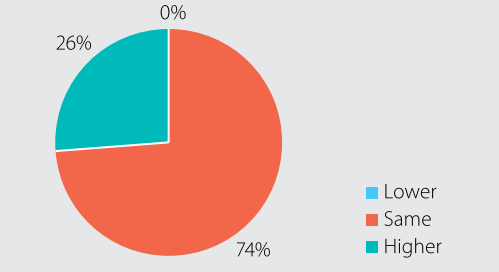


Some 74% of surveyed companies expected wages and salaries to remain unchanged in 2019, 26% of the surveyed companies expect them to increase, while none of them expects wages and salaries to decline in relation to the previous year. With regard to the number of employed persons, 71% of surveyed companies expect it to remain unchanged, 26% expect this number to increase, and 3% expected it to decrease.

The majority of surveyed economic entities (58%) did not expect changes in the prices of production inputs, whereas 78% did not plan to change the prices of their products (services) in 2019.

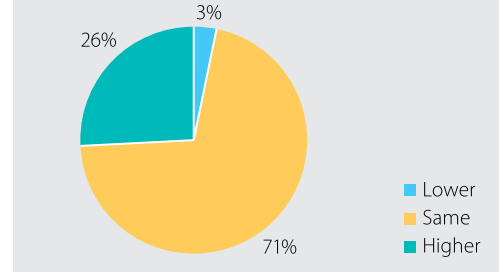
Graph 14

Expected wages and salaries in 2019 in relation to 2018

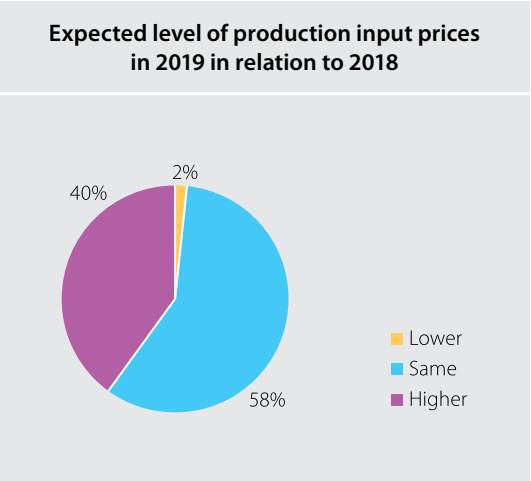


Graph 15

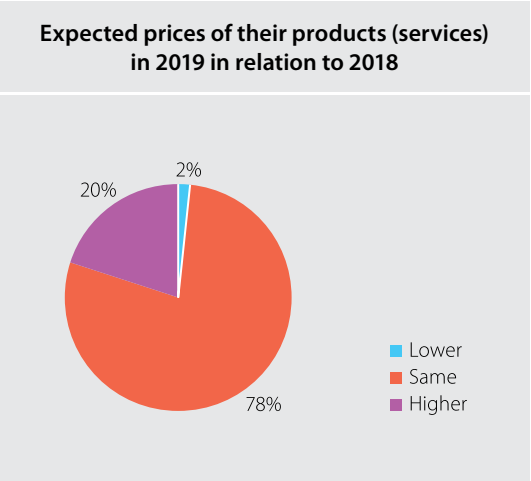
Expected number of employees in 2019 in relation to 2018



Graph 16



Graph 17

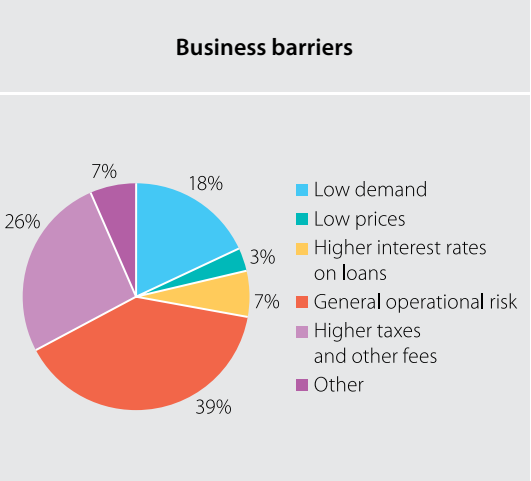


Business Environment

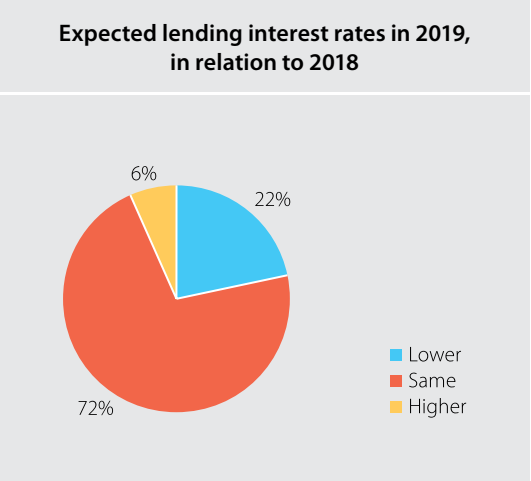
Concerning the business barriers, survey results showed that most of the surveyed companies saw general operational risks (39%), high taxes and other forms of duties (26%) and low demand (18%) as main obstacles.

