PRICE STABILITY REPORT 2010

CBCG
CENTRAL BANK OF MONTENEGRO

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ABBREVIATIONS

CBM	Central Bank of Montenegro
ECB	European Central Bank
MFI	Microcredit financial institution
MONSTAT	Statistical Office of Montenegro
OPEC	Organization of the Petroleum Exporting Countries
FDI	Foreign direct investments

CONTENTS

1. INFLATION INDICATORS

1.1. Inflation in Montenegro

In December 2010, consumer prices increased by 0.7%, in relation to December 2009. At the same time, this was the lowest inflation rate ever recorded in Montenegro, wheither measured both by retail prices or cost of living. Reasons for such low annual inflation rate are somewhat moderate changes, that is, prices fluctuation in certain categories in the total consumer prices basket (clothes and footwear, education, other goods and services), are declining prices of housing (mostly due to lower electricity prices – corrected in the beginning of 2010), high basis reached in the previous years in the category „food and non-alcoholic beverages", as well as adjustments to recession. Observed by months, the highest growth of consumer prices was reported in March (0.4%), while the decline was recorded in June (-0.4%), January (-0.3%) and May (-0.1%).

Although the prices of transportation, health care, food and non-alcoholic beverages recorded the highest annual increase, lower prices of housing (-7.5%), alcoholic beverages and tobacco (-1%) and culture and entertainment (-2.2%) affected annual inflation to amount only 0.7%. Therefore, in this period, the highest decline was recorded by housing prices by 7.5% (second category by the weight size in the consumer basket), due to lower price of electricity by 11.3% (correction of prices from January 2010) and lower renting prices (13.8%) - this product is introduced in the consumer basket as of January 2010. Prices decline was recorded in the category „alcoholic beverages and tobacco" (-1%) due to the decline of alcoholic beverages prices (-2.3%), while culture and entertainment prices declined by 2.2%, mostly due to the decline in prices from the

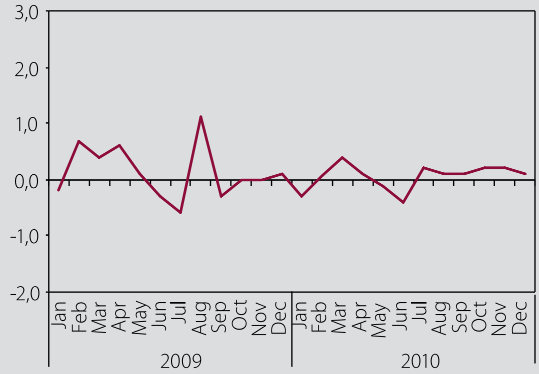
Table 1 – Inflation, %

	2009				2010			
	III	VI	IX	XII	III	VI	IX	XII
Change in relation to the end of the previous year	0.8	1.2	1.4	1.5	0.2	-0.2	0.2	0.7
Annual change	5.5	2.8	1.7	1.5	0.7	0.2	0.3	0.7

Source: Monstat

group audio, visual and photograph equipment by 8% and prices of newspapers, journals and paper products by 1%. Global food prices again increased and, according to FAO (Food and Agriculture Organization), they reached maximum level in December 2010. It is expected that the global growth of food prices, affected by various factors (fire, floods), will reflect on the food prices in Montenegro, due to high import dependency. Within the category "food and non-alcoholic beverages" which weight amounts to 37.5% in total consumer basket, prices of oil and fats increased by 19.7%, sugar by 33.5%, fruits by 7.6%, vegetables by 7.9%, non-alcoholic beverages 5.1% (price of coffee recorded the highest increase of 22%), while the prices of milk, cheese and eggs declined by 3.5% and fish by 4.5%. Health care prices increased due to the growth of outpatient hospital services (13.9%) and pharmaceutical products (1.5%), while the increase of prices of fuels and lubricants of 13% affected the increase of the transportation prices. Prices of services in restaurants and hotels increased by 2.1%, due to the growth of prices of catering services (2.4%), while the prices from the category "furniture and appliances" increased by 1%, mostly due to growth of prices of textile products for households (4%) and household appliances (0.7%). Prices of clothes and footwear recorded mild increase (0.3%), due to the growth of footwear prices by 1.1% as well as the prices from category „education" by 0.1%. In 2010, prices of telecommunications remained unchanged.

Graph 1 - Consumer prices, monthly rate



Source: Monstat

However, bearing in mind that 2010 was a recession year, with the low level of the aggregate demand, low inflation rate was expected.

Table 2 – Share of individual categories in total inflation

	Weights	XII 10/XII 09	Growth rate	Contribution	Share in total inflation
TOTAL	10000	100.7	0.7	0.7	100.0
Food and non-alcoholic beverages	3755	102.0	2.0	0.8	105.0
Alcoholic beverages and tobacco	372	99.0	-1.0	0.0	-5.2
Clothes and footwear	761	100.3	0.3	0.0	3.2
Housing	1287	92.5	-7.5	-1.0	-135.0
Furniture and appliances	494	101.0	1.0	0.0	6.9
Health	280	105.0	5.0	0.1	19.6
Transportation	1216	106.0	6.0	0.7	102.0
Communications	558	100.0	0.0	0.0	0.0
Culture and entertainment	321	97.8	-2.2	-0.1	-9.9
Education	218	100.1	0.1	0.0	0.3
Restaurants and hotels	296	102.1	2.1	0.1	8.7
Other goods and services	442	100.7	0.7	0.0	4.3

