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1. INFLATION INDICATORS

In Q2 2015, CPI inflation in Montenegro increased by 1.0%, where the highest growth was recorded by prices from the category *hotels and restaurants* (8.3%), followed by prices from the category *transport* (5.0%) and *alcoholic beverages and tobacco* (2.4%). In terms of the monthly price trends, there was an increase in consumer prices during all three months of the second quarter: May (0.6%), April (0.3%) and June (0.1%). The annual increase in June was 1.9%, while the average rate (period to period) was 1.5%.

Table 1

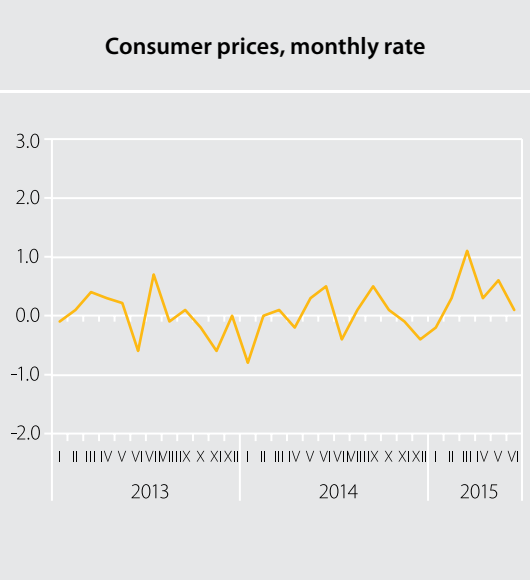
Inflation, %						
	2014				2015	
	III	VI	IX	XII	III	VI
Change in relation to previous year end	-0.8	0.0	0.0	-0.3	1.2	2.2
Annual change	-0.9	-0.1	-0.7	-0.3	1.6	1.9

Source: Monstat

During Q2, the prices in the category *hotels and restaurants* increased by 8.3%, mostly as a result of increased prices of accommodation by 26.3% and food service by 2.4%. Prices in the category *transport* increased by 5%, as a result of increase of prices of fuel and lubricants by 9.6%, mostly due to the decision of the Government of Montenegro to include a fee for highway construction and financing of national sports teams (7 euro cents per litre) in prices of oil derivatives.[1] This caused the largest positive contribution of transport to overall inflation of 0.5 percentage points. The prices in the category *alcoholic beverages and tobacco* increased by 2.4%, mostly as a result of increased prices of tobacco of 3.6%. During this period, the category *furnishing, household equipment and routine household maintenance* increased by 0.7%, as well as the categories *food and non-alcoholic beverages*, and *housing, water, electricity gas and other fuels* by 0.5%, each. Also, the prices in the category *recreation and culture* increased by 0.1%.The category *clothing and footwear* recorded the largest decline of prices of 1.3%, whereby clothes recorded the highest decline of prices (1.6%) while footwear prices declined by 0.9%. In Q2, prices in the categories *other products and services*, and *communications* declined by 0.3% and 0.2%, respectively. Prices in the categories *health* and *education* remained unchanged during Q2.

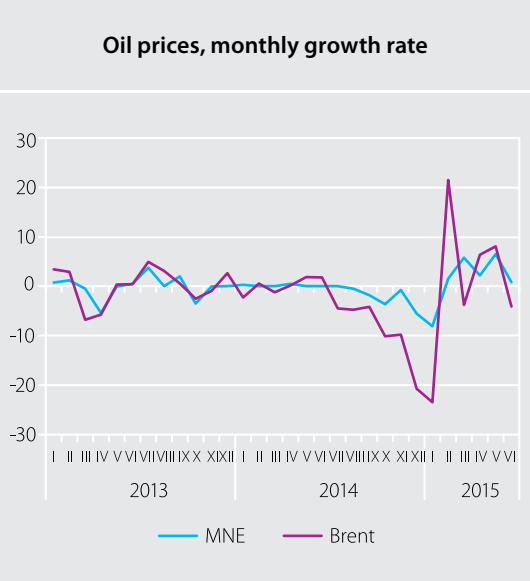
[1] Decree amending the Decree on the method of setting maximum retail prices of petroleum products "Official Gazette of Montenegro" No. 18/15, 20 April 2015.

Graph 1



Source: Monstat

Graph 2



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

During April and May, monthly **core** inflation was below the official monthly inflation, while in June, core inflation was higher than the official monthly inflation. In April, core inflation was negative while the official inflation was positive, while both indicators recorded positive rates in May and June.

Table 2

Share of individual categories in total inflation*

	Weights	VI 15/III 15 index	Rate	Contribution
TOTAL	1000	101.0	1.0	1.0
Food and non-alcoholic beverages	386.4	100.5	0.5	0.2
Alcoholic beverages and tobacco	37.9	102.4	2.4	0.1
Clothing and footwear	70.7	98.7	-1.3	-0.1
Housing, water, electricity, gas and other fuels	153.1	100.5	0.5	0.1
Furnishing, household equipment and routine household maintenance	46.9	100.7	0.7	0.0
Health	38.2	100.0	0.0	0.0
Transport	101.0	105.0	5.0	0.5
Communications	57.1	99.8	-0.2	0.0
Recreation and culture	27.2	100.1	0.1	0.0
Education	15.7	100.0	0.0	0.0
Hotels and restaurants	23.0	108.3	8.3	0.2
Other goods and services	42.8	99.7	-0.3	0.0

* We would like to note that, despite the index changes, the share of certain categories is recorded only at the second or the third digit, due to the weighting structure.

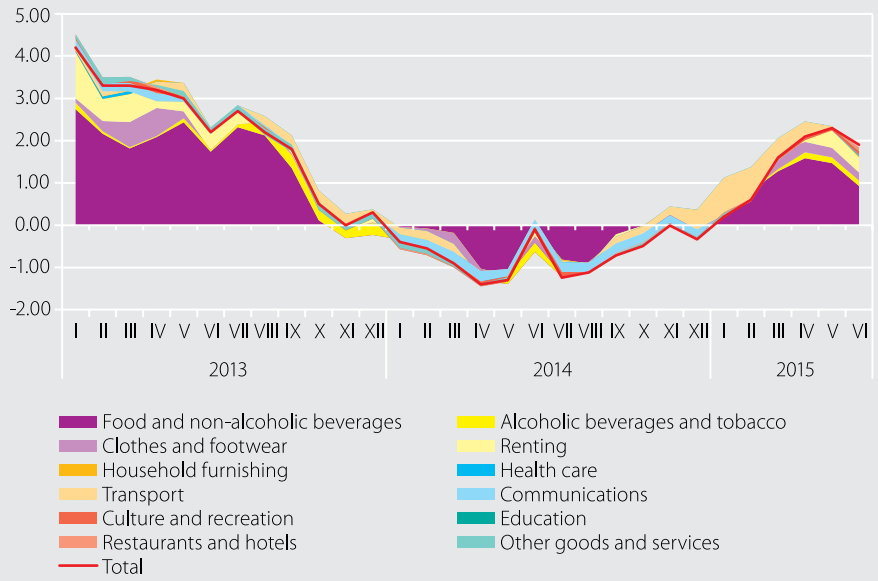
Source: Monstat and CBCG calculations

In Q2 2015, oil prices increased in relation to Q1. In Q2 2015, the price of OPEC reference basket was 59.9 USD/barrel, or 19.1% higher than the average price in Q1 2015. Average Brent price recorded in

Q2 amounted to 61.8 USD/barrel, or 14.6% more than in Q1 2015. The increase of oil prices in global markets during Q2 came as a result of significantly higher demand for crude oil than expected, as well as decline of the USA reserves, i.e. slowing of oil supply by the USA, as well as geopolitical turmoil. The highest Brent price during Q2 was recorded in May, when it amounted to 64.32 USD/barrel, which also represents the highest price in H1 2015.

