CBCG

CENTRAL BANK OF
MONTENEGRO

Price Stability Report

2017

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LIST OF ABBREVIATIONS

ARIMA	Autoregressive Integrated Moving Average
GDP	Gross Domestic Product
CBCG	Central Bank of Montenegro
CPI	Consumer Price Index
EU	European Union
EMU	Economic and Monetary Union
HICP	Harmonised index of Consumer Prices
MONSTAT	Statistical Office of Montenegro
OPEC	Organization of the Petroleum Exporting Countries
VAT	Value Added Tax
UN	United Nations
USD	US Dollar

CONTENTS

1. INFLATION INDICATORS

1.1. Inflation Trend in Montenegro

Positive annual inflation rates were recorded in 2017, mostly as a result of the rise in oil prices at the world market after the 12-year minimum recorded in the previous year and the higher prices of certain food products. This trend did not circumvent Montenegro, bearing in mind that being a highly-dependent economy, it is under the strong influence of international trends. In December, annual inflation measured by consumer prices was 1.9%, while inflation measured by the harmonized index of consumer prices (HICP) was 2.9%. The consumer prices' growth in 2017 averaged to 2.4%.

Table 1

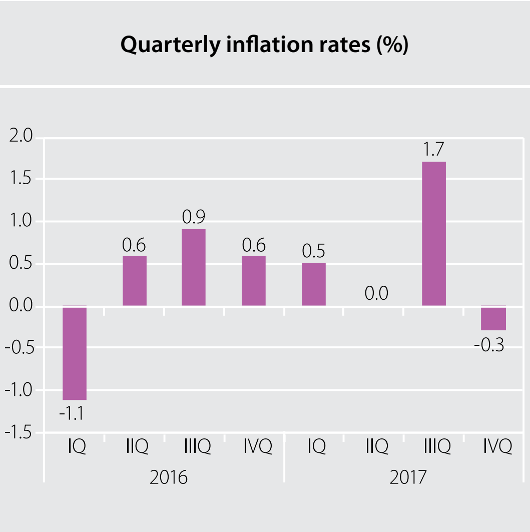
Inflation, %								
	2016				2017			
	III	VI	IX	XII	III	VI	IX	XII
Change in relation to the previous year-end	-1.1	-0.5	0.4	1.0	0.5	0.5	2.2	1.9
Annual change	-0.9	-1.3	-0.3	1.0	2.7	2.1	2.8	1.9

Source: Monstat

Observed by quarters, prices growth in 2017 was recorded in Q1 and Q3 (0.5% and 1.7%, respectively), remaining unchanged in Q2, yet recording price decline in Q4 (-0.3%). Observed by months, the highest consumer prices growth was recorded in September (0.9%), while the highest price decline was recorded in December (-0.2%).

The largest contribution to the annual growth of inflation rate of 0.7 percentage points was recorded by the prices of *transport* with the growth of 6.4% (Table 2). The increase in prices in this category was mostly due to the increase in prices of fuels and lubricants for personal transport equipment of 14% affected by the increase in excise duties on mineral oils after the adoption of the Law amending the Law on Excise Duties[1], as well as the global rise in

Graph 1

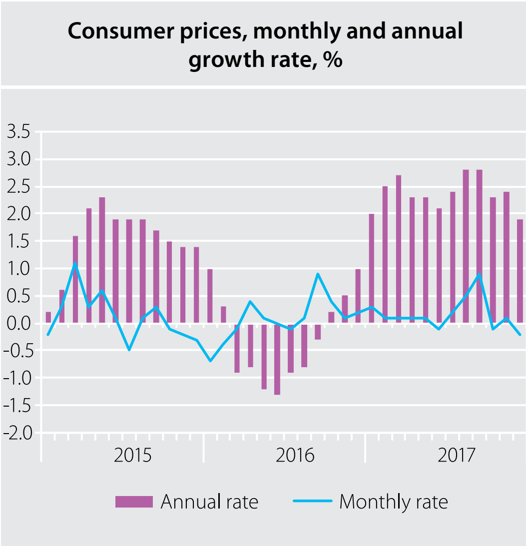


Source: Monstat and CBCG calculations

[1] OGM, 01/17, January 2017

oil prices. Significant contribution to annual inflation (0.6 percentage points) was recorded by the prices from the category *alcoholic beverages and tobacco* with a growth of 14.8%. Tobacco prices rose by 21.3% as a result of an increase in excise duties on tobacco products[2] aimed at reaching the level of excise duties on tobacco products up to the prescribed minimum in accordance with EU directives. The increase in prices was also recorded in the category *hotels and restaurants* (5.4%) due to the growth in the prices of accommodation services of 14.4%, as well as in the *clothing and footwear* prices (3.8%) due to a rise in footwear prices by 4.4% and clothing by 3.3%. Annual growth in prices was also recorded in the following categories: *other goods and services* (1.9%), *housing, water, electricity, gas and other fuels* (0.7%), *health* (0.6%) and *communications* (0.2%). Annual decline in prices was recorded only in the following categories: *recreation and culture* (-0.8%), *furniture, household equipment and routine maintenance of apartments* (-0.7%) and *food and non-alcoholic beverages* (-0.1%), while prices in the category *education* remained unchanged compared to December 2016.

Graph 2



Source: Monstat

Table 2

Annual share and contributions of individual categories in total inflation (%)[3]

	Weights	XII 2017/XII 2016	Growth rate	Contribution
TOTAL	1,000.0	**101.9**	1.9	1.9
Food and non-alcoholic beverages	351.7	**99.9**	-0.1	0.0
Alcoholic beverages and tobacco	38.6	**114.8**	14.8	0.6
Clothing and footwear	85.1	**103.8**	3.8	0.3
Housing, water, electricity gas and other fuels	155.3	**100.7**	0.7	0.1
Furnishing, household equipment and routine household maintenance	41.2	**99.3**	-0.7	0.0
Health	40.9	**100.6**	0.6	0.0
Transport	107.0	**106.4**	6.4	0.7
Communication	49.9	**100.2**	0.2	0.0
Recreation and culture	33.2	**99.2**	-0.8	0.0
Education	19.3	**100.0**	0.0	0.0
Hotels and restaurants	31.3	**105.4**	5.4	0.2
Miscellaneous goods and services	46.5	**101.9**	1.9	0.1