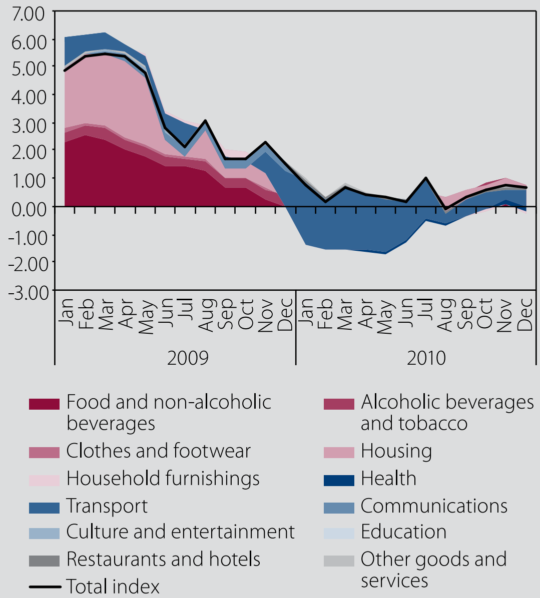
Source: Monstat and CBM calculations

Prices of the reference OPEC basket in 2010 averagely amounted to USD/barrel 77.45 or 26.8% more in relation to the average price from 2009. In December 2010, the average reference OPEC basket amounted to USD/barrel 88.56 which represents the highest price since September 2008, when in amounted to USD/barrel 96.85. The average brent oil price amounted to USD/barrel 79.6 or 29.1% more in relation to the average price from the previous year. OPEC reported that the continuation of the global economic recovery will mostly affect the world's demand for oil. In December 2010, prices of fuels and lubricants in Montenegro increased by 13% in relation to the same month of 2009. Thus, oil will be the factor of pressure to the prices development in 2011.

The highest contribution to the annual inflation was from categories food and non-alcoholic beverages with 0.8% and transportation with 0.7%. Graph 3 shows contributions to the annual inflation of individual components of consumer prices.

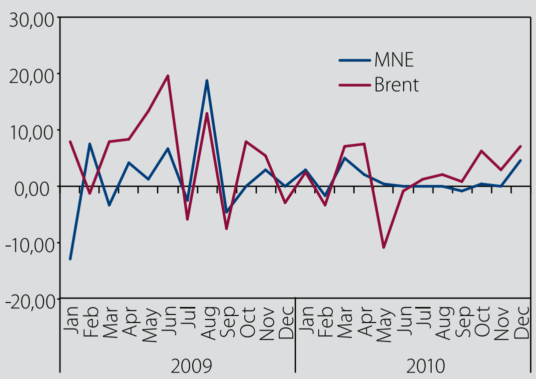
In December, annual **core inflation** rate amounted to 0.41% or 0.33 percentage points lower than the total annual inflation. In 2010 (except in August and November), annual core inflation was lower than the total inflation and was negative in the first five months, as well as in July. Development of the annual rate of the total and core inflation is shown in the Graph 4.

Graph 3 – Components of consumer prices: Contribution to annual rate (index points)



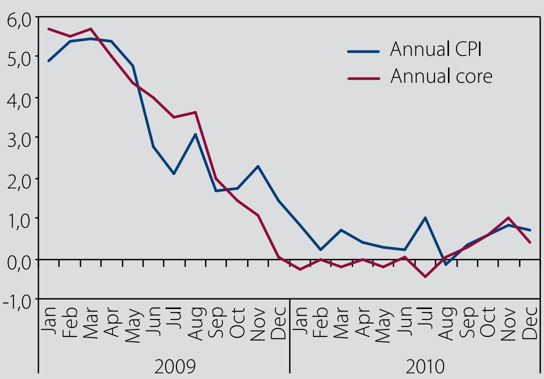
Source: Monstat and CBM calculation

Graph 2 - Oil prices, monthly growth rate



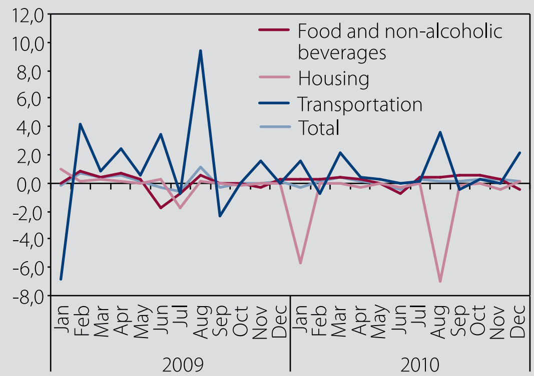
Source: Monstat and "Monthly Oil Market Reports", OPEC

Graph 4 – Consumer prices, annual rate



Source: Monstat

Graph 5 – Selected categories – consumer prices, monthly rate



Source: Monstat

In December 2010, **producer prices of manufactured products** recorded 0.4% growth in relation to the same month of the previous year. Manufacturing industry recorded 5.3% growth in prices, while mining and quarrying prices recorded decline of 15.3% and 8.6% decline in the production of electricity, gas and water supply. The average decline in producer prices of manufactured products amounted to 0.9% in 2010, whereby the average decline of prices in the production of electricity, gas and water supply was -12.2% and in mining and quarrying (-11.2%). The average growth of producer prices of 4.3% was recorded only in the manufacturing industry.

In December 2010, **producer prices of manufactured products** recorded 17.2% growth in relation to the same month of the previous year, while the average annual prices growth amounted to 21.4%. The annual growth was mostly affected by the producer prices of basic metals which increased by 20.7%.

We note that for the calculation of the index of producer prices of manufactured products for export, prices of representative products of identical quality which will be mostly exported in the long-term are used.

Imported prices of manufactured products, increased by 9.4% in December 2010 in relation to the same month of the previous year, or growth of 7% if we observe average annual growth rate. The highest growth was recorded in mining and quarrying prices (59.7%). For the calculation of this index, prices of representative products of identical quality which will be mostly imported in the long-term are used.

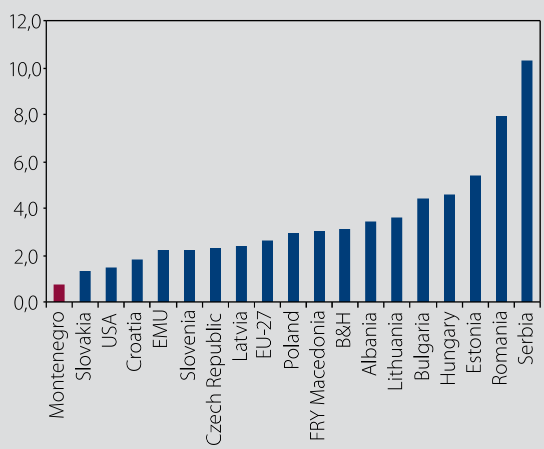
1.2. Inflation in the Region and the EU

If we compare annual inflation recorded in Montenegro with the annual rate in certain region countries we can see that the inflation in Montenegro is the lowest (0.7%). Annual inflation amounted to 1.8% in Croatia, 2.2% in Slovenia, 3% in Macedonia, 3.1% in Bosnia and Herzegovina, 3.4% in Albania, while the highest annual growth was recorded in Serbia amounting to 10.3%.