Graph 3

Consumer prices' components: contribution to annual growth rate (index points)



Source: Monstat and CBCG calculations

Annual consumer prices growth in June amounted to 1.9%, and it was by 0.3 percentage points higher relative to the annual rate from March 2015. The highest annual price growth was recorded in the following categories: *hotels and restaurants* (4.2%), *alcoholic beverages and tobacco* (3.4%), *recreation and culture* (3%), *clothing and footwear* (2.7%), *health* (2.7%) while prices declined only in the category *transport* (-0.7%).

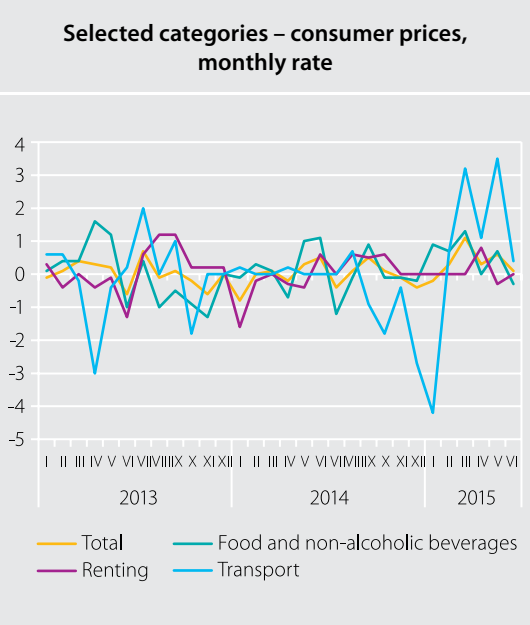
In June 2015 relative to end-2014, the **producers` prices of manufactured products** recorded increase of 0.1%. Prices in the manufacturing industry sector increased by 0.2%, while prices in the mining and quarrying sector declined by 0.6%. Prices in the electricity, gas and water supply sector remained unchanged. Producers` prices of manufactured products recorded annual growth of 0.4%.

Comparing annual inflation recorded in Montenegro with that of the selected countries shows that the highest annual inflation rate of 1.9% was recorded in Montenegro and Serbia. Negative annual inflation rate was recorded in the following countries: Romania (-0.9%), Slovenia (-0.9%), Bulgaria (-0.6%), Poland (-0.6%), Bosnia and Herzegovina (-0.5%), Lithuania (-0.2%) and Slovakia (-0.1%). In addition to Serbia, the highest annual inflation in the region was recorded in Albania (1.4%).

Graph 4

Source: Monstat

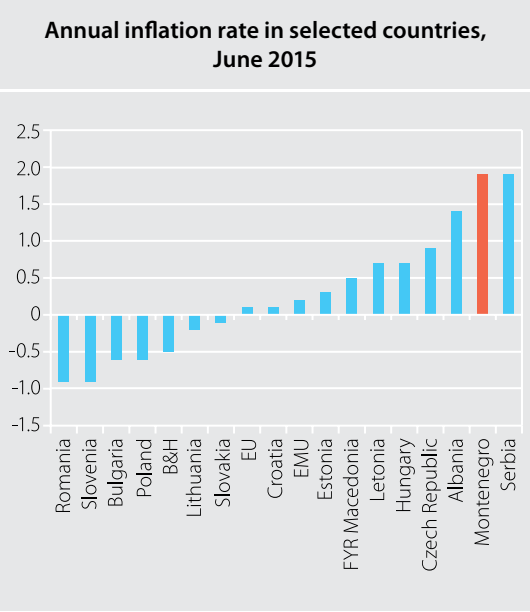
Graph 5



Source: Monstat

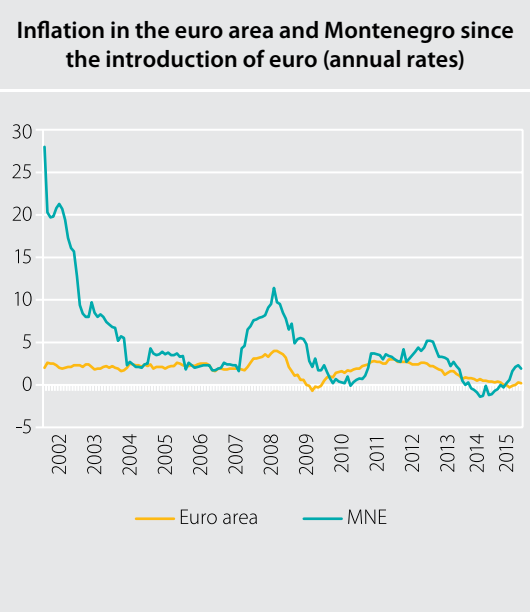
Annual HICP inflation rate in the euro area amounted to 0.2%, while in Montenegro, HICP inflation amounted to 2%, which is 1.8 percentage points higher in relation to the euro area.

Graph 6



Source: National Statistical Offices and Eurostat

Graph 7



Source: Monstat and Eurostat

2. INFLATION EXPECTATIONS

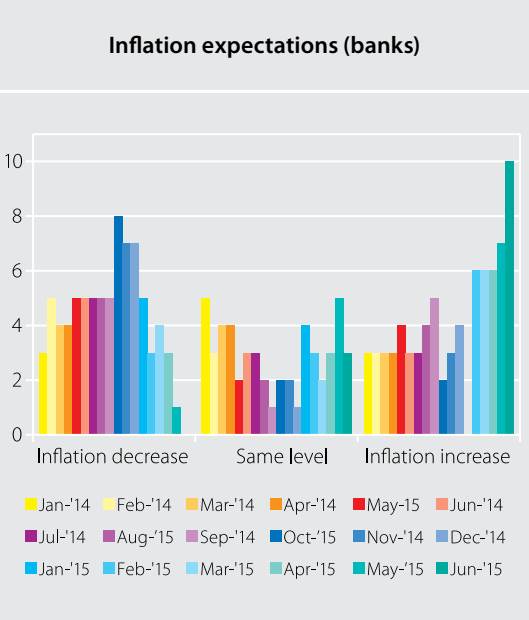
2.1. Banks Expectations

With regard to inflation expectations of banks, based on the survey conducted in June 2015, ten banks expect higher inflation rate, while three banks expect the inflation rate to maintain the same level as in 2014, while none of the banks expect inflation to decrease in relation to 2014 (Graph 8).