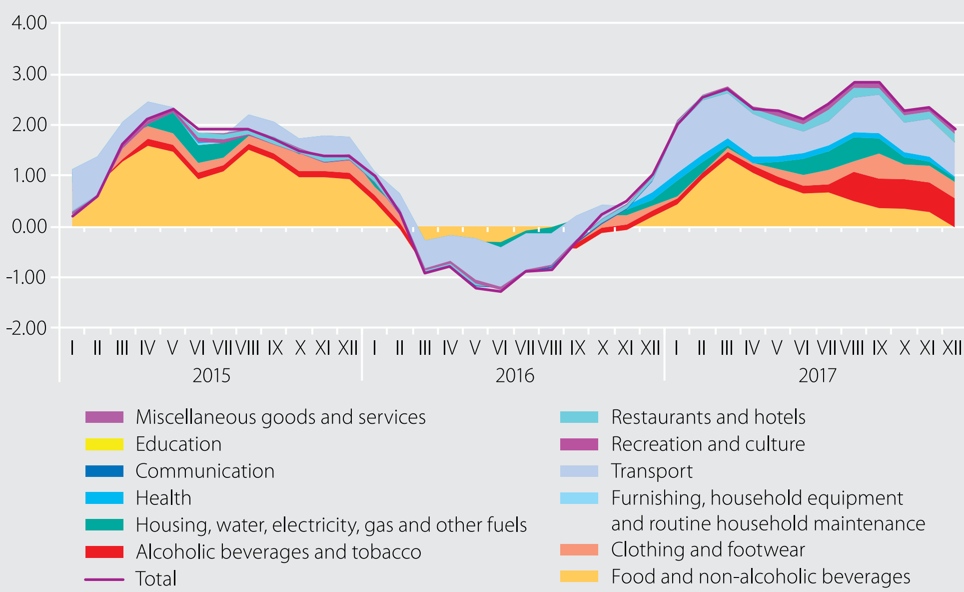
Source: Monstat and CBCG calculations

[2] According to the excise duties calendar, new excise duties on cigarettes entered into force as of 1 April, while the Law amending the Law on Excise Duties (OGM 50/17, July 2017) led to new increases.

[3] 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.

Graph 3

Consumer prices components: contributions to annual growth rate (in index points)

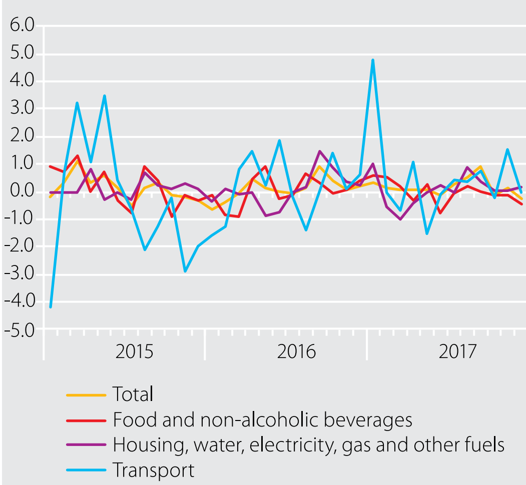


Source: Monstat and CBCG calculations

The prices of liquid fuels and lubricants, which were mostly affected by the changes in the global oil prices, recorded the annual growth of 14%. In 2017, there was a rise in the price of this fuel at the world market, after a twelve-year minimum reached in 2016. The rise in oil prices is the result of better compliance in the implementation of the Agreement to cut oil production between OPEC members and countries that are not members of this cartel. The price of the OPEC reference basket averaged to 52.5 USD/barrel in 2017, being 29.1% higher than the 2016 average. The price of Brent averaged to 54.2 USD/barrel, being 24.2% more than in 2016 average. In 2017, the highest level of average Brent price was recorded in December (64.14 USD/barrel), representing the highest recorded level since May 2015 (when it was 64.32 USD/barrel). According to the UN report World Economic Situation and Prospect 2018, the average price of Brent will rise to 55.4 USD/barrel in 2018. The price increase is largely

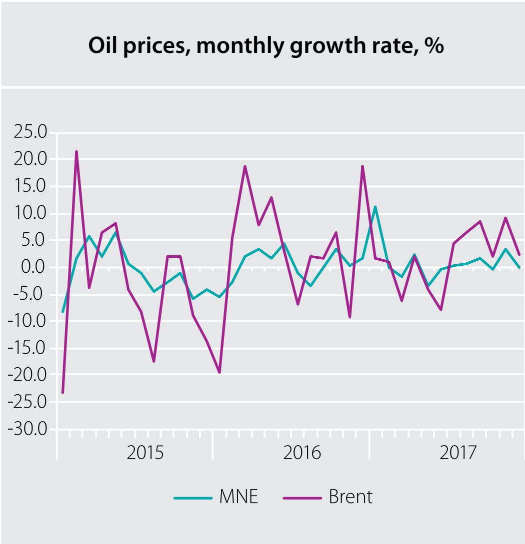
Graph 4

Selected categories – consumer prices, monthly rate, %



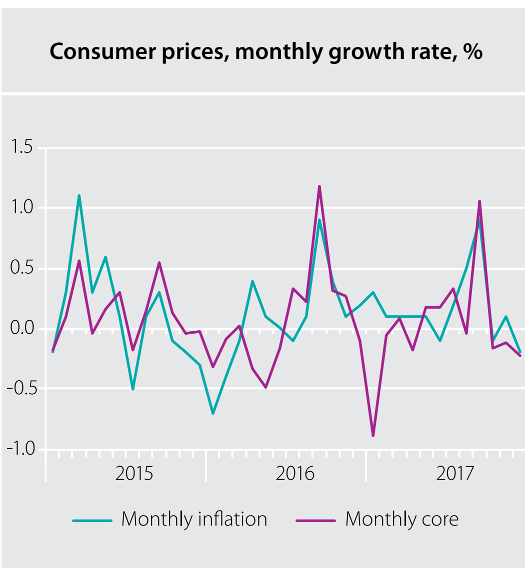
Source: Monstat

Graph 5



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

Graph 6



Source: Monstat and CBCG calculations

based on the expected decrease in the output of the countries-signatories of the *Agreement to cut oil production*,[4] member of the OPEC and countries that are not members of this cartel. In November 2017, the Agreement was extended until the end of 2018 with the aim of raising the price of that energy product, bearing in mind that the International Energy Agency predicted that the demand for oil will fall in the coming year.

In 2017, the monthly average of the base inflation rate for seven months (January, February, March, April, August, October and November) was below the level of total monthly inflation (Graph 6), while the other five Months were higher than total inflation. The largest spread between total monthly and core inflation was recorded in January (the reason is changes in the prices of certain products that are usually excluded from the calculation of core inflation, such as prices for electricity, agricultural products, etc.).[5]

In the UN report *World Economic Situation and Prospect 2018* it is stated that in 2017, inflation in developed economies amounted to 1.5% (growth was compared to the previous year when it was 0.7%). Developing countries have recorded declines in inflation (from 5.2% in 2016 to 4.4% in 2017) due to falling prices in certain regions of Africa (especially the southern part), Latin America and the Caribbean. In transition countries, a lower level of inflation than the inflation recorded in the previous year was registered, especially after a significant decrease in the level of inflation in Russia and Kazakhstan. After the rise in oil prices at the end of 2017, the rise in inflation in most countries is expected at the beginning of 2018. As the Report indicates[6], inflation in advanced economies for 2018 could amount to

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[4] At a meeting of the OPEC countries held in November 2016, an Agreement to cut oil production was signed, which in May 2017 had already been extended by March 2018 (but it was extended until the end of 2018 before the expiration date in end-November).