With regard to lending interest rates, 72% of surveyed companies expect unchanged level, 22% expect lower level while only 6% expect higher lending interest rates in 2019 relative to 2018.

Graph 18



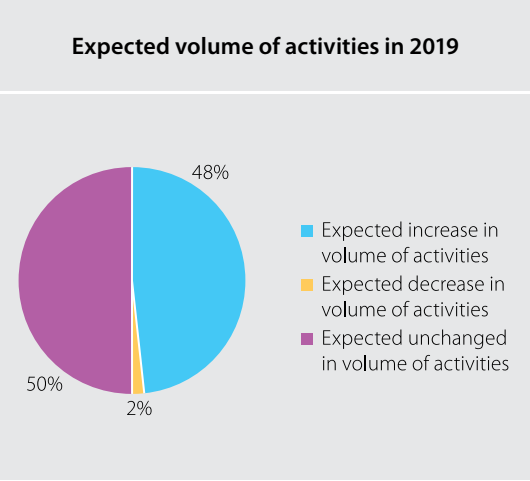
Graph 19



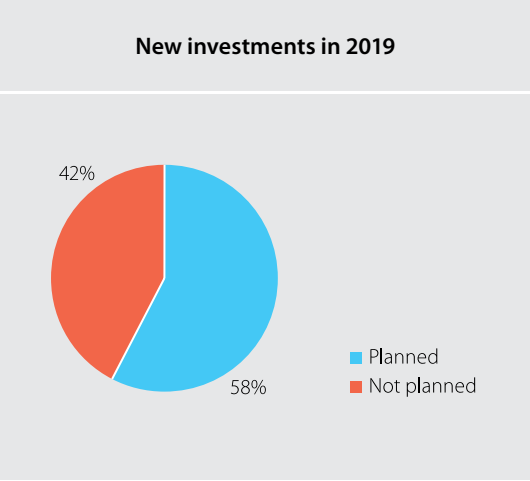
Investments

Out of the total number of surveyed companies, 48% planned the increase in the volume of activities in 2019, while 58% planned new investments. Most investments (67%) referred to increasing the fixed assets, and in reference to the main barriers to new investments the surveyed entities stated the following: insufficient exploitation of existing capacities, high interest rates, and unfavourable conditions for capital borrowing.