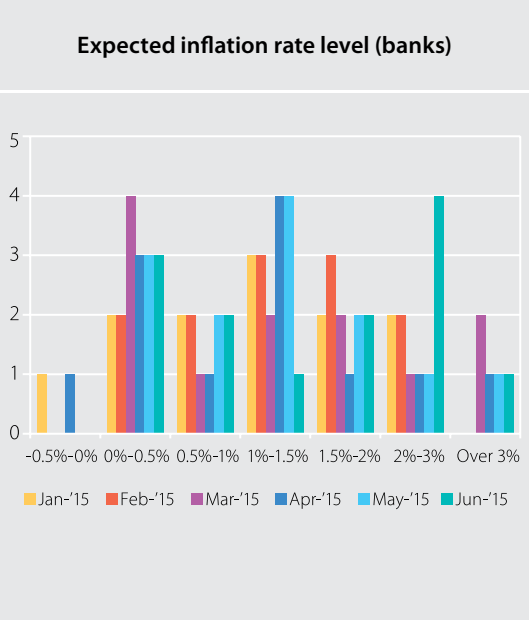
As shown in Graph 9, there were different expectations of banks with regards to the inflation. Four banks expect the level of inflation in the range of 2% and 3%. Three banks expect inflation to range between 0% and 0.5%, and two bank expect inflation to range between 0.5% and 1%. Also two banks expect inflation between 1.5% and 2%. One bank expects inflation between 1% and 1.5% and also one bank expects inflation above 3%. None of the banks expects the inflation between -0.5% and 0%.

As for expectations regarding lending interest rates, eleven banks expect this rate to decline, while two banks expects both nominal and effective interest rates to remain unchanged in relation to 2014.

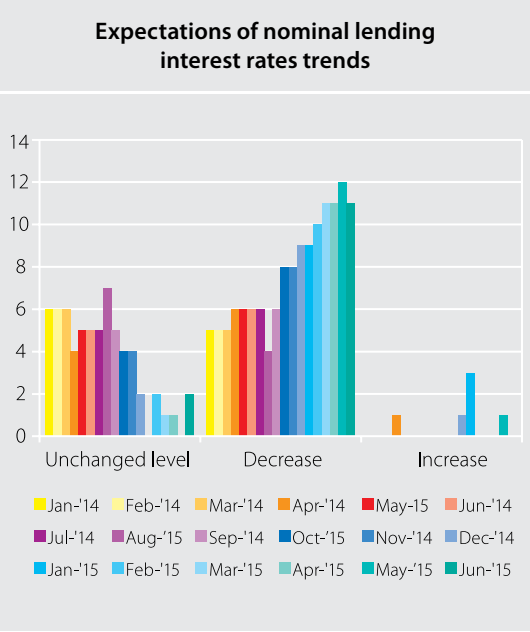
Graph 8



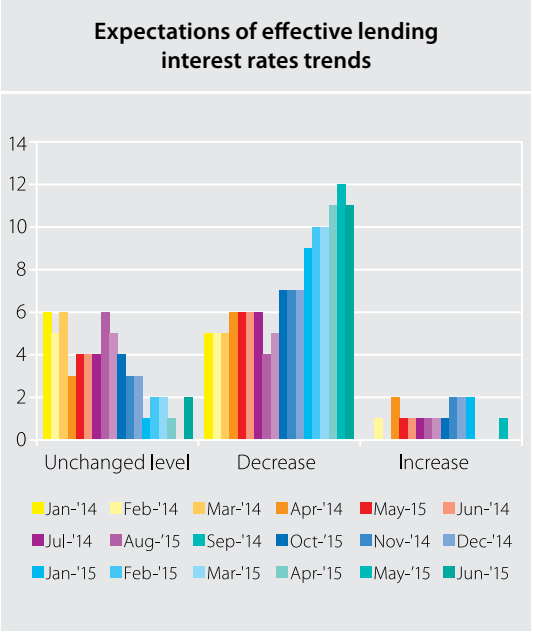
Graph 9



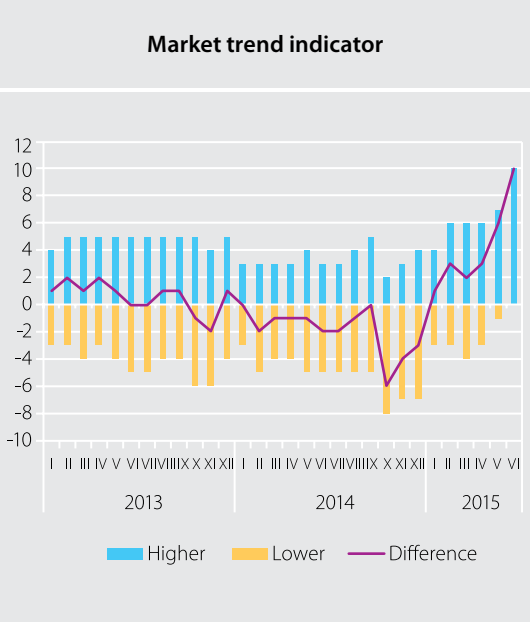
Graph 10



Graph 11



Graph 12



Regarding the deposit interest rates, twelve banks expected a decline, while one bank expected unchanged level of deposit interest rates in relation to 2014.

For the purposes of calculating inflation expectations we use the market trend indicator (the line in Graph 12). 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 its value is positive, an increase in the inflation rate can be expected. If it has a zero value, inflation rate can be expected not to change in the upcoming period. The more negative its value, the lower the inflation expectations, and vice versa. During the previous year, the level of inflation expectations was significantly low with slight oscillations, while in the first six months of 2015, they are on an uptrend.

2.2. Expectations of Economy (Except Banks)

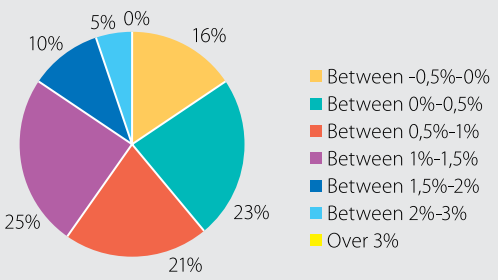
Inflation

Out of total surveyed companies, the largest number (25%) expected that inflation in 2015 would range between 1% and 1.5%. Inflation in the range of 0% and 0.5% is expected by 23% of companies, 21% of companies expect this range to be between 0.5% and 1%, while 16% of surveyed companies expect the inflation range of -0.5% to 0%. Inflation range between 1.5% and 2% is expected by 10% of surveyed companies, while 5% expect inflation between 2% and 3%. None of the surveyed companies expected inflation above 3%. Lower level of wages and salaries is expected by 13% of the surveyed legal persons, 71% expect them to remain unchanged in 2015, while the increase in wages and salaries is expected by 16% of surveyed companies. With regard to the number of employed persons observed in relation to the same period of 2014, 59% of surveyed companies expect it to remain unchanged, 27% expect this number to increase, and 14% expected it to decrease.