[5] In the period 2012-2017, data on annual change in prices were not available for all products included in the core inflation basket, i.e. for the products excluded from the basket for the calculation of the core inflation.

[6] Detailed data on inflation trends for individual regions and countries are listed in the Report Annex *World Economic Situation and Prospect 2018*, in Tables A.4, A.5 and A.6.

1.9%, 4.3% in developing countries and 5.1% in transition economies. The dependence on import, changes in oil prices, food and consumer goods will affect prices in Montenegro and the overall inflation in the upcoming period, and the change in the VAT rate, as well as expected changes in excise duties will have a significant impact.

The producers` prices of manufactured products in December 2017 recorded y-o-y increase of 0.1%. Growth in prices was recorded in the electricity, gas and steam sector by 5.3%. Mining and quarrying reported y-o-y decline in prices of 3.1%, as well as prices in manufacturing industry of 6.3%. The average growth in the producers` prices of manufactured products amounted to 0.4% in 2017, whereby an average growth in prices was recorded in electricity, gas and steam supply (5.3%), mining and quarrying (0.3%), while manufacturing industry recorded average prices decline (-2.9%).

Export producers` prices of manufactured products[7] recorded the y-o-y increase of 3.3% in December 2017, while the average annual price growth was 8.1%. Manufacturing industry reported y-o-y growth in prices of 3.4%, while the prices in mining and quarrying declined by 0.6%.

Import prices of manufactured products[8] recorded y-o-y increase by 3.7%, and the average annual rate showed an increase of 3.7%. Annual growth was recorded in prices from both sectors: manufacturing industry (3.6%) and mining and quarrying 0.1%.

1.2. Inflation Trends in the Region and the EU

Annual inflation in all countries in the region was positive: Serbia (3%), Macedonia (2.4%), Slovenia (1.9%), Albania (1.8%), Croatia (1.3%) and Bosnia and Herzegovina (1.2%).

The annual inflation rate in the euro area in December 2017 was 1.4% being higher by 0.3 percentage points than the annual rate recorded in December 2016. The inflation was mostly affected by the annual price growth of transport fuel (3.9%), tobacco (4%), milk, cheese and eggs (3.9%), and the annual decline in telecommunications prices (1.9%) and vegetables (1.2%). In 2017, inflation in the euro area was positive. The rise in oil prices at the end of 2016 caused the highest annual price increase in 2017 to be achieved in February (2%), while the lowest inflation rate was recorded in June and July (1.3%), when the lowest oil prices were recorded in 2017. The European Commission expects inflation to remain largely under the influence of energy prices, and therefore predict its moderate growth (in 2018 - 1.5%[9], while in 2019, inflation is expected to be 1.6%).

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[7] The exports prices index represents monthly changes in the prices of manufactured products made by companies and sold at foreign markets. It is an important economic indicator that can be used as time series deflator, particularly for national account purposes.

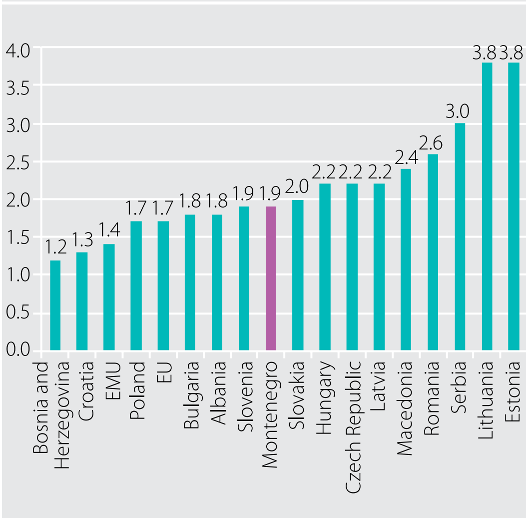
[8] Import price index refers to the monthly change in prices of imported manufactured products. It can be used as a time series deflator, especially for the needs of national accounts and as a means of harmonizing prices at the conclusion of different sales contracts.

[9] Source: European Commission: *European Economic Forecast*, winter 2018

Measured by the harmonized consumer price index, the annual inflation rate in the EU was 1.7%. Of the EU Member States, the highest annual rate was recorded in Estonia and Lithuania (3.8%), Romania (2.6%) and Latvia, the Czech Republic and Hungary (2.2%).

Graph 7

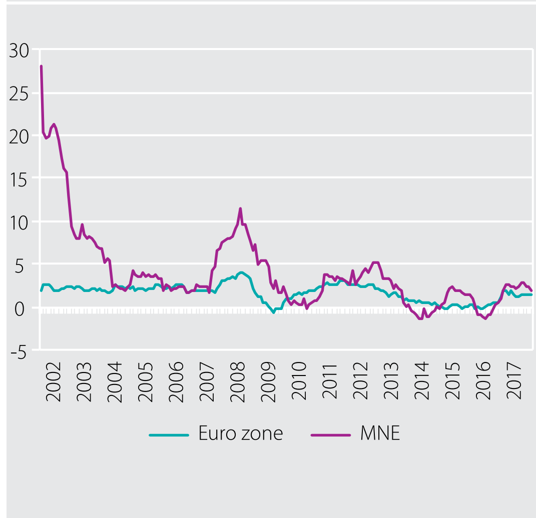
Annual inflation rate in selected countries, December 2017