In relation to inflation in the EU member states, the lowest annual inflation was recorded in Slovakia (1.3%), while the highest was in Romania (7.9%), Estonia (5.4%) and Greece (5.2%). Measured by the harmonized CPI, annual inflation recorded in Euro area amounted to 2.2%, while components with the highest annual growth were transportation (5.2%), housing (3.8%) and tobacco and beverages (3.6%), while communications recorded the highest annual decline (-0.7%).

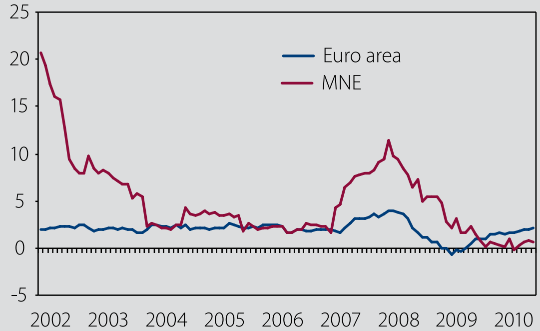
The annual inflation measured in EU27 (EICP – European Index of Consumer Prices) amounted to 2.6% in December 2010.

Graph 6 - Annual inflation rate in selected countries, December 2010



Source: National Statistical Offices and Eurostat

Graph 7 – Inflation in Euro area and Montenegro since introduction of euro (annual rates)



Source: Monstat and Eurostat

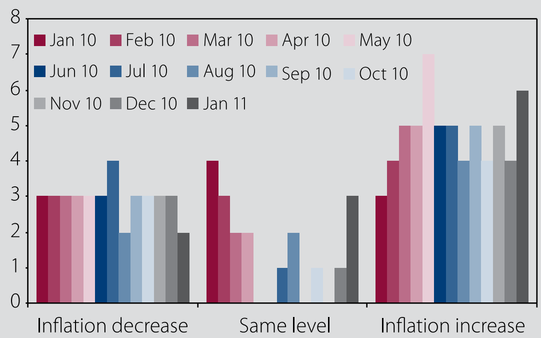
2. INFLATION FORECASTS

Banks' Expectations

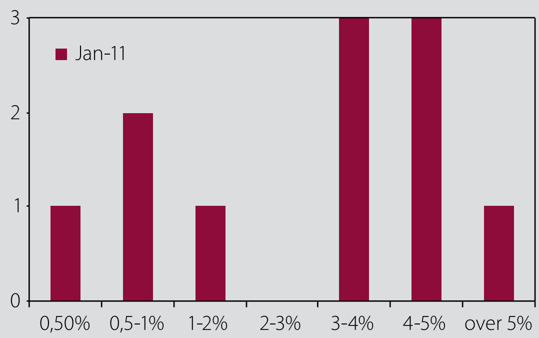
Regarding the banks' inflation expectations, based on survey results from January 2011, where new ranges (from 0.5% to 5% and over) on inflation were offered, two banks expected lower inflation rate, three banks expected the same level while six banks expected higher inflation rate in 2011 in relation to 2010 (Graph 8.).

For the purpose of calculating inflation forecasts we use market trend indicator (black line in Graph 10). It is calculated as the difference between the number of banks expecting an inflation growth (blue bars) and the number of banks expecting inflation decrease (red bars). 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 value, the lower inflation forecast, and vice versa. Higher positive value affects higher inflation. Thus, Graph 10 shows higher inflation expectations in January 2011, unlike the forecasts from the previous seven months, that is, at the same level from May 2010.

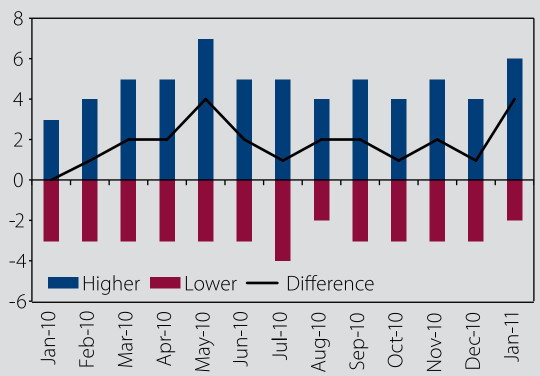
Graph 8 - Inflation forecasts (banks)



Graph 9 – Forecasted inflation level (banks)



Graph 10 – Market trend indicator

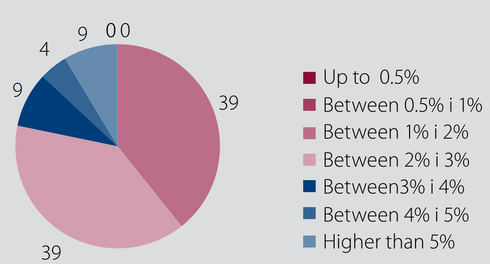


Expectation of Economy (Except Banks)

Inflation

All surveyed companies expected higher inflation rate in 2011 in relation to 2010. Some 39% of surveyed companies expected that the annual inflation in 2011 will range between 1% and 2%, or between 2% and 3%, while 9% of surveyed companies believed that the inflation will range from 3% and 4%, or over 5%. The lowest number of surveyed companies (4%) expected that the inflation will range between 4% and 5%.