The majority of surveyed companies (60%) expected the prices of production inputs to remain unchanged, and 76% expect the prices of their products (services) not to change in 2015.

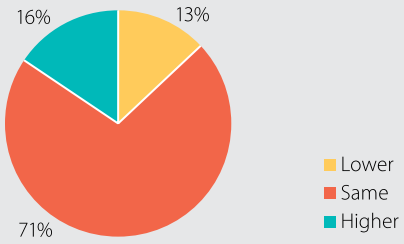
Graph 13

Expected inflation in 2015 in relation to 2014



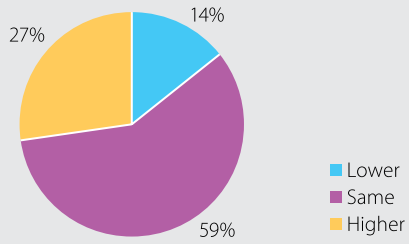
Graph 14

Expected level of wages and salaries in 2015 in relation to 2014

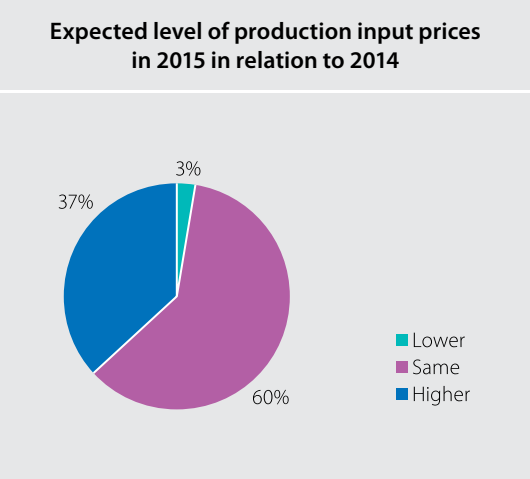


Graph 15

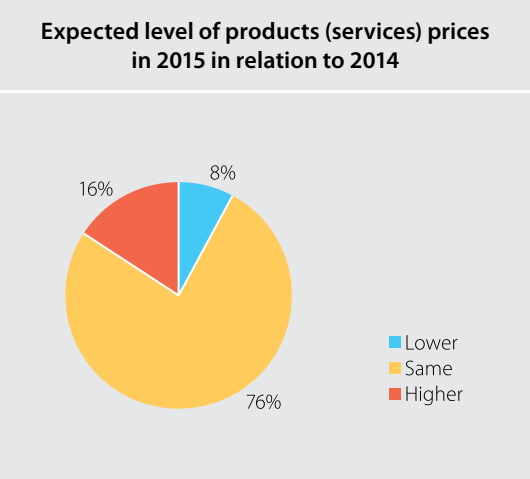
Expected number of employed persons in 2015 in relation to 2014



Graph 16



Graph 17

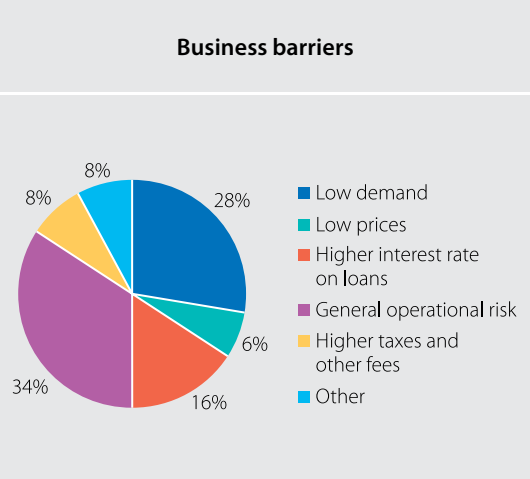


Business Environment

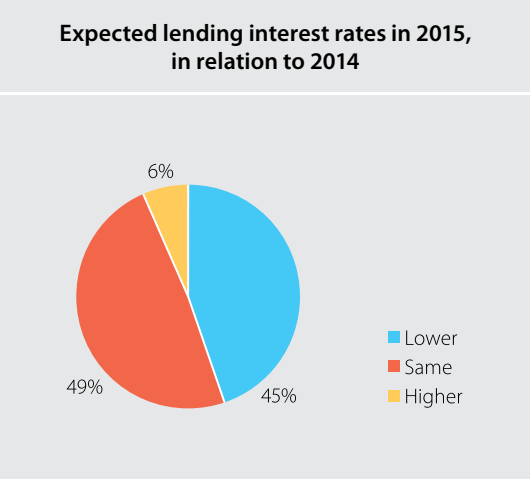
In the area of business barriers, survey results showed that most of the surveyed companies saw low general operational risks (34%), weak demand (28%), and high lending interest rates (16%) as main obstacles.

With regard to lending interest rates, 49% of surveyed companies expected them to remain unchanged, 45% expected them to decline, while 6% expected higher lending interest rates in 2015 relative to 2014.

Graph 18



Graph 19

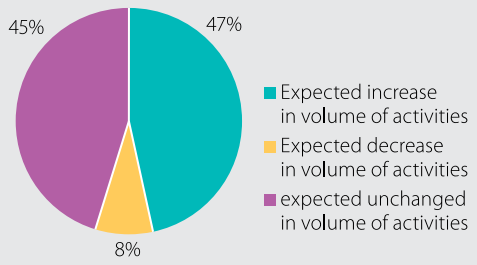


Investments

Out of the total number of surveyed companies, 47% planned the increase in the volume of activities over the course of 2015, while 49% planned new investments. Most investments (60%) referred to the increase in fixed assets, while low demand (41%), other obstacles (24%), high interest rates and unfavourable conditions for capital borrowings (19%), insufficient exploitation of existing capacities (14%), and high production costs (2%) were described as main barriers to new investments.