Source: National Statistical offices and Eurostat

Graph 8

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



Source: Monstat and Eurostat

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

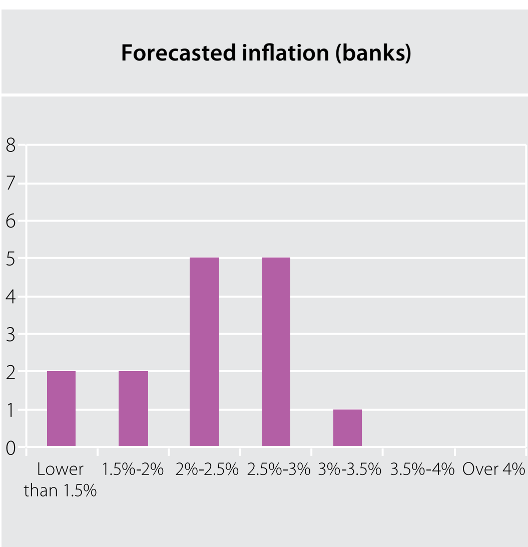
2. INFLATION EXPECTATIONS OF THE BANKING SECTOR AND ECONOMY

2.1. Banks' Expectations

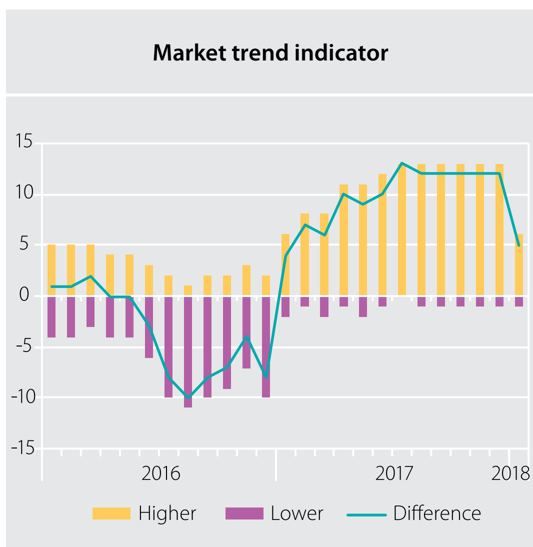
When it comes to inflation expectations of banks, based on a survey conducted in January 2018, five banks expect inflation in the range of 2% - 2.5%, five banks expect it between 2.5% and 3%, two banks expect inflation lower than 1.5%, and another two banks expect inflation to range between 1.5% and 2%, while one bank expects inflation between 3% and 3.5%. None of surveyed banks expects inflation between 3.5% and 4% and higher than 4%.

For the purpose of calculating inflation forecasts we use market trend indicator (line in Graph 10). It is calculated as the difference between the number of banks expecting an 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 it has a positive value, 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 forecast is, and vice versa, higher positive value means higher inflation level forecasts. Therefore, Graph 10 shows that

Graph 9



Graph 10

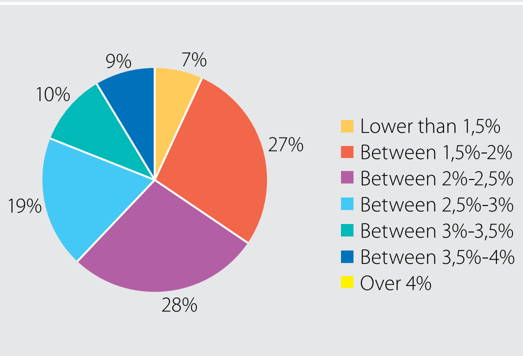


inflation expectations, with minor variations, were at a high level throughout the whole 2017. High inflation expectations in 2017 were particularly pronounced in the period from April to December, when most banks expected inflation to increase. Inflation expectations in January 2018 pointed to the inflation increase.

2.2. Expectations of Economy (Except Banks)

Graph 11

Expected annual inflation in 2018 (responses based on percentage share)



Inflation

Of the total number of respondents (companies), most of them (28%) believe that the annual inflation rate in 2018 will range from 2% to 2.5%, 27% forecast annual inflation rates from 1.5% to 2% while 19% of respondents believe that inflation will range between 2.5% and 3%. Inflation ranging between 3% and 3.5% is expected by 10% of respondents, 9% of the total number of surveyed companies expect growth between 3.5% and 4%, while 7% think inflation will be lower than 1.5%.

3. INFLATION DETERMINANTS

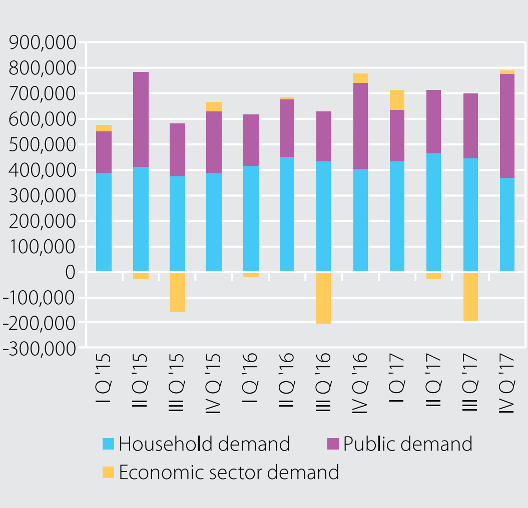
3.1. Demand[11]

The level of aggregate demand is usually the largest in the last quarter, resulting from the payment of arrears by companies and budget. Total demand in Q4 2017 was higher compared y-o-y. Observing the structure of total demand in Q4 2017, in relation to the structure of demand from the fourth quarter of the previous year, the share of state demand grew, while the components of household and corporate sector demand decreased.

The aggregate demand rate in Q4 2017 was higher than in the previous three quarters, and lower compared to the rate recorded in the last quarter of the previous year.

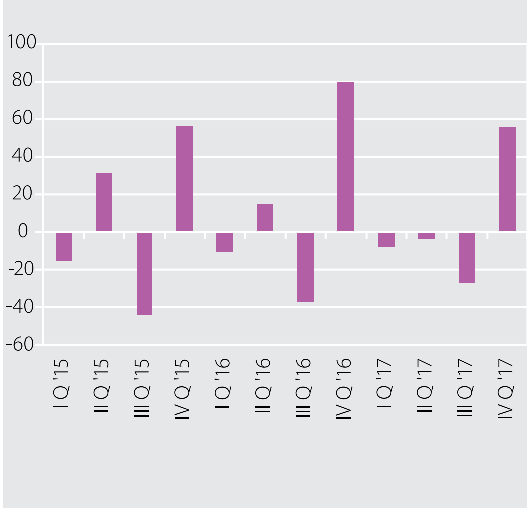
Graph 12

Aggregate demand, in thousand euros



Graph 13

Aggregate demand, quarterly change, %



[11] Preliminary data

Box 1 - Aggregate demand calculation methodology

For the purpose of 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:

$$AD = C + I + G$$

AD – aggregate demand

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

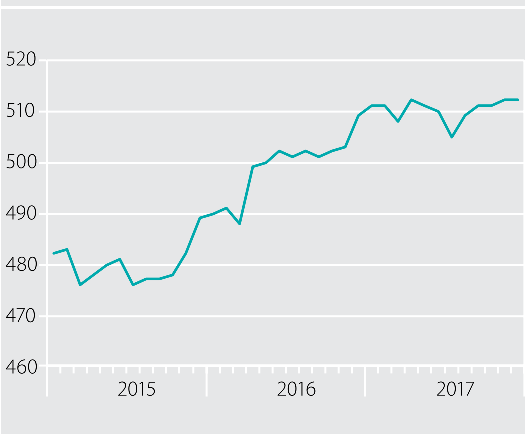
I – investment spending = - net savings of economy (deposits – loans)

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

3.1.1. Salaries and other available Demand Determinants

Graph 14

Average wages and salaries without taxes and contributions in euros



Source: Monstat

Monstat data showed that an average gross salary in Montenegro was 765 euros in 2017 and it increased by 1.9% in relation to the average in 2016. An average salary without taxes and contributions totalled to 510 euros, also showing the y-o-y increase of 2.2%. Real wages and salaries without taxes and contributions in 2017 were 0.2% lower compared to the average wages and salaries without taxes and contributions in 2016.