Graph 11 - Forecasted inflation in 2011 in relation to 2010 (responses by percentage share)



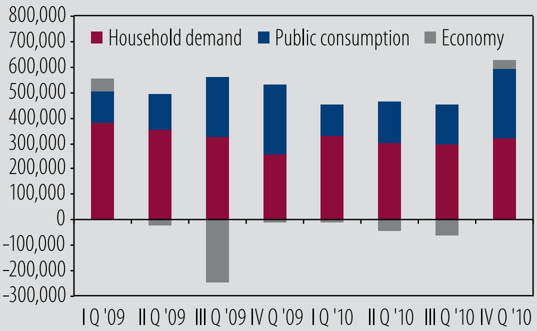
3. INFLATION DETERMINANTS

3.1. Demand

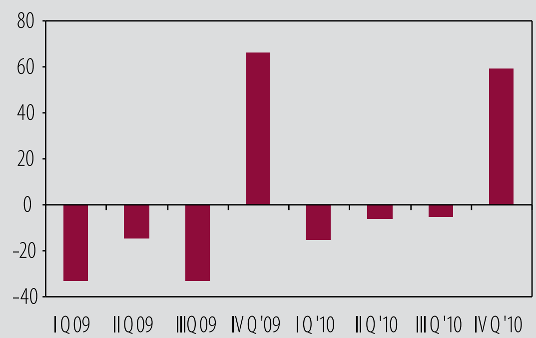
The highest level of the aggregate demand in 2010 was recorded in 4Q, which is usual at year-end, when outstanding liabilities are paid by companies and from the budget, but it is also an indicator of the end of the recession period. Total demand in 4Q 2010 was higher than the demand from the same quarter of the previous year. Observing the structure of total demand in 4Q 2010 in relation to the demand structure from 4Q 2009, the share of households' and companies' demand increased, while the public demand declined.

The level and the rate of the aggregate demand in 4Q 2010 were higher in relation to the previous three quarters, as well as in relation to the level recorded in the last quarter of the previous year, whereby the rate was somewhat lower than in the fourth quarter of the previous year.

Graph 12 - Aggregate demand, EUR thousand



Graph 13 - Quarterly rates of aggregated demand



Box 1 - Aggregate demand calculation methodology

For the purpose of complete monitoring of aggregate demand as the inflation determinant, the CBM has developed the aggregate demand calculation methodology. The starting point of this methodology is that the aggregate demand is the total demand of three sectors: personal consumption (households), investment consumption (corporate sector) and public consumption. 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 is not available, such as: corporate investments, revenues from selling shares, non-market incomes, non-observed economy revenues, and the like. The methodology for calculating the aggregate demand is given in 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 savings by households (savings- loans granted)
I= -net savings of economy (deposits-loans)
G= public consumption- paid pensions- salaries paid from the budget- net savings by the Government (deposits-loans-Treasury bills)
AD - aggregate demand, C - personal consumption, I - investment consumption, G - public consumption

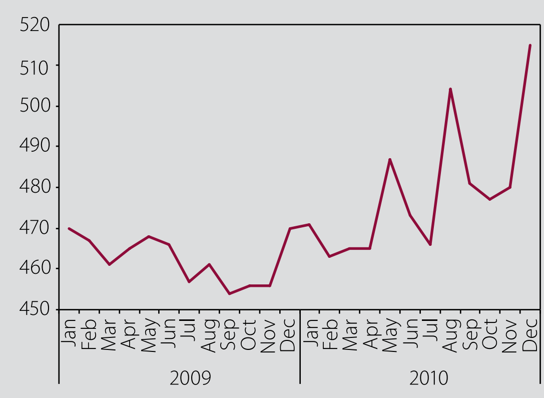
3.1.1. Salaries and other Available Demand Determinants

In 2010, the average salary in Montenegro amounted to EUR 715, while the average salary without taxes and contributions amounted to EUR 479. The average salary in 2010 increased by 11.2%, while the average salary without taxes and contributions increased by 3.5%. Observed by months, the highest growth of salaries without taxes and contributions was recorded in August (8.2%) and December (7.3%). The highest decline of salaries without taxes and contributions was recorded in September amounting to 4.6%.

Taking into account the consumer prices, i.e. salaries in real amounts, it can be concluded that real salaries recorded highest growth in August, January, December and May, while the highest decline was recorded in September.

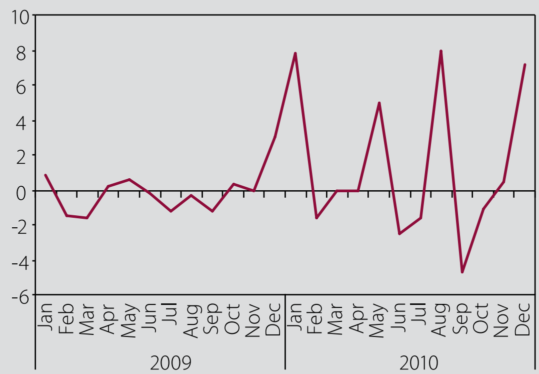
Lending to the household sector recorded negative trend in 2010. Monthly average of declining amounted to 0.5% (in 2009, loans averagely decreased by 1%) and at end-2010 these loans amounted to EUR 863.6 million, and were by EUR 55.7 million or 6.1% lower in relation to end-2009.

Graph 14 - Average salaries without taxes and contributions in Montenegro



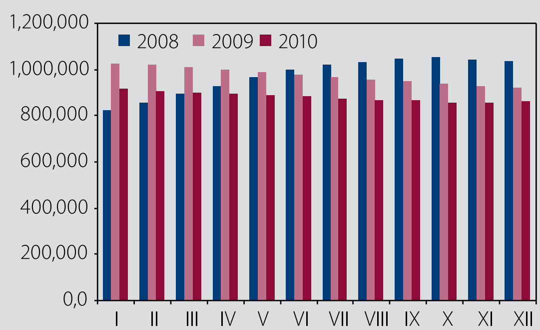
Source: Monstat

Graph 15 – Real wages (monthly rate)



Source: Monstat

Graph 16 - Loans to households, in EUR thousand



Average indebtedness of the household sector decreased due to the decline of lending to this sector. Thus, debt per capita amounted to EUR 1.364 at end-December 2010, and was by EUR 95 or 6.5% lower than at end-2009.

In addition to the reduction of household debt to banks, their debt to microcredit financial institutions was also reduced, so that the loans of this sector with MFIs amounted to EUR 43.2 million at end-2010 and were by EUR 22.0 million or 33.8% lower than in the previous year.