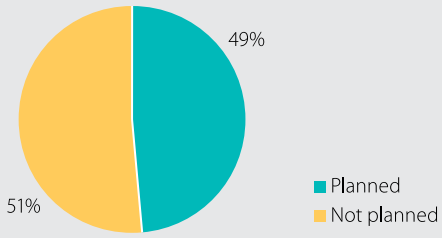
Graph 20

Expected volume of activities in 2015



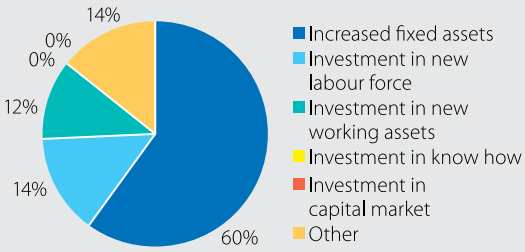
Graph 21

New investments for 2015



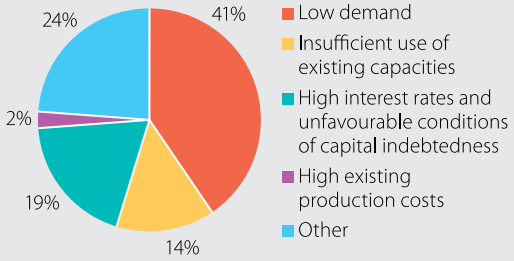
Graph 22

Types of new investments planned for 2015



Graph 23

Obstacles to new investments for 2015



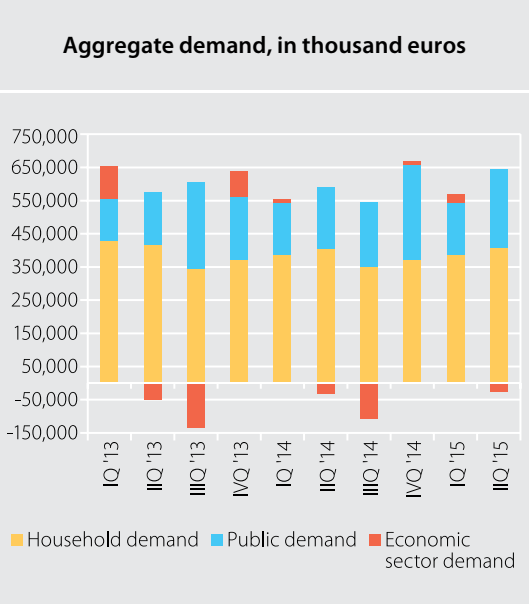
3. INFLATION DETERMINANTS

3.1. Demand

As per preliminary data, in Q2 2015, the aggregate demand recorded a q-o-q increase, as well as in relation to Q2 2014. Observation of the total demand structure in relation to Q1 2015 shows that the share of household and corporate sectors decreased, while the share of public spending increased.

In Q2 2015, the level of aggregate demand recorded a y-o-y increase, as well as in relation to Q1 2015.

Graph 24



Graph 25

Box 1 - Aggregate demand calculation methodology

For the purpose of a more complete monitoring of aggregate demand as an inflation determinant, the CBCG has developed the aggregate demand calculation methodology. The starting point of this methodology states that the aggregate demand is the sum of the demand of three sectors: personal spending (household), 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 the sale of shares, non-market income, shadow economy revenues, and the like. Methodology of calculation of the aggregate demand is expressed by the following equation:

$$AD = C + I + G$$

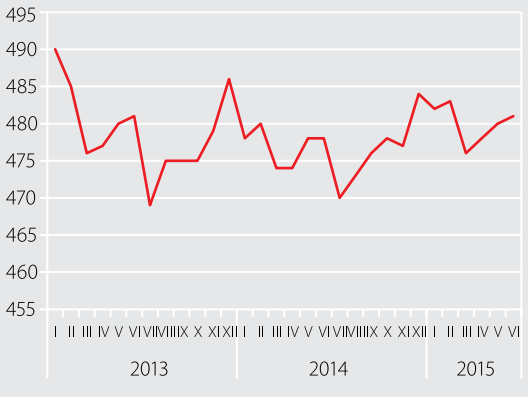
C = sum of paid wages and salaries + sum of paid pensions + paid frozen foreign currency deposits + net compensations to households – net savings by households (savings – loans granted)
I = net savings of economy (deposits – loans)
G = public spending – paid pensions – wages and salaries paid from the budget – net savings by the Government (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 Q2 2015, the average wages and salaries in Montenegro amounted to 725 euros, while the average wages and salaries without taxes and contributions amounted to 480 euros. In relation to Q1 2015, the average wages and salaries recorded 0.4% decrease, while the average wages and salaries without taxes and contributions decreased by 0.1%.

Graph 26

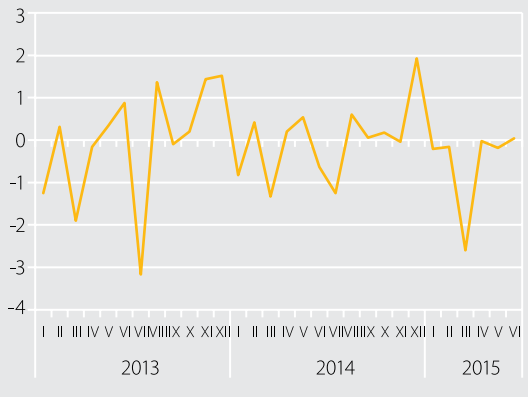
Average wages and salaries without taxes and contributions in Montenegro



Source: Monstat

Graph 27

Real wages and salaries (monthly growth rate)



Source: Monstat

Taking into account the consumer prices, i.e. wages and salaries in real amounts, it can be concluded that in Q2 2015, real salaries recorded slight decline in April and May, while they increased in June.

Households' loans were marked by a positive trend in H1 2015. The average monthly growth of loans granted to this sector was 0.4%, while in the same period of 2014, average growth amounted to 0.2%. At end-Q2 2015, total loans to the household sector amounted to 916.7 million euros, which is 22.9 million euros or 2.6% more than at end-2014 or 25.2 million euros (2.8%) more than in the same period of the previous year.

Debt per capita[2] amounted to 1.475 euros at end-June 2015 or 2.6% higher than at end-2014 and by 2.8% higher than at the end of Q2 2014.

Total MFIs loans disbursed to households amounted to 41.9 million euros at end-June 2015 which was 5.8 million euros or 16.1% more than at the end of 2014, and 6 million euros or 16.7% higher than a year ago.

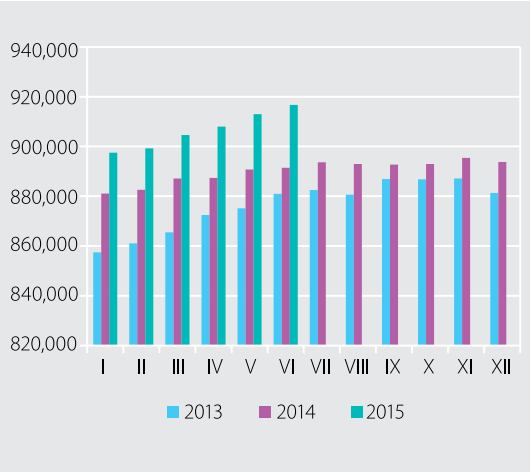
During the first half of 2015, households deposits recorded average monthly uptrend of 0.5% (the average monthly growth of 0.1% was recorded in the same period of 2014). At end-Q2 2015, deposits to the household sector amounted to 1,370.3 million euros, which is 38.6 million euros or 2.9% more than at the end-2014 or 125.8 million euros (10.1%) more than in the same period of the previous year.

At end-June 2015, loans to deposits ratio for this sector amounted to 0.67, remaining unchanged in relation to end-2014, but recording a y-o-y decline (0.72). At end Q2 2015, the household sector reported total net savings in the amount of 453.6 million euros, which was a 15.6 million euros or 3.6% increase in relation to end-2014 and a 100.6 million euros or 28.5% y-o-y increase.