Observed by months, the highest nominal growth in wages and salaries without taxes and contributions was recorded in April and August (0.8%), while the lowest nominal growth of 0.2% was recorded in November. The highest nominal decline of wages and salaries without taxes and contributions was recorded in July (-1%).

Taking into account the consumer prices, i.e. trends in wages and salaries in real amounts, it can be concluded that real wages and salaries reported the highest growth in April, while the highest real decline was reported in July.

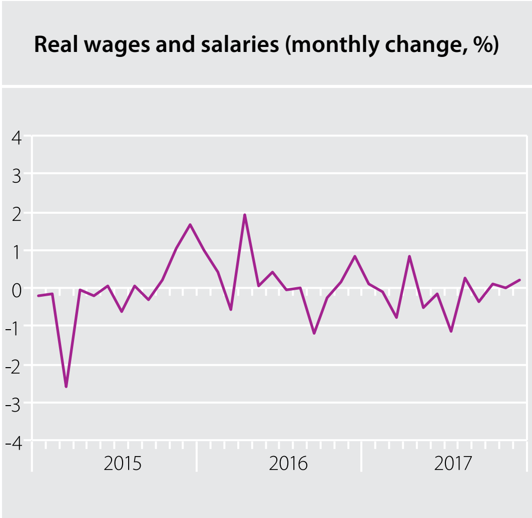
Households' loans reported positive trend in 2017. On average, loans to this sector grew at a monthly rate of 0.8%, representing the same growth rate as in 2016. Total banks' loans and other receivables from the household sector amounted to 1,123.1 million euros at 2017 year-end, which indicated a growth of 105.1 million euros or 10.3% in relation to 2016 year-end (Graph 16).

The average indebtedness of this sector grew over the one-year period. Thus, debt *per capita*[12] amounted to 1.805 euros at end-2017, and it was 168 euros higher than at end-2016. Total MFIs loans disbursed to households amounted to 57.6 million euros at end-2017 which was by 6.2 million euros or 12.1% more than at end-2016.

Household deposits were mainly on an uptrend in 2017 and they recorded an average monthly growth of 0.9% (an average monthly growth of 0.5% was recorded in 2016). Deposits of this sector amounted to 1.704 million euros at end-2017, which represented a y-o-y increase of 169.9 million euros or 11.1%.

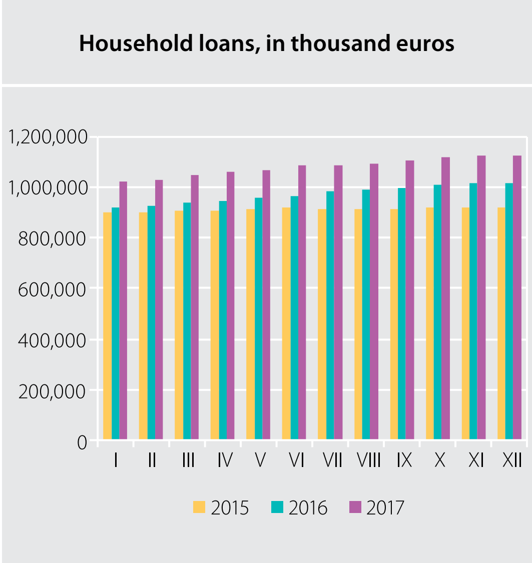
Loans to deposits ratio for this sector amounted to 0.66 at end-2017, being at the previous year level. Household sector reported total net savings in the amount of 580.9 million euros at end-2017, which represented a y-o-y increase of 64.8 million euros or 12.6%.

Graph 15



Source: Monstat

Graph 16



The balance of payment statistics showed that the y-o-y increase in 2017 was recorded in the inflow of cash based on compensations to employees and household remittances from abroad.

[12] Source: Monstat - estimated population as at 1 January 2016 and 2017

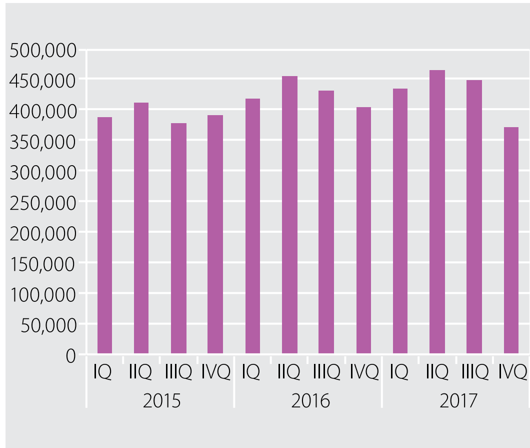
Inflation Determinants

Graph 17

Inflow of foreign funds to households (in thousand euros)

Graph 18

Household demand (in thousand euros)



Source: CBCG

According to preliminary figures, the total demand of the household sector in Q4 2017 was lower compared to the level of demand for the same quarter in 2016, as well as in relation to the level of demand in the first three quarters of 2017.

3.1.2. Public Sector Demand

Montenegro's public finance

According to the Ministry of Finance preliminary data, **public spending** in 2017 amounted to 2.01 billion euros or 47.5% of the estimated GDP[13] for 2017. Compared to the previous year, public spending was higher by 10.2%, whereas the planned amount was exceeded by 50 million euros or 2.5%. The main reason for deviation was the increase in capital expenditures by 195.8 million euros referring to financing the construction of Bar - Boljari highway. The recorded level of public spending was financed by tax revenues (1.1 billion euros, contributions (494.9 million euros), fees (79.8 million euros), duties (20.2 million euros), other revenues (4.1 million euros), revenues from donations (30.5 million euros) and receipts from loan repayment and funds transferred from the previous year (6.3 million euros).

Current public spending (public spending reduced by capital expenditures) amounted to 1.71 billion euros or 40.4% of GDP and it recorded y-o-y decline by 0.5%, while capital budget amounted to 301.6 million euros or 7.1% of GDP.

According to individual economic classification, current expenditures accounted for the main share in the structure of public expenditures (42.7%), followed by transfers (37.3%), capital expenditures (15%), while 5% referred to other expenditures.

[13] The estimated GDP for 2017 is 4,236.5 million euros.

Preliminary public revenues amounted to 1.79 billion euros or 42.1% of estimated GDP, being 6% higher y-o-y, yet slightly lower in relation to the plan. As for the structure of public revenues, tax revenues accounted for the main share of 61.9%, followed by contributions (27.7%), whereas the remaining public revenues accounted for 10.4%.