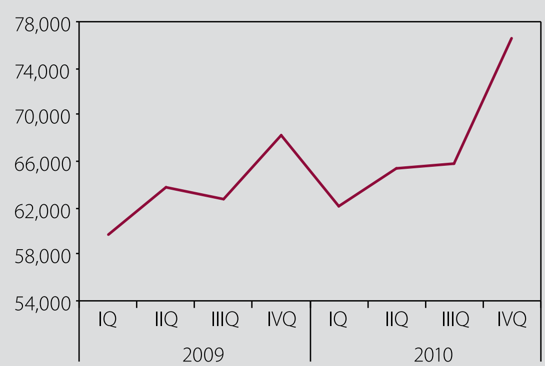
Household deposits grew in 2010 (except in January 2010) and recorded the average monthly growth of 1% (in 2009 the average monthly decline of 0.1% was recorded). Deposits of this sector amounted to EUR 951.9 million at end-2010, and were by EUR 107.9 million or 12.8% higher than at end-2009.

As a result of decrease in loans and the household deposits increase, loans to deposits ratio in this sector improved amounting to 0.907 at end-2010 in relation to end-2009 when it amounted to 1.089. As a result, the net household savings amounted to EUR 88.3 million was at end-2010, while it amounted to EUR 75.4 million at the end-2009.

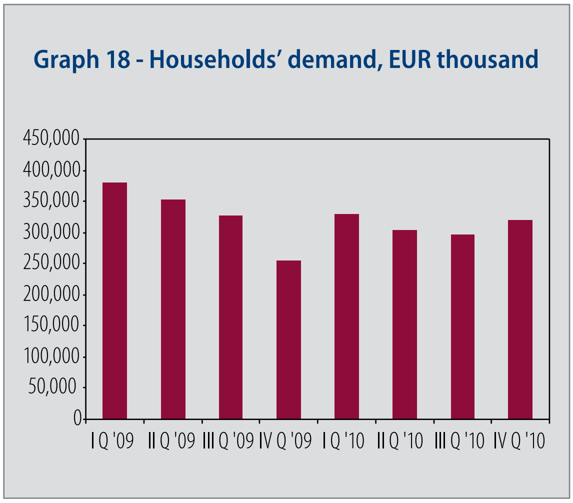
The balance of payments statistics shows that in 2010 in relation to 2009 monetary assets inflow from heritage, alimony and other presents and assistance as well as foreign remittances in favour of domestic natural persons increased.

The total demand of household sector by quarters shows increase in Q4 2010 in relation to the Q2 and Q3, and slightly lower demand in relation to Q1. The significant growth in demand was recorded in relation to the last quarter of 2009.

Graph 17 - Inflow of foreign funds to households, EUR thousand



Source: CBM



3.1.2. Demand of Public Sector

Consolidated public consumption

The assessment of the Ministry of Finance showed that the consolidated public consumption in 2010 amounted to EUR 1,361.6 million or 45.0% of estimated GDP for 2010. Compared to the same period of 2009, public consumption was by 10.7% lower, while it was by 5.3% lower than planned. Realized level of public consumption was financed from tax revenues in the amount of EUR 755.1 million, contributions (EUR 343.3 million), fees (EUR 96.1 million), taxes (EUR 26,8 million), other revenues (EUR 45,1 million), and revenues from loan repayments (EUR 3.6 million).

Current public revenues[1] amounted to EUR 1,270.0 million or 42.0% of estimated GDP. In 2010, current budget revenues were by 2.1% lower in relation to the plan, while in relation to the same period of 2009 they were by 6.1% lower. The decline of current revenues was the result of evident decline in legal persons' tax revenues.

Tax revenues with 59.5% recorded the highest share in the structure of public revenues, followed by contributions (27.0%), while other revenues had the share of 13.5%.

[1] *Total current public revenues include revenues of the budget, state funds and local self-administration.*

The decline of consolidated public expenditures of 5.3% in relation to the plan resulted from the decline of almost all categories of current and capital expenditures, while expenditures for gross salaries and contributions, transfers for social protection, transfers to institutions, individuals, NGOs and public sector, as well as from borrowings, loans and reserves, increased.

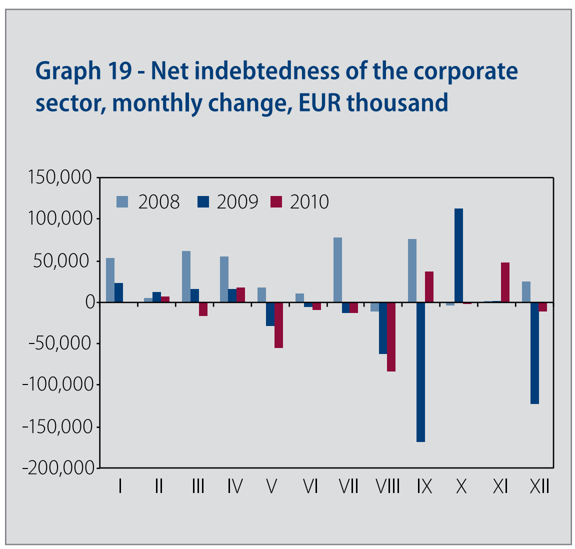
Current budget consumption (consolidated public expenditures decreased by capital expenditures of the current budget with funds, local government and capital budget) amounted to EUR 1,198.0 million or 39.6% of GDP and it was lower by 0.5% in relation to planned, while in relation to the same period of the previous year it declined by 5.9%.

In the structure of public expenditures by economic classification and individually, the highest share was recorded by transfers (46.1%), followed by current expenditures (40.4%), capital expenditures (12%) and other expenditures (1.5%).

In the period January – December 2010, **public expenditure** recorded deficit amounting to EUR 91.6 million or 3% of forecasted GDP for 2010.

3.1.3. Economy

Due to the absence of data on investments by the corporate sector, net indebtedness of the corporate sector can be used for demand approximation.



Loans granted to the corporate sector were substantially higher than their deposits in 2010, thus, this sector was net debtor in 2010. Net debt of the corporate sector amounted to EUR 768.2 million or EUR 79.7 million (9.4%) lower in relation to end-2009. The structure of loans granted to the corporate sector shows that the share of long-term loans were dominant at end-2010 (over 78.4%) which points to their dominant use for increasing the economic activity.

3.1.4. External Demand and Balance of Payments Current Account

Gradual recovery of economic activity had positive effects to current account trends. Growth of production and import were key triggers of the economic recovery in 2010. Due to faster growth of the economic demand, current account deficit declined[2]. In 2010, according to preliminary data, current account deficit was 13.6% lower in relation to 2009 amounting to EUR 774.6 million or 25.6% of GDP.