In Q2 2015, balance of payments statistics shows that there was a q-o-q increase of inflow arising from wages and salaries, and contributions of employees, inheritance, alimony and other gifts

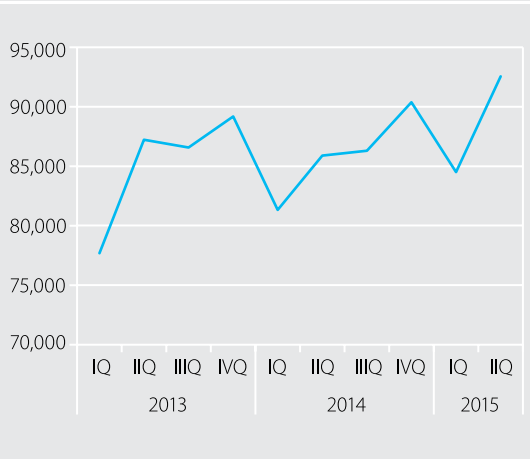
Graph 28

Loans granted to households, in thousand euros



Graph 29

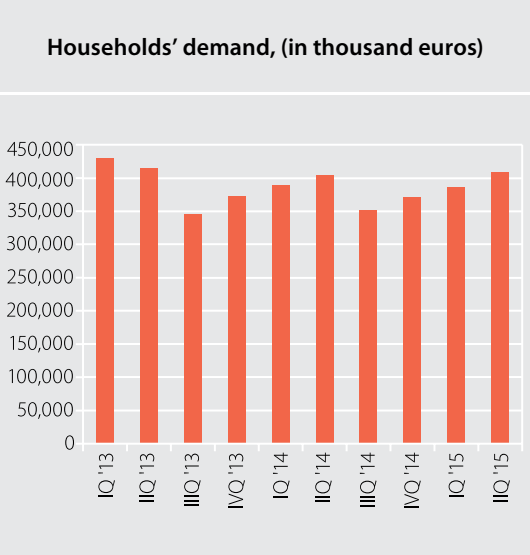
Inflow of foreign funds to households (in thousand euros)



Source: CBCG

[2] Source: Monstat, September 2014, population estimate as at 31 December 2013.

Graph 30



and assistance, as well as from pensions, disability allowances and other social welfare benefits.

Observation of the total household demand by quarters (according to preliminary data) shows that in Q2 2015, household demand was higher in relation to Q1 2015. Household demand increased in relation to demand from all four quarters of 2014.

3.1.2. Budgetary Analysis[3]

Budget of Montenegro

According to Ministry of Finance preliminary data, the Budget of Montenegro recorded total revenues[4] amounting to 1.13 billion euros in H1 2015.

Source revenues amounted to 587.9 million euros or 16.2% of estimated GDP[5], exceeding the plan by 1.5%, and recording a y-o-y increase of 2.3%. Tax revenues accounted for the main share in the structure of source revenues (62.3%), followed by contributions (32%), other revenues (2.1%), fees (1.6%), duties (1%), receipts from loan repayment (0.7%), and donations (0.3%).

Tax revenues amounted to 366.1 million euros, recording a decrease of 1.4% in relation to the plan, and an increase of 1.5% in relation to the corresponding period of 2014.

Nominally, the highest decrease in revenues compared to the same period of the previous year was recorded personal income tax (4.2 million euros or 9.4%). Also, there was a decline in revenues from property turnover tax, 11.9% and from collection of duties by 2.2 million euros, as a result of abolition of duties on SIM cards, cable TV and electricity meters, while all other taxes recorded positive deviation in relation to the previous year.

Revenues from contributions amounted to 187.9 million euros exceeding the plan for H1 by 8.5% and showing a y-o-y growth of 3.9%.

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[3] Source: Ministry of Finance GDDS tables for June - preliminary data until publication of the final quarterly data.

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

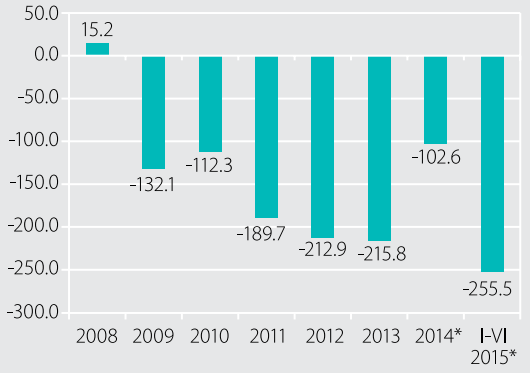
[5] Source: Ministry of Finance; estimated GDP for 2015 amounted to 3,625.7 million euros.

In H1 2015, *budget expenditures* amounted to 843.4 million euros or 23.3% of GDP. Recorded expenditures were higher than planned for H1 2015 by 7.8%, recording a y-o-y increase of 29.1% or 190.3 million euros, mostly as a result of increased capital expenditures which increased by 161.4 million euros, followed by repayment of obligations from previous years (increase of 20.2 million euros) and transfers to institutions, individuals, non-government and public sector, in the amount of 14.8 million euros.

Current budget expenditures amounted to 658.3 million euros or 18.2% of GDP, while the capital budget amounted to 185.1 million euros or 5.1% of GDP.

Graph 31

Budget surplus/deficit in the period 2008 – June 2015, in million euros



Source: Ministry of Finance

Current expenditures amounted to 308.1 million euros or 2.5% lower than planned. Virtually all expenditures, except expenditures for other personal income, interest and rent, were below planned.

Deficit of the Budget of Montenegro was estimated at 255.5 million euros, or 7% of GDP.

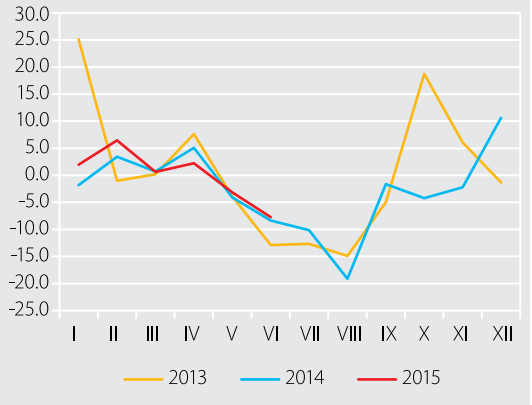
3.1.3. Economy

Due to the absence of data on investments by the corporate sector, we can use net indebtedness of the corporate sector for approximation.