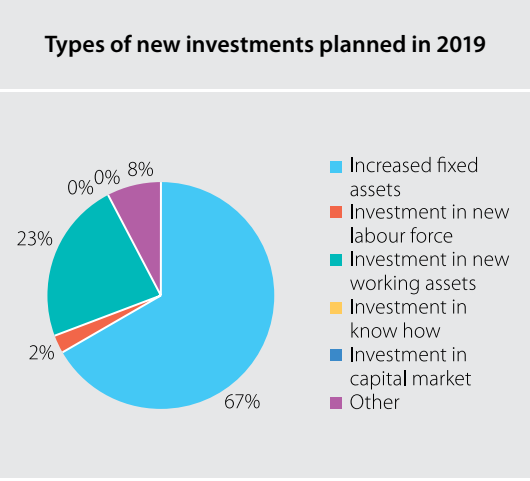
Graph 20



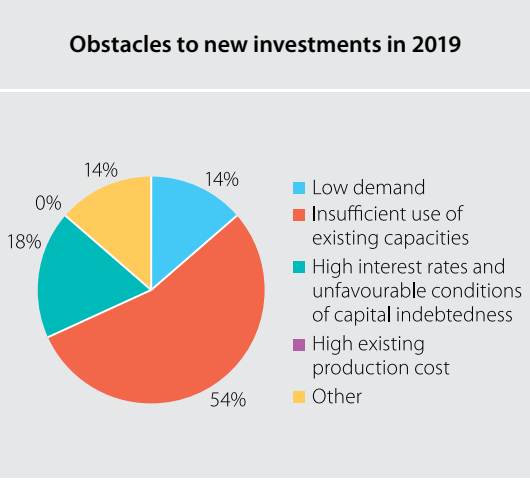
Graph 21



Graph 22



Graph 23



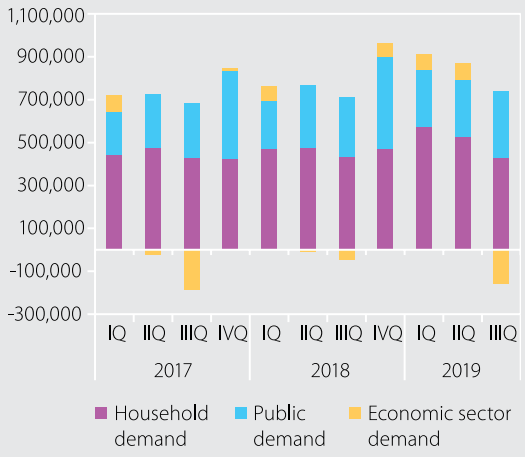
3. INFLATION DETERMINANTS

3.1. Demand

According to preliminary data, aggregate demand recorded quarterly decline as well as decline in relation to Q3 2018. Comparison of the total demand structure in Q3 2019 and the structure in Q2 2019 shows a decline in corporate sector demand, and an increase in the public spending as well as in household demand.

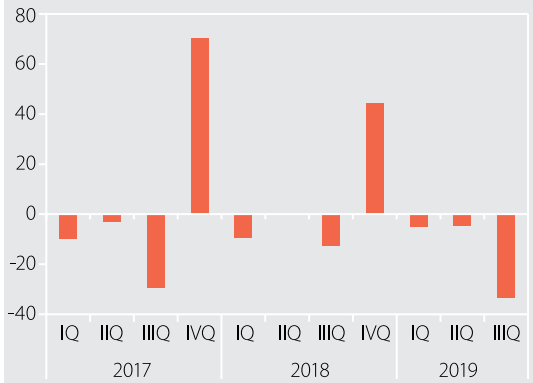
Graph 24

Aggregate demand, in thousand euros



Graph 25

Quarterly aggregate demand rates



Box 1 - Aggregate demand calculation methodology

For the purpose of a more complete monitoring of aggregate demand as a determinant of inflation, the CBCG has developed the aggregate demand calculation methodology. The starting point of this methodology states 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 – net household savings (savings – loans granted)

I = -net savings of economy (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

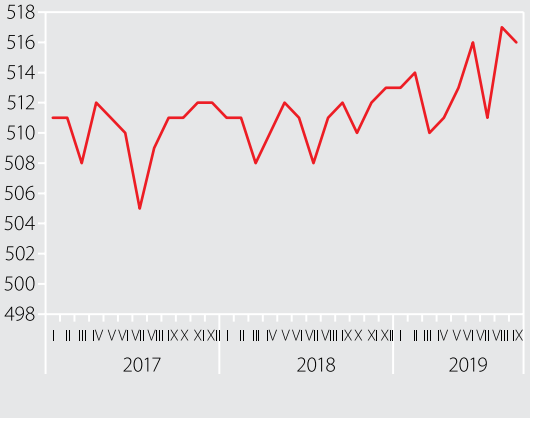
3.1.1. Salaries and other available demand determinants

In Q3 2019, an average gross salary in Montenegro amounted to 773 euros, while an average salary without taxes and contributions amounted to 515 euros. In relation to the previous quarter, the average gross and net wages and salaries increased by 0.3%, each. Compared to Q3 2018, the average wages and salaries and the average wages and salaries without taxes and contributions rose by 1% and 0.8%, respectively.

Taking into account the consumer prices, i.e. trends in wages and salaries in real amounts, it can be concluded that in Q3, the real wages and salaries grew in August, while they declined in July and September.

Graph 26

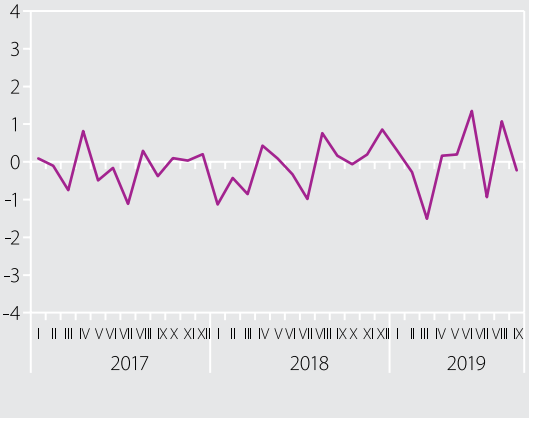
Average wages and salaries without taxes and contributions in Montenegro



Source: MONSTAT

Graph 27

Real wages and salaries (monthly growth rate)



Source: MONSTAT

Retail loans were marked by a positive trend in Q3 2019. These loans grew at he average monthly rate of 0.6%, while a year ago, they grew at the average rate of 0.9%. At the end of Q3 2019, total retail loans amounted to 1.319 million euros, or by 68.8 million euros or 5.5% more than at the end of 2018, i.e. by 104 million euros or 8.6% more than in same period of 2018 (Graph 28).[4]

At end-September 2019[5], debt per capita amounted to 2,119.9 euros, rising by 111.1 euros in relation to end-2018, and by 167.6 euros y-o-y.