According to Monstat data, total visible exchange amounted to EUR 1,984.9 million in 2010 or 2.8% more in relation to 2009. Level of import dependence of domestic production and consumption is still high, bearing in mind that the share of import in GDP amounted to 55%. In the observed period, commodity import amounted to EUR 1,654.6 million, which is similar in relation with the previous year. At the same time, export amounted to EUR 330.3 million or 19.2% more. Export of aluminium affected the increase in export making up 40.5% of total export (EUR 133.7 million). Total export of aluminium increased by 17.3%, resulting from higher production and increase in aluminium prices at the global market. Coverage of import by export amounted to 21.3%, which indicates that the export is still low comparing to the import and that Montenegrin market is dominated by imported products. Foreign trade deficit amounted to EUR 1,324.3 or 3.8% and was lower in relation to the previous year. Coverage of the foreign trade deficit by surplus recorded in other sub-accounts of the current account amounted to 41% or 6.4 percentage points higher in relation to 2009.

Positive trends in tourism and transportation sectors affected the increase of surplus at the services account. In 2010, this account recorded surplus in amount of EUR 446.4 million or 16% more in relation to the previous year. Revenues from services amounted to EUR 747 million or 9.8% more in relation to 2009, while expenditures amounted to EUR 300.6 million or 1.6% more than in 2009. Positive result was recorded in transportation where surplus increased by 72.2% and travelling with the surplus increase of 5.7% resulting from the revenues increase by 4.9% and decline of expenditures by 4.1%.

Deterioration was recorded at the revenues account where deficit amounted to EUR 20.8 million while in 2009 surplus amounted to EUR 5.4 million. Revenues recorded from the factor incomes amounted to EUR 165.8 million or 1.9% more in relation to 2009. Total expenditures increased by 18.6% amounting to EUR 186.6 million. The highest expenditures were recorded on the basis of the interest repayment in amount of EUR 102.2 million or 18.4% more in relation to 2009, while expenditures from equity investments (dividends) amounted to EUR 75.8 million.

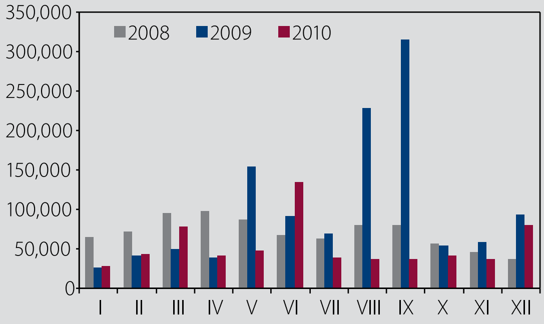
Surplus at the current transfers' account amounted to EUR 114.4 million which is by 34% more in relation to 2009. Inflow of remittances transfers in Montenegro increased. Total transfer inflow amounted to EUR 146.3 million or 24.3% more than in 2009 of which EUR 23.9 million referred to the state sector while EUR 122.5 million referred to other sectors.

Capital financial account recorded net inflow at sub-accounts of direct and portfolio investments, while accounts of other investments recorded net outflow. Net inflow of foreign direct investments in 2010 amounted to EUR 542.4 million. In relation to 2009, net FDI inflow declined by 49%, but still represents relatively high inflow bearing in mind that during this year there were no significant privatizations comparing to the previous year and that Montenegro still is at the top of the countries according to FDI per capita.

Total FDI inflow in Montenegro amounted to 643 million. Total equity investments in the observed period amounted to EUR 446.9 million while the investments in the form of the intercompany debt amounted to 163.9 million. Inflow from withdrawal of monetary assets which residents invested abroad amounted to EUR 32.3 million. Total FDI outflow in 2010 amounted to EUR 100.7 million or 36% less than in 2009. The highest outflow was recorded from residents' investments in foreign banks and companies at the amount of EUR 54.3 million, while the outflow from withdrawal of assets invested in domestic banks and companies amounted to EUR 46.4 million.

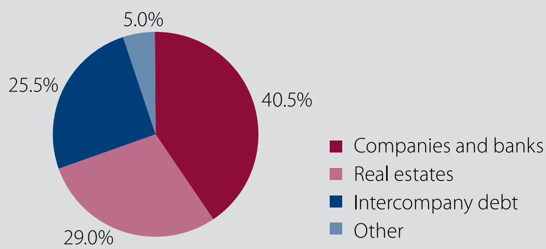
[2] *Still, it would be wrongly concluded that the improvement in deficit is the result of the increased competitiveness, since it was largely the result of the crisis adjustment.*

Graph 20 - FDI inflow, in EUR thousand



Source: CBM

Graph 21 – Structure of inflow of foreign direct investments in 2010



Source: CBM

In 2010, **portfolio investments** account recorded net inflow amounting to EUR 188.2 million, as the result of the state indebtedness at the global capital market by issuing Eurobonds amounting to EUR 200 million. In 2010, **other investments** account recorded net outflow amounting to EUR 345.2 million, being by 16.6% lower in relation to 2009. Banks reduced their liabilities for loans taken by EUR 36.3 million. The indebtedness of state was lower than in 2009, while the private sector indebtedness increased. The inflow from withdrawal of funds from loan taken from the private sector amounted to EUR 268.9 million, or 35.6% more in relation to 2009, while the outflow from repayment of principal amounted to EUR 169.4 million or 28.6% less than previous year.

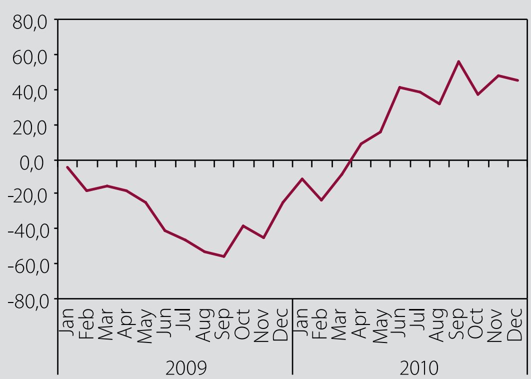
3.2. Supply and Production

Industrial output in 2010 was 17.5% higher than in the previous year. The output growth was recorded in mining and quarrying (58.7%) and electricity, gas and water supply (51.1%), while the production declined in the manufacturing sector (3%). Observing monthly data on industrial output, the highest growth was recorded in September (27.9%), December (23.7%), March (17.4%) and January (13.5%). Total industrial output growth was recorded at the annual level (45.7%), whereby the annual growth was recorded in all three sectors: mining and quarrying (127.9%), manufacturing industry (21.3%) and electricity, gas and water supply (70.9%).