In H1 2015, loans to the corporate sector significantly exceeded this sector's deposits. Thus, net debt of the corporate sector amounted to 276.7 million euros at the end of the reporting period, and it was 531,000 euros or 0.2% lower than at end-2014, and by 97.3 million euros or 26% lower compared to end-Q2 2014. Long-term loans accounted for the main share of 74% 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 32

Net indebtedness of the corporate sector, monthly change, in %

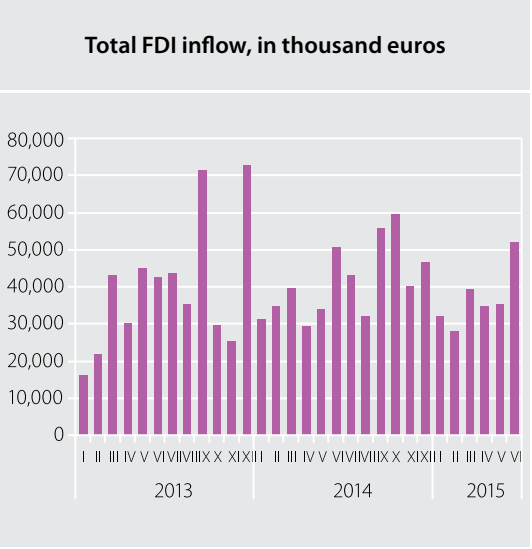


3.1.4. External Demand - Balance of Payments

In H1 2015, current account deficit increased, as a result of imbalance in the goods account. According to preliminary data, current account deficit amounted to 490.4 million euros, showing a y-o-y increase of 9.6%. During the reporting period, there was an increase in the goods account deficit (5.7%), as a result of decline in visible exports by 5.7%, with an increase of imports by 3.5%. These trends mostly came as a result of decline in export of meat and processed meat and electricity, while the increase of imports mostly came as a result increased import of machinery and transport equipment.

In H1 2015, international invisible services recorded surplus in the amount of 121 million euros, which approximately at the same level as in the previous year. The surplus in the primary income account recorded a y-o-y increase of 2.8% and amounted to 25.2 million euros. The secondary transfers (income) account recorded a surplus amounting to 50 million euros or 13.3% more than in same period of 2014.

Graph 33



Source: CBCG

During the first six months of 2015, there was an upward trend of FDI inflow. According to preliminary data, the net FDI inflow in the period January - June 2015 amounted to 185.4 million euros or 19.1% more than in the corresponding period of 2014. Total FDI inflow amounted to 222.3 million euros, while the outflow amounted to 37 million euros. In terms of FDI structure, equity investments amounted to 111.3 million euros, which represents 50% of total inflow during the first six months of 2015. On the other hand, the inflow from intercompany debt amounted to 108.5 million euros or 8.7% less than in the same period of 2014.

In H1 2015, portfolio investments account recorded a net inflow amounting to 350 million euros, as a result of country's borrowings from issuing of eurobonds at the international capital market. Trends at the other investments sub-account are characterised by decreased liabilities of state and bank sector for taken loans, while liabilities of other sectors (economy) increased. As a result of such trends at other investments sub-account in the first half of 2015, net outflow of 62.8 million euros was recorded.

3.2. Supply and Production

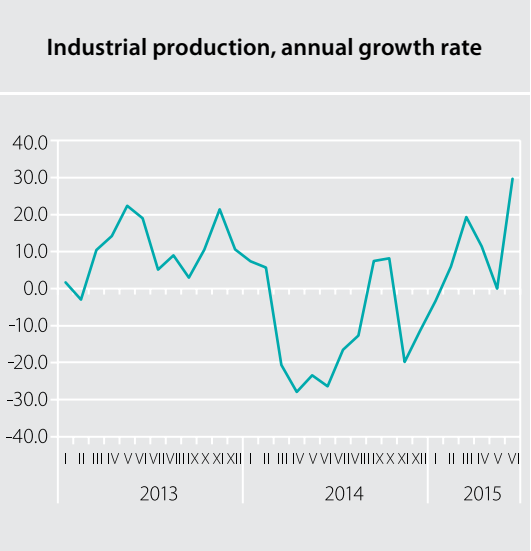
In H1 2015, total industrial output recorded a y-o-y increase of 9.6%. Production growth was recorded in all three sectors: manufacturing industry by 15.9%, mining and quarrying by 2.4% and electricity, gas and water supply by 2.3%. Observation of monthly data on the industrial output trends shows that growth was recorded in February (10.1%), in March (5.3%) and in June (8.9%), while the industrial output declined in January, (19.1%), April (6.2%) and May (24.3%).

During the first six months, some 390,174 tourists visited Montenegro, which is a y-o-y increase of 13.8%. The number of overnights in the observed period amounted to 2 million, showing a y-o-y increase of 13.7%. Foreign tourists recorded 89% of total overnights.

With regard to forestry, in H1 2015, some 106,317 m³ of wood products were produced which represents a y-o-y increase of 27.1%.[6]

According to preliminary data, the value of executed construction works in H1 2015 recorded a y-o-y increase of 9.7% while, measured by the effective working hours, construction activity increased by 5.3%.

Graph 34



Source: Monstat

In the first six months of 2015, the number of passengers in road transport recorded a y-o-y increase of 3.1%, while cargo transport recorded a y-o-y increase of 14.7%. Railway passenger transport and railway cargo transport increased by 7.7% and 20.9%, respectively. In the first six months of 2015, the number of passengers in air transport recorded a y-o-y decrease of 1%, while cargo transport recorded a y-o-y increase of 9.3%.

Total turnover in ports amounted to 761,899 tonnes which is a y-o-y increase of 38.1%, whereby exports accounted for 58% and imports accounted for 41.9% of turnover. During this period, the exports increased by 99%, while imports declined by 2.9%.

3.3. Stock Exchange Indices

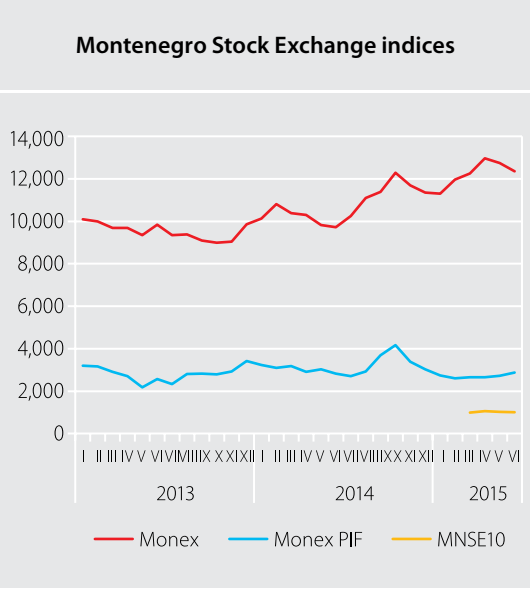
After a mild negative trend in January 2015, Monex index recorded a monthly increase during the following three months, while in May and June the aforementioned index recorded monthly decline. However, after recording negative trend during the first two months, the investment funds index Monex PIF recorded monthly increase throughout the first half of the year. The newly formed index MNSE10, which has been introduced to Montenegrin capital market as of 1 April 2015 recorded negative trend in May and June, after recording initial monthly growth.

In relation to end-2014, Monex index recorded an absolute growth of 998.44 index points or 8.8% at end-June 2015, while Monex PIF declined by 161.65 index points or 5.3%. MNSE10 index recorded an absolute growth of 1.33 index points or 0.1% in relation to the initial value.

In relation to end-June 2014, Monex index recorded growth of 27%, and Monex PIF increased by 1.6%.

[6] Presented as weighted index, while non-weighted output was 30.4% higher for the same period.