Total micro-credit financial institutions' (MFIs) loans disbursed to households amounted to 64.5 million euros at end-September 2019 which was by 1.7 million euros or 2.6% more than at end-2018, and by 4.1 million euros or 6.8% higher than a year ago.

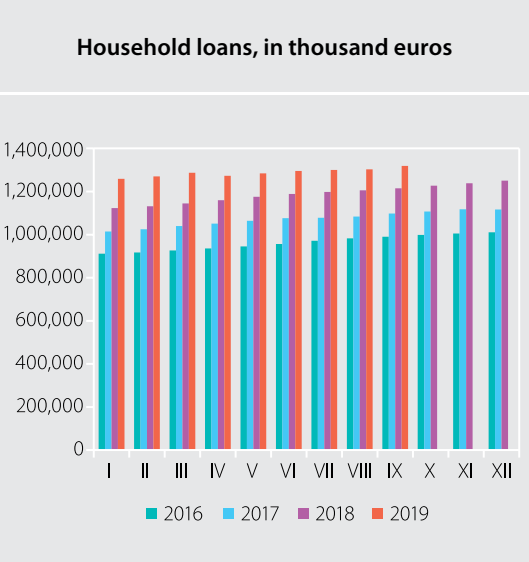
At end-September 2019, household sector deposits amounted to 1,299.9 million euros, which is by 27.6 million euros or 2.1% less than at end-2018, or by 8.8 million euros or 0.7% less than in the same period of the previous year.

At end-September 2019, loans to deposits ratio for this sector amounted to 1.01 being higher compared to end-2018 when it amounted to 0.94 and 0.93 compared y-o-y.

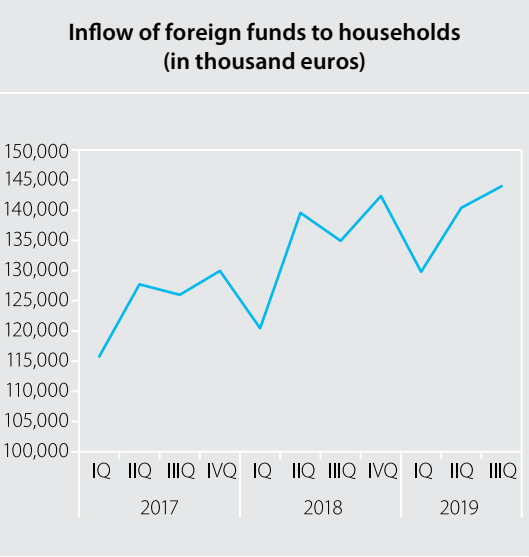
At the end of Q3 2019, the household sector had a net debt of 19 million euros.

In the reporting period, the balance of payments statistics reveals an increase in the inflow of monetary resources arising from remittances while compensations to employees and from remittances recorded mild fall in relation to the previous quarter.

Graph 28



Graph 29

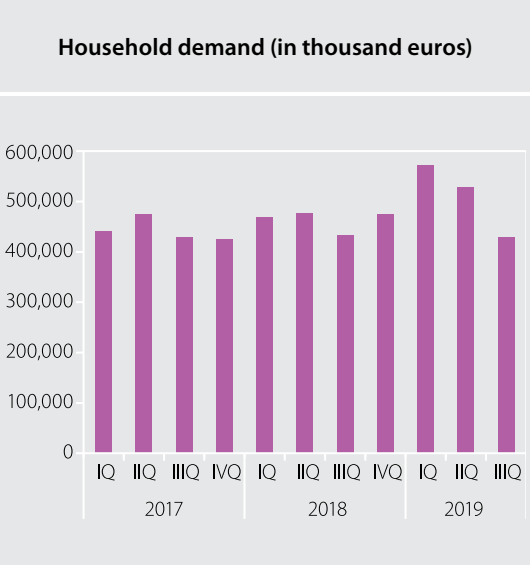


Source: CBCG

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

[5] Population estimate for 2019: Estimate as at 1 January 2019 amounts to 622,182, Source: MONSTAT

Graph 30



Observation of the total retail sector demand by quarters shows that household demand in Q3 2019 recorded quarterly as well as a year-on-year decline.

3.1.2. Budgetary analysis

According to the Ministry of Finance preliminary data, total revenues[6] of the Budget of Montenegro amounted to 1.73 billion euros in the period January-September 2019.

Source revenues amounted to 1.34 billion euros or 27.8% of estimated GDP[7], and they increased by 2.7% in relation to the plan, and they showed a year-on-year increase of 5.1%. In the structure of source revenues, tax revenues accounted for the main share of 65.7%, followed by contributions with 27.7%, other revenues with 2.1%, donations with 1.7%, fees with 1.5%, duties with 0.9%, and funds transferred from the previous year with 0.4%.