Montenegro was visited by 1,263.0 thousand tourists in 2010, which was 4.6% more than in the same period of the previous year. The number of arrivals of domestic tourists increased by 7.0% and of foreigners by 4.2%. The number of overnight stays in the observed period amounted to 7,964.9 thousand, which was 5.5% more than in the previous year.

In 2010, **total wood production** amounted to 256.4 thousand m^3, which was 18.4% higher than in the same period of the previous year.

Graph 22 - Industrial output, annual growth rate



Source: Monstat

According to the preliminary Monstat data, total value of **construction works** in 2010 amounted to EUR 255.6 million, which was 13.1% higher than in the comparative period. The construction activity measured by effective working hours was reduced by 0.8%.

In 2010, some 8.6% passengers less was transported by the railways, the number of transported passengers in the air transport was 26.0% higher, while road transportation recorded 20.7% decline in the number of transported passengers in relation to the previous year.

Railway cargo transportation recorded 49.9% increase (in tonne kilometres), air cargo transportation increased by 46.1%, while road cargo transportation declined by 7.1% (in tonne kilometres), in relation to the previous year.

Total turnover in harbours amounted to 1,758.7 thousand tonnes in 2010, which was by 18.7% higher in relation to the same period of the previous year, while the export increased by 36.1% and import declined by 3.7%.

4. MONETARY POLICY

The CBM is responsible for the monetary policy, encouraging and maintaining the financial system stability, including the encouragement and maintenance of the safe and sound banking system and efficient payment operations. One of the key goals of the monetary policy of the CBM is to contribute to the maintenance of the price stability in the country. In addition to the reserve requirement and granting intraday and overnight liquidity loans, new Central Banking Law, passed in July 2010 also prescribes new instruments in the monetary policy implementation. Namely, the CBM may perform open market operations and grant short-term liquidity loans to banks in the case of regular needs for liquidity. Exceptionally, the CBM may approve financial support to banks with problems in liquidity, when it has been assessed that the financial support is necessary to prevent jeopardizing of the banking system safety and soundness. By introducing of a lender of last resort mechanism a framework for financial stability management in Montenegro is additionally improved. However, it should be stated that all available CBM instruments have very limited impact on the inflation development.

4.1. Monetary Policy Measures for Inflation Suppression

Bearing in mind that in 2010 the lowest inflation rate ever was recorded in Montenegro, there was no need for the implementation of monetary measures with a view to suppressing the inflation.

4.2. Fiscal Policy Measures and other Measures for Suppression of Inflation

With a view to decreasing public consumption, the Government of Montenegro adopted a set of measures during the past two years, in order to affect the aggregate demand, and consequently, the inflation suppression. Bearing in mind consequences of the economic crisis, in February 2009, the Government started to implement saving measures with a view to decreasing the public consumption. These measures included, among other, rationalizations of all expenditures items, especially discretionary consumption. Declining of wage bill is one of key measures implemented in the period 2009-2010, with a view to declining public consumption. To this end, amendments to the Law on Salaries of State Employees and Civil Servants were passed, which provided full control of employment in the Ministry of Finance. In addition, the Government enacted Staff plan stipulating restrictive employing as well as criteria which should be implemented by the expenditure unit in order to execute new employment (on each three retired employees in the public sector or two redundancies one employee may be hired), leaving the possibility to expenditure units to use internal transfers in order to provide necessary employment.

As a continuation of these measures, the previous period Ministry of Finance initiated the examination of the real salaries calculation of all expenditure units financed from the budget, which gave positive results and savings in the previous period. Pursuant to the Law on Salaries of State Employees and Civil Servants, the Government passed the Decision on Severance Pay, which created conditions to fire redundant employees. In cooperation with the Public Procurement Agency, detailed procedure for tender approval was performed, which enabled higher control and prediction in planning expenditures related to this.

As a result of the aforesaid measures, current public expenditures declined by 5.9% in 2010, while current budget expenditure decreased by 3% in relation to 2009, which positively affected inflation development. It is reasonable to expect that the budget expenditure will continue to be under the severe control in 2011.

5. INFLATION FORECAST IN 2011

5.1. Fan Chart Model Forecast

The "Fan Chart" model is applied for the forecast of inflation in Montenegro. This is a graphic presentation of the distribution of projected inflation forecasts expressed in the form of Consume Price Index (CPI[3]). To wit, instead of identifying some specific points, by using the Fan Chart, through the distribution of forecasts, any potential risks and uncertainties that could affect the inflation movements over the following period of time are also taken into consideration. The purpose of the Fan Chart is to point out and take into consideration any existing uncertainty in real economy, consequently reflecting on the growth of inflation rate (higher prices of energy sources, an increase/decrease in foreign trade deficit).

The Fan Chart of Montenegro for 2011 is based on the following three assessment components:

1. Values of the central projection: The values of the Fan Chart central projection are deducted from the ARIMA model, and also by applying the Tramo/Seats simulation in order to obtain the most efficient model
2. Level of uncertainly - determines the Fan Chart width The level of uncertainly ratio is a result of analytic analysis and calculation of relative effects of potential internal (expected increase in electricity prices) and external impacts (oil prices) that may occur in the Montenegrin economy in 2011
3. The Fan Chart curve: following the curve showing the level of distribution of the projected inflation, the Fan Chart adjusts to the forecast in the sense that the values of the central projection forecasting the inflation rate movements are either "overrated" or "underrated" The position of an average value of the inflation distribution will depend on this direction.

[3] *Consumer Price Index*

Fan Chart Central Projection - ARIMA Model for 2011

For the purpose of Fan Chart preparation, the ARIMA (Auto-Regressive Integrated Model with Variable Averages) model of temporal series of inflation in Montenegro was developed and expressed by Consumer Price Index[4].