In 2017, according to Ministry of Finance preliminary data, **public spending** ran a **deficit** in the amount of 227.8 million euros or 5.4% of GDP, or 85.6 million euros more compared to a cash deficit (142.2 million euros) and 115.7 million euros compared to adjusted deficit from 2016.[14]

Budget of Montenegro

According to Ministry of Finance preliminary data, total revenues[15] of the Budget of Montenegro amounted to 2.19 billion euros in 2017.

Source revenues amounted to 1.57 billion euros or 37% of projected GDP[16], and they decreased by 0.9% in relation to the plan, and recorded a y-o-y increase of 5.3%. In the structure of source revenues, tax revenues accounted for the main share of 62%, followed by contributions with 31.6%, other revenues with 2.3%, fees with 1.2%, donations with 1.6%, duties with 0.9%, receipts from loan repayment and funds transferred from the previous year with 0.4%.

Tax revenues amounted to 971.2 million euros, recording a 0.8% decrease relative to the plan and a 9.5% y-o-y increase compared. The most significant positive deviations from the previous year were recorded in the collection of value added tax by 48 million euros (9.6%) and excise duties by 42.4 million euros (23.2%). The increase in these revenues is the result of increased collection of import VAT and the increase in excise duties on cigarettes and ethyl alcohol.

On the other hand, there was a decline in revenues from personal income tax of 9.1%, partly due to a decrease in wages and salaries of state officials and public sector employees.

Revenues from contributions amounted to 494.9 million euros being 1.1% lower in relation to the plan for 2017, recording a 6.9% y-o-y increase due to rescheduling of the remaining tax debt.

Consolidated budget expenditures amounted to 1.80 billion euros in 2017, or 42.6% of the estimated GDP. Recorded expenditures, compared to the planned ones, recorded a growth of 2.9%, and compared to the previous year they were 11.2% higher. Current budget expenditures in the observed period amounted to 778.6 million euros and were 5.5% higher than planned. Social protection transfers amounted to 538.1 million euros or 12.7% of GDP. Montenegro's capital budget amounted to 255.5 million euros or 6% of GDP.

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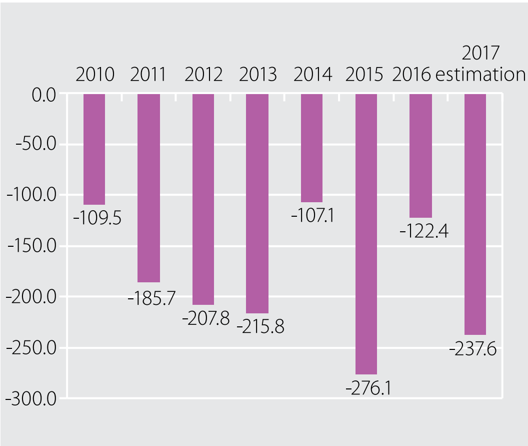
[14] Adjusted deficit for 2017 will be published once the Law on the Final Account of the Budget of Montenegro for 2017 is adopted.

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

[16] Plan for budget implementation according to the budget rebalance is implemented pursuant to the Law amending the Budget Law for 2017.

Graph 19

Budget surplus/deficit in the period 2010 – 2017, in million euros

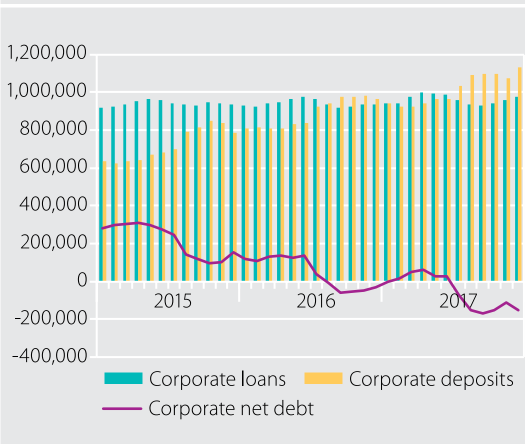


Source: Ministry of Finance

Montenegro's budget deficit is estimated at 237.6 million euros or 5.6% of GDP, and is higher by 102.6 million euros than the cash deficit and 115.4 million euros than adjusted deficit from 2016. Debt repayment amounted to 358.6 million euros.

Graph 20

Loans, deposits and net indebtedness of the corporate sector, monthly change, in thousand euros



3.1.3. Corporate Sector

Since the data on the corporate sector investments are not available, net corporate sector indebtedness can be used for approximation.

Loans granted to the corporate sector in January and during the second half of 2017 were lower than the deposits of this sector. Thus, the net saving of the corporate sector amounted to 154.1 million euros at the end of 2017, while at the end of the previous year it amounted to 30.5 million euros. Long-term loans accounted for the main share of 78.8% in the structure of loans to the corporate sector, which indicates that loans to this sector were mainly used for the increase in the volume of economic activity. (Graph 20)

3.1.4. External Demand and the Current Account

The increase in visible and invisible imports in 2017 had an adverse impact on the overall current account balance. Preliminary data show that the current account deficit amounted to 799.3 million euros or 18.9% of GDP.

As a result of an increase in domestic demand, in 2017, visible and invisible import increased by 11% annually. At the same time, visible and invisible export increased by 8.7%. The total balance at the goods and services account was negative, amounting to 24.2% of GDP.

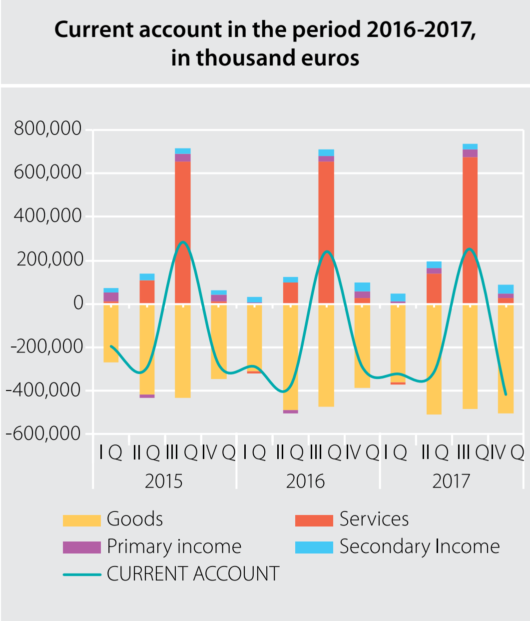
Foreign trade deficit amounted to 1.9 billion euros or 43.9% of GDP. The annual growth of the foreign trade deficit of 12.2% is the result of a higher growth of imports from exports. Namely, visible imports (2.2 billion euros or 52.8% of GDP) was 11.7% higher than in 2016, while visible exports (376.6 million euros or 8.9% of GDP) was by 9.1% higher.

The surplus on the services account amounted to 836.4 million euros or 19.7% of GDP and was 8.8% higher than in 2016. The increase of surplus was largely due to an increase in revenues of 8.6%.