Tax revenues amounted to 878.8 million euros, recording a year-on-year increase of 9%, being 3.5% above the plan. All taxes except corporate income tax recorded an increase compared to the nine months of the previous year. In nominal terms, the highest growth of revenues in relation to the previous year was recorded in value added tax in the amount of 56.4 million euros or 12.2%.

Revenues arising from contributions amounted to 370.6 million euros being 1.7% above planned, and recording a year-on-year growth of 5.5%.

In the first nine months of 2019, *budget expenditures* amounted to 1.38 billion euros or 28.6% of GDP. Expenditure recorded decrease by 9.4% relative to the plan for the nine months of the current year, while they increased by 4.8% or 62.9 million euros observed y-o-y. This was mainly due to the increase in the amount of 20.5 million euros in transfers to institutions, individuals, NGOs and the public sector.

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[6] Revenues include source revenues (direct and indirect taxes and non-tax revenues), borrowings and loans, and revenues from sale of property.

[7] Source: Ministry of Finance; estimated GDP for 2019 amounts to 4.82 million euros.

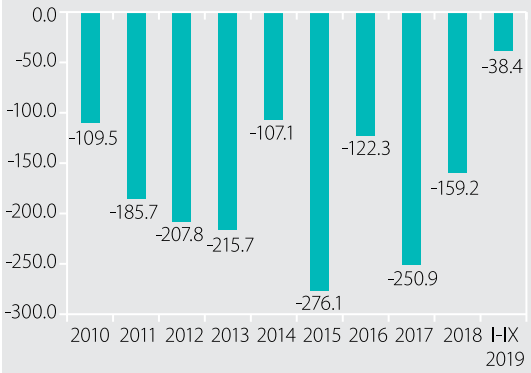
Current budget expenditures in the observed period amounted to 603.6 million euros and were lower than planned by 7.5% due to a decrease in capital expenditures in the current budget by 21.7 million euros, while compared to nine months of the previous year they increased by 2% or 12 million euros, which was fuelled by an increase in gross wages and contributions at the expense of the employer.

Montenegro's capital budget amounted to 160 million euros or 3.3% of GDP.

For the first nine months of 2019, Montenegro's fiscal deficit was estimated at 38.4 million euros, or 0.8% of GDP.

Graph 31

Fiscal surplus/deficit, 2010 – September 2019, in million euros



Source: Ministry of Finance

3.1.3. Non-financial sector[8]

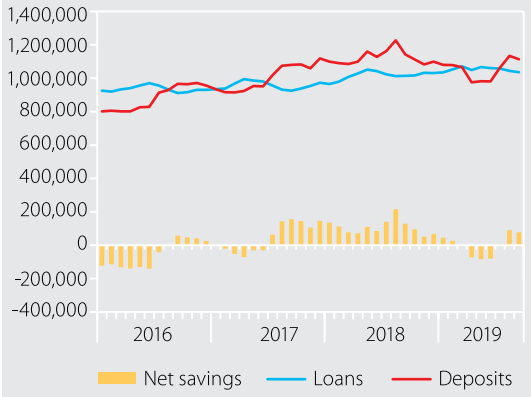
Due to the lack of data on the non-financial sector investments, we can use the sector's net indebtedness as an approximation.

At end-September 2019, loans to non-financial sector were lower than this sector's deposits. At end-Q3 2019, the net savings of the non-financial sector amounted to 77.5 million euros. (Graph 32)

Long-term loans accounted for the main share of 75.7% in the structure of loans to the long-term loans with 75.7%, which indicates that loans to this sector were mainly used for the increase in the volume of economic activity.

Graph 32

Net savings/indebtedness of the non-financial sector, in thousand euro



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

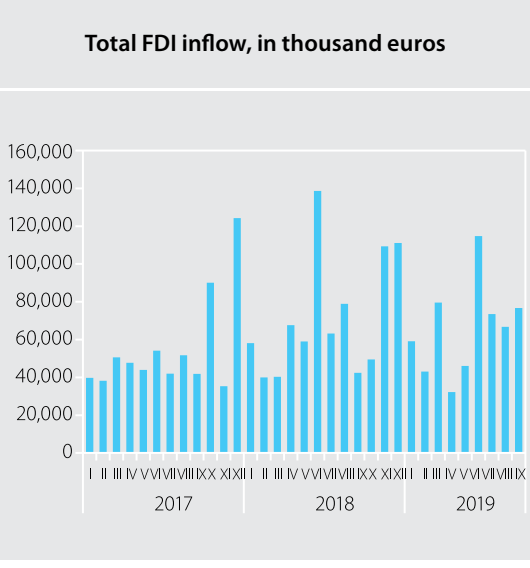
3.1.4. External demand and the current account

According to preliminary data, in the period January-September 2019 the current account deficit amounted to 405.8[9] million euros, which is 3% less than in the same period of the previous year. The decrease in the current account deficit is the result of an increase in the surplus in the services account and secondary income.