Graph 35



Source: Montenegro Stock Exchange

At end-June 2015, with regard to their historical maximum values (reached in 2007), Monex and Monex PIF declined by 3.7 times and 16.7 times, respectively.

4. MONETARY POLICY

In February 2015, the Decision Amending the Decision on Bank Reserve Requirement to be Held with the Central Bank of Montenegro (OGM 7/15) was passed. This Decision enables the banks to allocate up to 25% of the reserve requirement in the form of Montenegrin T-bills of any maturity, after which they can allocate up to 10% more and keep it in the form of T-bills with maturity up to 182 days. This possibility will be in force up to 31 December 2015.

5. INFLATION FORECAST FOR 2015 AND THE FIRST TWO QUARTERS OF 2016

5.1. Model Assessment

Montenegro's inflation Fan Chart represents a graph of probability distribution of inflation rate presented by the consumer price index. In that direction, instead of determining concrete points, using the distribution of probability the Fan Chart includes potential risks and uncertainties which would in the future period influence the movement of inflation. The Fan Chart is aimed at considering uncertainties in the real economy flows, which result in the inflation rate movement, and periodically reflected in inflation rate trend (higher food and energy prices, increase/decrease in the foreign trade deficit, etc.).

Montenegro's fan chart for 2015 and first two quarters of 2016 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 Montenegrin economy during 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 are "overestimated" or "underestimated" inflation rates. This will also influence the position of the mean value of inflation distribution.

Fan Chart central projection - ARIMA Model for 2015 and first two quarters of 2016

With a view to developing a fan chart, an ARIMA (Auto Regressive Integrated Moving Average) model was developed of time series of inflation of Montenegro showed through the Consumer Price Index.[7]

[7] More detailed explanation of the ARIMA model for Montenegro is represented in the Working study of the CBCG NO. 11 "Inflation Forecast": Empirical research trends of retail price index of Montenegro for 2007 - Implementation of ARIMA models.

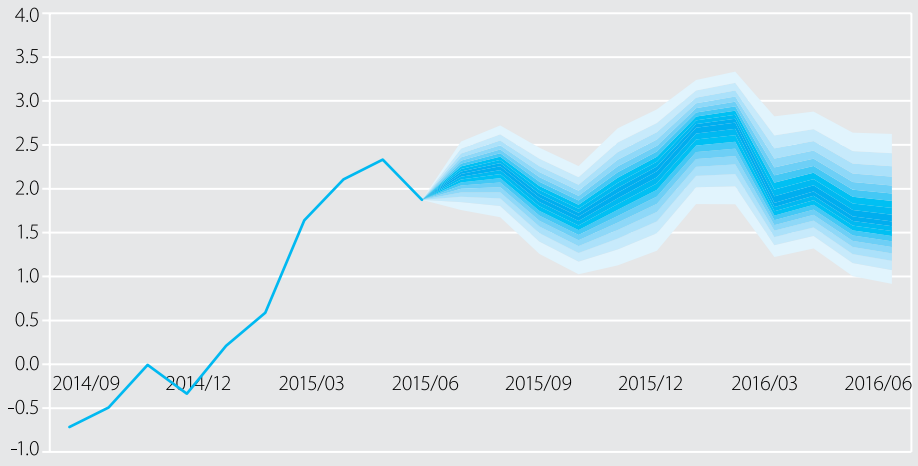
ARIMA model was used for short term forecasts (12 months), whereby iteration of ARIMA models was made, which were ranked based on their efficiency and quality of diagnostics. The selected ARIMA model (11,1,22)[8], ARIMA has sufficient confidence level for forecasts.

The monthly forecasts value was used as the value of central projection of the CPI Fan Chart for 2015 and first two quarters of 2016. The obtained values represent the distribution mode, i.e. values with the highest frequency in the distribution of this time series.

Mean value of the obtained model is 2. Value of the obtained model varied between 0.5 and 1, while standard deviation value was 0.25. The projection presented in the graph shows that the central band was placed in upper part of distribution, particularly for the period of 2015. This indicates that the corresponding degree of uncertainty was concentrated towards lower inflation levels, concentrated below "the deepest shade of blue" central band. 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.[9] The fan chart has an equal number of bands (eight) on either side of the central band whereby every band which is of the same colour, in the sum, both above and below the central band, cumulatively takes the inflation projection to the next 10% of probability. As the degree of uncertainty grows over time, so the fan chart spreads.

Graph 36

CPI projections of Montenegro for 2015 and the first two quarters of 2016



Source: CBCG, 2015

[8] 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.

[9] The mode value (central projection) is, by construction, usually in the deepest band shade, but in case of a heavily unbalanced risk, the central projection may 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)

Montenegro's inflation Fan Chart based on the ARIMA model projection for 2015 and first two quarters of 2016 shows, with a **90% probability that, depending on month, CPI inflation will vary between 0.9% and 3.2%. The inflation at 2015 year-end is forecasted between 1.3% and 2.9%**. Namely, the increase of time horizon for projection increases the uncertainty, which consequently spreads their range of forecast.

Starting inflation forecasts for 2015 and first half of 2016 are the following:

1. Agricultural products prices fluctuation of +/-5% was conditioned by their seasonal character;
2. With regard to previous decline of oil prices, we assumed that the oil prices will moderately increase in the observed period;
3. Increase in electricity prices up to 5% in 2016;
4. Continued increase of excise duties on cigarettes, alcoholic beverages and carbonated drinks;
5. As a result of more intensive investment and economic activity, we expect inflation growth over the forthcoming period;
6. VAT and/or other taxes are not expected to increase.

Deviation from any of abovementioned parameters would require the correction of the forecast.

6. EXPECTED INFLATION IN 2015

The second quarter of 2015 was more favourable in relation to the corresponding period of the previous year. The recorded growth of the industrial output, as well as the increase in forestry sector, most types of transport, and tourism indicate that there could be a fairly good growth.

However, at the same time there was an increase of aggregate demand, which together with negative inflation rate in the previous year (delay in adjustment of prices) and increase of excise duties resulted in an increase of inflation during this year.

The fact that significantly higher number of surveyed companies plans to increase the volume of activities compared to the number of those that expect decline in the level of activities over the forthcoming period, as well as the fact that 49% of surveyed companies plans new investments indicate that we can expect increase in economic activity over the forthcoming period, which will certainly have deflationary effect.

For 2015, the majority of surveyed banks and companies expect inflation to increase in relation to the previous year. This is expected, given the negative inflation from 2014. Majority of surveyed banks expected inflation rate between 2% and 3%, while most of the surveyed companies expected inflation rate between 1% and 1.5%.

Model-based forecast shows that the inflation will range between 1.3% and 2.9% at end-2015. Our expert assessment remains unchanged in relation to the previous one and is similar to model-based assessment. According to this assessment, the inflation will range between 1.25% and 3.25%.

Table 3

Inflation rate estimate		
Optimistic estimate	Realistic estimate	Pessimistic estimate
1.25	2.25	3.25

This assessment is based on the same assumptions as the model assessment. The change in any parameter used for this forecast would require revision of the forecast.