The surplus recorded on primary income account amounted to 87.9 million euros, which represents an increase of 66.3% compared to 2016. The total inflow of primary revenues amounted to 273.9 million euros or 6.5% of GDP, which was 6.2% more than in 2016. Secondary income account ran a surplus of 136 million euros or 13% more than in 2016.

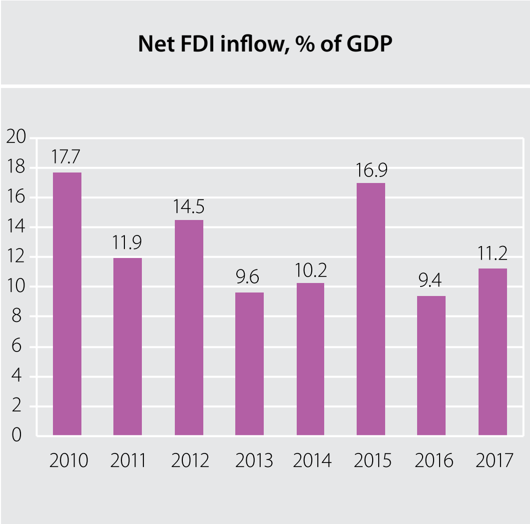
In 2017, there was an increase in the net inflow of foreign direct investments. According to preliminary data, net foreign direct investments accounted for 11.2% of GDP. In the observed period, there was a growth in inflows from equity and debt investments.

Graph 21



Source: CBCG

Graph 22

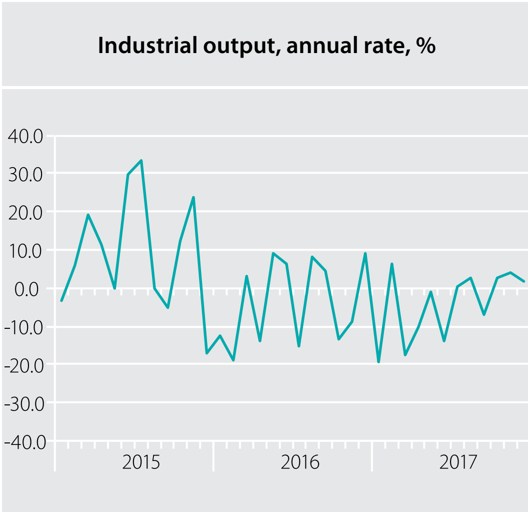


Source: CBCG

3.2. Supply and Demand

In 2017, industrial output recorded y-o-y decrease of 4.2%. Electricity, gas and steam supply and manufacturing industry sectors recorded respective output declines of -24.6% and -3%, while mining and quarrying recorded output growth of 113.9%. Observing monthly data on industrial output, the highest monthly decline was recorded in January (-36.6%), while the highest increase was recorded in February (34.1%).

Graph 23



Source: Monstat

Some 2 million tourists visited Montenegro in 2017, which represented the y-o-y increase of 10.3%. The number of domestic tourist arrivals decreased by 19.1%, while inbound tourism increased by 12.9%. Tourist overnights amounted to 12 million, which is a y-o-y increase of 6.3%.

The total **production of wood products** amounted to 336,879 cubic metres of wood products in 2017, which is 15.8%[17] more than in 2016.

According to preliminary Monstat data, the total value of executed **construction works** amounted to 579.8 million euros in 2017 recording y-o-y growth of 51.5%, whereas measured by the effective working hours, it increased by 24.5%.

Compared y-o-y, air passenger transport recorded an increase of 17.7%, road passenger transport increased by 0.4%[18], while railway passenger transport decreased by 27.8%[19] in 2016.

In 2017, air and road freight transport recorded respective y-o-y decline of 3.7% and 1.5%20 while rail freight transport increased by 14.9%[21].

Total turnover in ports in 2017 amounted to 1.2 million tonnes and was higher by 27.4% compared to the previous year, while exports accounted for 57.7% and imports for 42.1%[22]. In the observed period, exports increased by 274.2%, and imports increased by 7.6%.

17 Expressed by weighted index, while expressed by non-weighted index production increased by 14.7% over the same period

18 Presented through number of passengers, while it increased by 0.3% expressed through passenger kilometres

19 Presented through number of passengers in thousands, while it decreased by 28.6% presented through passenger kilometres

20 Presented through transported goods in thousand tonnes, while it decreased by 14.2% presented in tonne kilometres

21 Presented in thousand tonnes, while it increased by 50.2% presented in tonne kilometres

22 Exports and imports do not sum to 100 due to residual referring to transit of goods.

4. MONETARY POLICY

The Central Bank of Montenegro is responsible for monetary policy, encouraging and preserving the stability of the financial system, including encouraging and maintaining sound banking system and secure and efficient payment transactions. One of primary CBCG monetary policy objectives is contributing to achieving and maintaining price stability in the country.

The Central Bank of Montenegro Law[23] lays down the following CBCG's primary monetary policy instruments: open market operations, credit operations, and reserve requirement. However, it should be stated that all available monetary policy instruments of the CBCG have very limited impact on inflation trends.

Decision on Bank Reserve Requirement to be Held with the Central Bank of Montenegro (OGM 15/17) was adopted in March 2017. Pursuant to the said Decision, banks shall calculate the reserve requirement by applying the reduced rate from 9.5% to 7.5% on a part of the base comprised of demand deposits and deposits with agreed maturity up to one year and from 8.5% to 6.5% on a part of the base comprised of deposits with agreed maturity over one year. Periods for calculation and maintenance of the banks' reserve requirement with the CBCG were changed from weakly to monthly periods. In addition, the possibility of allocating a portion of reserve requirement in the form of Montenegro's Treasury bills was abolished.

In November 2017, the Central Bank of Montenegro adopted the *Decision on detailed conditions for granting loans to banks in case of their liquidity needs* (OGM 82/17) terminating the validity of the Decision on detailed conditions for granting loans to banks for maintaining liquidity (OGM 15/11) and the Decision on granting financial assistance in the final instance (OGM 15/11), which ceased to be valid for the decision as a lender of last resort (OGM 15/11).

The new Decision defines that the Central Bank may give the bank a liquidity loan provided that the bank is solvent and that the loan is secured by securities issued by the state of Montenegro, member states of the European Union and international financial institutions or other means of security assessed by the Central Bank as acceptable, apart from immovable property.

In case of need for liquidity of banks, the Central Bank can approve loans to banks as a daily liquidity loan, overnight liquidity loan and a short-term liquidity loan. A daily liquidity loan can be taken by the bank if during the working day there are insufficient funds for the fulfilment of all matured liabilities and it can use it, provided that it used 50% of allocated funds of the reserve requirement for

[23] (OGM 40/10, 46/10, 6/13 and 70/17)

maintaining the daily liquidity. The central bank approves overnight liquidity loan to the bank if there is not enough funds at the end of the expiration time for the exchange of messages for the payment transaction to fulfil matured liabilities. The Central Bank may approve a short-term loan to the bank for a period of up to 180 days, whereby it may once conclude a contract for renewal of a short-term loan under the same conditions, for an additional term of up to 180 days, with a bank that has previously adopted a program of measures to address the liquidity problem that the Central Bank evaluate as acceptable.