The increase in the deficit in the commodity account continued in the first nine months of 2019 (by 2.4%). Total visible exports stood at 336.2 million euros, increasing by 6.5%, while the value of visible imports at the same time amounted to 1.9 billion euros, which represents a 3.1% increase year-on-year. On the other hand, there was a 7% increase in the surplus in the services account (to 960 million euros). The increase in revenues from travel tourism, transport and other business services contributed significantly to this. In the primary income account, the deficit amounted to 13.8 million euros, while in the same period in 2018 a surplus of 24.6 million euros was made in this account. This trend is the result of an increase in employees' compensation expenditure and interest repayments. Secondary income account ran a surplus of 209.5 million euros, or 13.6% more than in 2018.

Preliminary data suggests that net foreign direct investments (FDIs) inflow for the period January-September 2019 amounted to 266.7 million euros, which is a year-on-year growth of 22.5%. This movement is the result of a smaller outflow from equity investments withdrawal and repayment of intercompany debt compared to the same period in 2018. Total FDI inflow stood at 591.7 million euros, with equity investments amounting to 335.9 million euros (decline of 7.9%) while the inflow in the form of intercompany amounted to 235 million euros or 15.3% more y-o-y. The inflow from withdrawal of investments from abroad amounted to 20.8 million euros. In the structure of equity investments, investments in companies and banks amounted to 206.2 million euros (decline of 10.9%), while real estate investments amounted to 129.7 million euros (decline of 2.9%). The total FDI outflow in the period January-September 2019 amounted to 325 million euros, which is 12.3% less than in the same period in 2018. In the outflow structure, outflow from residents' investments abroad amounted to 78.2 million euros, while withdrawal of non-residents' funds invested in Montenegro amounted to 246.8 million euros.

Graph 33



Source: CBCG

In the period January-September 2019, portfolio investments account recorded net outflow of 163.9 million euros, while the net inflow in the other investments account amounted to 240.1 million euros. This account's trends were marked by decreased liabilities for loans taken.

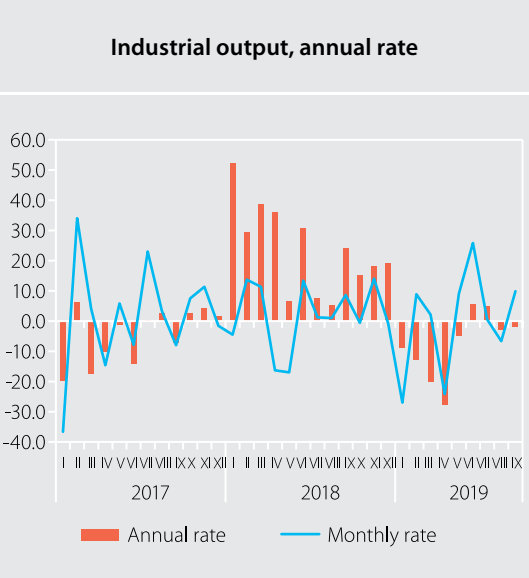
[9] Montenegro's balance of payments' data published in accordance with the new IMF methodology (IMF Balance of Payment Manual, sixth edition - BMP 6)

3.2. Supply and demand

In Q3 2019, total industrial production decreased by 8.1% compared to the same period last year. Manufacturing industry and electricity, gas and steam supply sectors recorded production decline of 5% and 16.8%, respectively, while the mining and quarrying sector recorded output increase of 16.1%. Observation of monthly data on the industrial output trends shows that the highest decline was recorded in January (-27%) and April (-24.1%), while the highest increase was recorded in June and September (25.8% and 9.9%, respectively).

During the first nine months of this year, a total of 1.1 million tourists stayed in collective accommodation establishments, which is an increase of 16.4% year-on-year. The number of domestic tourists' arrivals in collective accommodation establishments increased by 7.4%, while the number of foreign tourists grew by 17.5%. Tourist overnights amounted to 4.2 million, which is an increase of 9.5% year-on-year.

Graph 34



Source: MONSTAT

In the first nine months of 2019, total output of forest assortments amounted to 182.460 m³, which represents a year-on-year drop of 16.3%[10].

As per preliminary data, the value of executed construction works for the first nine months of this year was 591.6 million euros increasing by 18.7% year-on-year, while construction activity measured by effective working hours increased by 6.2%.

In the first nine months of 2019, air passenger transport recorded year-on-year increase of 7% while cargo transport decreased by 8.9%. Over the same period, year-on-year increase of 1%[11] was observed in road passenger transport, while road freight transport increased by 10.2%[12]. In the same period, passenger railway transport decreased by 0.1%[13], while freight railway transport increased by 10.5% [14].

[10] Presented through weighted index, while presented through non-weighted index production declined by 14% over the same period

[11] Presented through number of passengers, while it decreased by 1.2% expressed through passenger kilometres

[12] Presented through cargo transport in thousand tonnes, while it increased by 3.2% presented in passenger tonnes

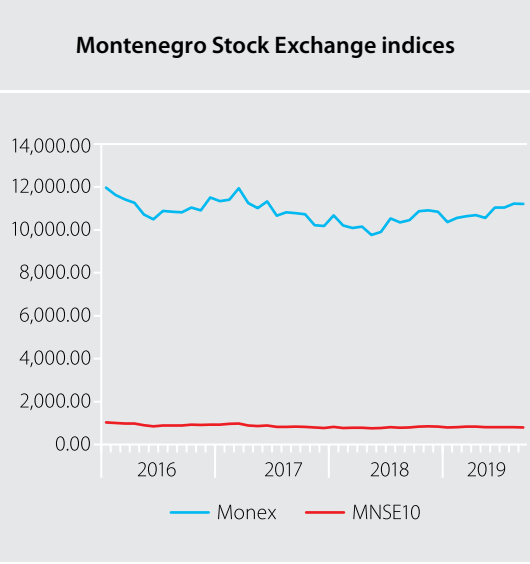
[13] Presented as the number of passengers in thousands, while presented in passenger-kilometres, it increased by 0.2%

[14] Presented in thousand tonnes, while presented through tonne kilometres the increase was 9.4%.

3.3. Stock exchange indices

At end-Q3 2019, the MNSE10 index dropped in relation to end-2018, while Monex index grew. Year-on-year comparison reveals growth in both indices (Graph 35).

Graph 35



Source: Montenegro Stock Exchange

At end-September 2019, Monex[15] amounted to 11,208.19 recording an increase of 367.7 index points or 3.4% in relation to end-2018, and a year-on-year increase of 753.1 index points or 7.2%.

MNSE10[16] index stood at 799.83 at the end of the third quarter of 2019 and recorded a decline of 37.25 index points or 4.4% compared to the end of 2018, while compared to the same period of the previous year it was 1.45 index points or 0.2% higher.

[15] The MONEX is a 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. With the new Methodology, the legal heir of the MONEX20 index - MONEX index - has more companies in its index basket.

[16] The MNSE10 is the blue-chip index at the Montenegro Stock Exchange and it is aimed at providing a more precise description of the price trends of the most representative shares in the official and the free market of the Montenegro Stock Exchange AD Podgorica. It includes the top ten companies in the Montenegrin market.

4. MONETARY POLICY

In Q3 2019, there were no changes to the existing decisions, nor were new ones passed regarding the Central Bank of Montenegro monetary policy instruments.

5. INFLATION FORECAST FOR Q4 2019 AND THREE QUARTERS OF 2020

5.1. Model assessment

Montenegro's inflation fan chart is a graphic representation of inflation rate 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 trends in the upcoming period. The purpose of the fan chart is to indicate and consider the uncertainties in the real economy flows, which are consequently reflected in the inflation rate trend (increase in energy prices, increase/decrease in the foreign trade deficit, and the like).

Montenegro's fan chart Q3 of 2019 and three quarters of 2020 is based on three estimated constituent parts:

1. **Central projection values**– the values of the fan chart central projection are derived from the ARIMA (Autoregressive Integrated Moving Average) 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" inflation rates. The position of the mean value of inflation distribution will depend on this.

Central projection of fan chart - ARIMA model for the last quarter 2019 and three quarters of 2020

With a view to developing a fan chart, an ARIMA model of time series of inflation of Montenegro presented via Consumer Price Index was developed.[17]

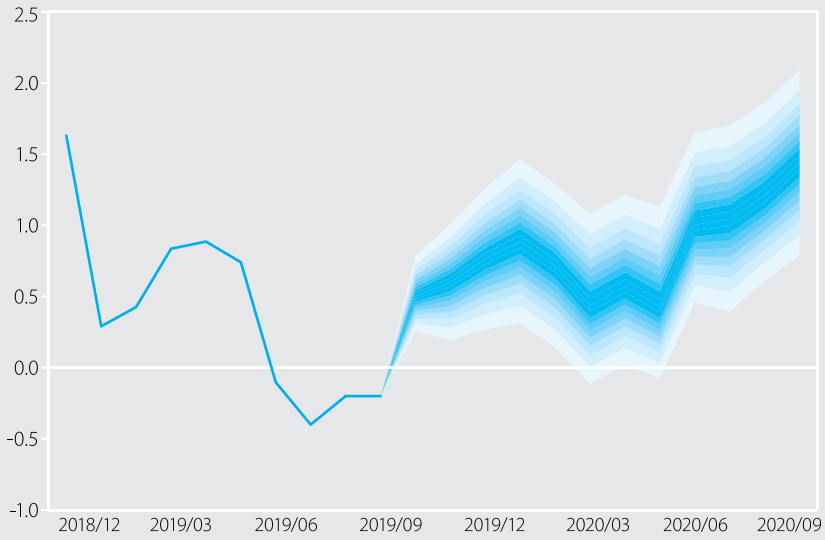
[17] A detailed explanation of the ARIMA model of Montenegro was presented in the CBCG working paper No. 11 **"Inflation Forecast". Empirical research on the retail price index trend of Montenegro for 2007 - applying the ARIMA model**