In December 2017, a new Decision on bank reserve requirement to be held with the Central Bank of Montenegro (OGM 88/17) was adopted in order to align with the last amendment to the Central Bank of Montenegro Law (OGM 070/17 of 27 October 2017). The new Decision did not change the conditions for allocation of reserve requirement of banks.

4.1. Monetary Policy Measures for Suppressing Inflation

The Central Bank of Montenegro did not take any monetary policy measure for suppressing inflation in 2017.

5. INFLATION FORECAST FOR 2018

5.1. Model Assessment

Montenegro's inflation *fan chart* is a graphic representation of 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 consequentially reflected in the inflation rate trend (increase in energy prices, increase/ decrease in the foreign trade deficit, etc.).

Montenegro's Fan Chart for 2018 was based on the following three estimated components:

1. **Central projection values** – the values of the fan chart central projection are derived from the ARIMA model;
2. **Degree of uncertainty** – determines the fan chart width. The degree of uncertainty ratios are obtained through analytical assessment and calculation of a 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 skewness** – based on the level of skewness 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 2018

With a view to developing a fan chart, an ARIMA (Autoregressive Integrated Moving Average) model of time series of inflation of Montenegro showed through the Consumer Price Index was developed[24].

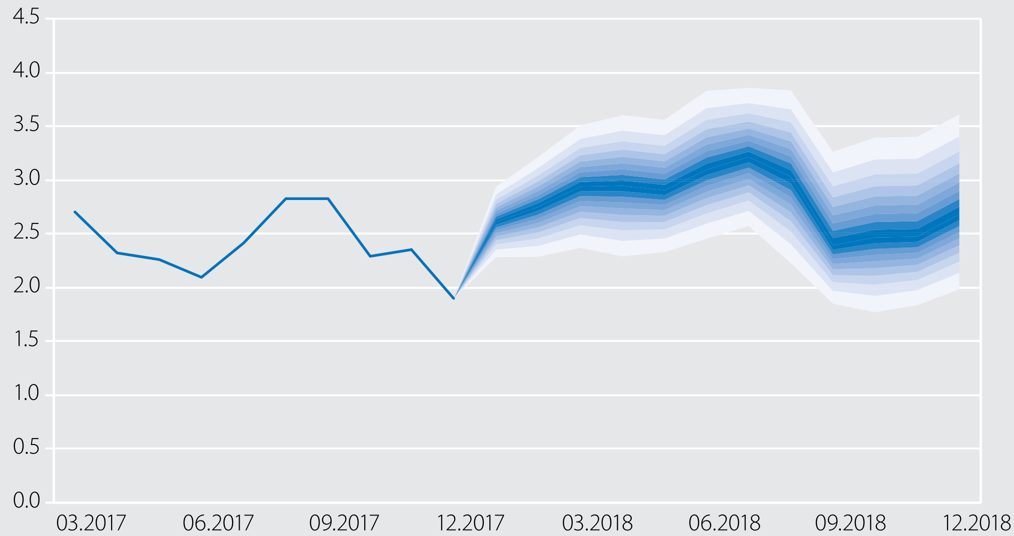
[24] More detailed explanation of ARIMA model of Montenegro was presented in the Central Bank Working Paper 11 **"Inflation forecasting: Empirical research of retail price index of Montenegro for 2007 – implementation of ARIMA model"**.

ARIMA model was used for short term forecasts (12 months), whereby iteration of 533 ARIMA models was made, which were ranked based on their efficiency and quality of diagnostics. The selected ARIMA model, ARIMA (1, 1, 21) has sufficient confidence level for forecasts.[25]

The monthly forecasts value was used as the value of central projection of the CPI graph for 2018. Obtained values represent the distribution mode, i.e. values with the highest frequency in the distribution of this time series.

Graph 24

Montenegro's CPI forecast for 2018



Source: CBCG, 2018

Mean value of the obtained model is 2.8. The value of the coefficient of asymmetry varies in the range of from 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. This indicates that the corresponding range of uncertainty of future inflation is symmetrical. 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.[26] 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.

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[25] 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.

[26] 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 2018, indicates that there is a **90% probability that the CPI inflation will range between 1.8% and 3.8%, with the central trend of 2.8%. At the same time, inflation at the end of 2018 is forecasted to range between 2% and 3.6%, with the central trend of 2.7%**. The *Fan Chart* central projection (the darkest part) represents a 10% probability span (Graph 24).

The risks related to the projected inflation rate shown on the Fan Chart are symmetrically set. Higher rates of inflation than projected ones could be affected by a stronger rise in oil prices at the international market, unfavourable weather conditions that could affect the rise in food and electricity prices. On the other hand, the risks that would contribute to a lower inflation rate relate to a decline in oil prices and to a weaker growth in inflation in the euro area than the projected one.

Internal factors

- Increasing excise duties on tobacco and tobacco products, ethyl alcohol, carbonated drinks with sugar and excise duties on coal will be reflected in the prices increase.
- Increase in VAT by 2 percentage points, i.e. from 19% to 21%.
- An increase in electricity prices by 3% in January, with a possible further increase by 5% by the end of the year.
- A standstill in wages and real estate prices.

External factors

- The European Central Bank expects a gradual rise in inflation and its approach to the goal, which is stimulated by monetary policy measures and stronger economic growth.
- Following the rise in oil prices in the last quarter of 2017, forecasts indicate that in the first half of 2018 oil prices will remain at that level, while in the second half, the downward trend in oil price trends on the international market are expected.
- After the increase of metal prices and food prices at the international market in 2017, it is expected that these prices will remain stable in 2018.

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

5.2. Expert Assessment

A survey conducted among entrepreneurs indicates that growth in economic activity can be expected in 2018. The CBCG projection suggests that GDP growth of around 3% can be expected in 2018. Projections of all relevant international financial institutions also indicate that solid economic growth can be expected in 2018. Production growth will certainly work anti-inflationary.

On the other hand, there are factors that will influence inflation growth in 2018. They are primarily related to the increase in VAT, the increase in excise duties as part of fiscal consolidation measures, and the expected increase in electricity prices. Also, a gradual recovery of oil and food prices on the global level can be expected.

Our expert assessment is similar to a model estimate and we expect that in 2018 inflation will range from 1.9% to 3.9%.

Table 3

Inflation rate estimation for 2018		
Optimistic projection	Central projection	Realistic projection
1.9	2.9	3.9

This assessment is based on the same assumptions as the econometric assessment and the deviation of any of the assumptions would require the revision of the forecast.

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