ARIMA model was used for short term forecasts (12 months), whereby several iterations of ARIMA models were made, which were ranked based on their efficiency and quality of diagnostics. The selected ARIMA model, ARIMA (2, 1, 2)[18] has sufficient confidence level for forecasts.

The monthly forecasts value was used as the value of central projection of the CPI graph for Q3 2019 and three quarters 2020. Obtained values represent the distribution mode, i.e. values with the highest frequency in the distribution of this time series.

Graph 36

Montenegro's CPI projections for three quarters of 2019 and three quarters of 2020



Source: CBCG, 2019

Mean value of the obtained model is 0.8. The value of the coefficient of asymmetry varies in the range of 0.5 to 1, and the relative standard deviation is 0.25. Model projection of inflation is located in the central span of the distribution. The fan chart describes 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.[19] 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 describes the next 10% of inflation trend probability. As uncertainty grows over time, the fan chart spreads.

[18] 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.

[19] 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 fan chart of inflation in Montenegro, based on the ARIMA model assessment for Q4 2019 and Q1-Q3 2020, indicates that there is a *90% probability that the CPI inflation will range between -0.1% and 2.1%, depending on the month, with the central projection of 0.8%. The average inflation of 0.4% is forecasted for 2019, while the inflation for December 2019 is forecasted for to range between 0.3% and 1.2%, with the central trend of 0.8%*. The fan chart central projection (the darkest part) represents a 10% probability span (Graph 36).

The starting assumptions for forecasting inflation for the first three quarters of 2019 and three quarters of 2020 are:

The projection is based on projected energy and food prices, inflation projections in the euro area, and the announced excise duties calendar (for alcoholic beverages and coal). The risks related to the projected inflation rate shown on the fan chart are set symmetrically. Uncertainty about future price developments relates to the international environment, i.e. to the trends oil prices.

Internal factors:

- Excise duties on cigarettes, coal, alcohol and carbonated water will remain the same until the end of 2019,
- Potential increase in electricity prices of 5%,
- Fluctuation of +/-5% in the agricultural product prices, caused by weather conditions,
- Wages and salaries growth in the next year up to 3%.

External factors:

- By the end-2019, we assumed that crude oil prices in the international market would not decrease significantly, while in 2020 the average crude oil price is projected to decline.
- It is assumed that prices of raw materials without energy will fall in 2019 but will rise again in the coming year.
- No significant inflationary pressures from the euro area are expected in the projected period. According to the ECB forecasts[20], inflation will be more moderate this year, will remain relatively low next year, and will recover to reach 1.5% in 2021. Compared to June 2019 projections, the short-term outlook has deteriorated due to weak foreign demand, weaker confidence indicators, and growing global uncertainty. This led to GDP revisions and lower inflation for 2019 and 2020. In the long run, the effect of more favourable financing conditions and lower oil prices will generally offset the effect of negative external shocks.

Deviation of any of these parameters would require the forecast to be adjusted.

[20] Source: *Eurosystem staff macroeconomic projections for the euro area, September 2019*

6. EXPECTED INFLATION IN 2019

The level of aggregate demand in the third quarter was lower both in comparison with the previous quarter and in comparison with the third quarter of the previous year. This indicates that there is no price „pressure" on the aggregate demand side. In the same direction, the growth of production also works. Also, as far as the external factors are concerned, there are no announcements that they could affect inflation this year.

The market trend indicator as well as the expectations of banks and companies does not indicate inflationary pressures. Therefore, all factors indicate that we will have a low inflation rate this year.

The Arima model with a probability of 90%, for *December 2019, projects inflation in the range of 0.3% to 1.2%, with a central tendency of 0.8%. Our expert assessment is similar to the model evaluation and our expectation is that the year-end inflation will from 0.3% to 1.3% and it is unchanged compared to the previous projection*.

Table 3

Estimated inflation rate		
optimistic assessment	realistic assessment	pessimistic assessment
0.3	0.6%	1.6%

The assumptions on which this estimation is based are the same as the assumptions on which the model estimation is based. Deviation of any of the mentioned parameters from the expected values would also require revision of the estimation.