ARIMA model was used for the purpose of short-term forecasts (12 months) where an iteration of 412 ARIMA models was prepared. All models were ranked according to their respective diagnostics efficiency and quality.

The selected ARIMA model, ARIMA (5,1,5)[5] has a sufficient levels of certainty for the forecasting purposes. The CPI time series was used

[4] *A detailed explanation of the ARIMA model of Montenegro is given in the working study of the Central Bank of Montenegro No. 11 "Inflation Forecast: Empirical Research of Retail Price Index Movements in Montenegro in 2007 –Application of ARIMA Model", 2007.*

[5] *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.*

for the forecasting purposes for the first time, which will be used as the basis for inflation forecasting in the future.

Following the Tramo/Seats procedure[6], 2001 breaking points were identified (Chow Test for the identification was used) in the previous series; those substantially corresponded to the changes of the inflation structure from 2001 to the end of 2011, which was included in the ARIMA model through dummy variables.

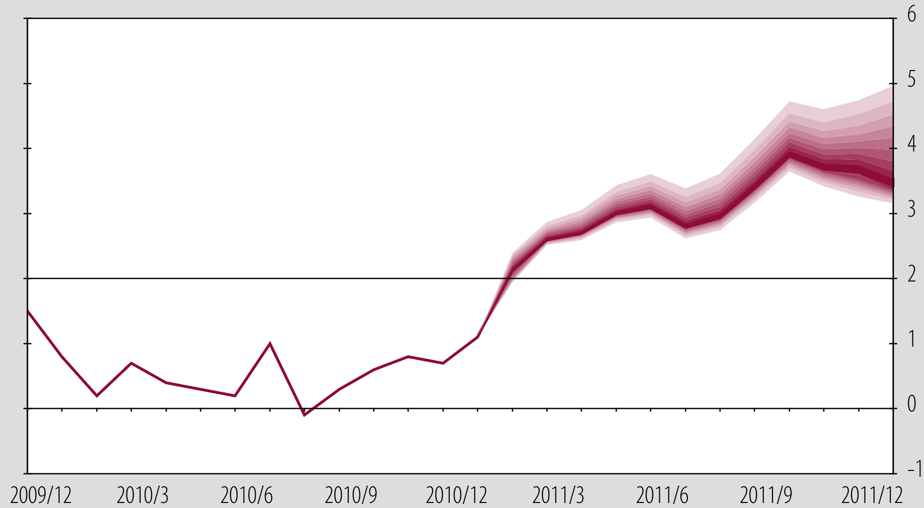
Results of ARIMA projection were compared to the values of projected values by Tramo/Seats procedures which expressed substantial level of compatibility.

The monthly forecasts value was used as the value of central projection of the Fan Chart of CPI for 2011. Obtained values represent the distribution mode, i.e. the values with the highest frequency in distribution of this time series.

Mean value of the produced model is 2.1, curve ratio varied between -0.2 and 1.6, while the values of standard deviations amounted to σ2=0.15 or σ1=0.48. Like in the previous two years, this showed that the central span was located in the lower part of the distribution, which means that the corresponding range of uncertainty was concentrated towards the higher levels of inflation. This is shown in the graph as a "thicker" range concentrated above the central "dominantly red" range.

Fan Chart explains 90% of the probability of the inflation distribution. The central projection is usually in the deepest shade of the Fan Chart, i.e. in the central 10% of probability.[7] The Fan Chart has an equal number of bands (eight) on either side of the central band whereby every band is of the same colour, 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 23 – Projected Consumer Price Index of Montenegro for 2011



Source: CBM, 2011

[6] *Tramo program represents a program for model assessment and design (mostly ARIMA, having problems with a lack of data, data errors and the presence of a large number of extreme data in time series. SEATS program is used to extract the elements of time series than cannot be directly extracted; those elements are extracted as a trend, season, cycle, and occurrence of Easter or Christmas effect, which allows a superior analysis and projection of ARIMA model. (For more details, please see the manual Tramo and Seats (Gómez and. Maravall, 1996).*

[7] *The mode value (central projection) is, by construction, always 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)*

The Fan Chart showing the inflation in Montenegro, based on an ARIMA model assessment and Tramo/Seats simulation for 2011, shows 90% probability that the inflation, measured by Consumer Price Index, will move from February between 1.94% and 5%. Particularly, the uncertainty increases as the time horizon for making a projection increases, and consequently the range of a forecast becomes wider. In the end 2011, it is assumed with 90% probability that the in flatin would range between 3.26% and 4.8%.

The central Fan Chart projection, referring to the darkest area on the chart represents a probability range of 10%. The 10% probability shows that the inflation will range from 2.9% to 3.9% in the end-2011.

The following assumptions were taken when forecasting the inflation:

1. The price of oil and oil derivatives will not exceed 25% of the price from December 2010;
2. The price of aluminium will not increase more than 15% in relation to that from December 2010;
3. Real estates prices increase up to 5% in relation to the last quarter of 2010;
4. Real wages increase is up to 4%;
5. Food products prices do not exceed 10% in this year in relation to December 2010.
6. There will be no significant increase in taxes or excise duties.

Derogation from some of these parameters would require also forecast correction.

5.2. Expert's Assessment

Bearing in mind insufficient level of reliability of statistical data, insufficiently long time series as well as often present shocks, the CBM is adding expert's assessment of the inflation development to the model assessment.

The level of the aggregate demand in Q4 2010 was higher in relation to the previous quarter, as well as in comparison with the Q4 2009. Growth of the aggregate demand will certainly pressure the inflation growth.

On the other hand, the offer increases. According to assessments, GDP increased by 2% in the previous year while in 2011 growth is expected to amount to 3%. This means that the production growth will act against inflation, but bearing in mind that the growth of the aggregate demand is higher than the level of GDP growth.

In this year, the growth of inflation is expected at the global level as a result of expected growth of prices of food, energy products[8] and as a result of the implementation of expansive measures during the global financial crisis. Thus, the ECB already announced more severe monetary policy measures. Bearing in mind that Montenegro is a small country and highly open economy, all external price shocks inevitably transfer to it. In addition, inflation in region already increased in 2010 and this effect should be transferred to Montenegro in 2011.

The CBM market trend indicator points to expected inflation growth in 2011. Most of banks expect inflation ranging from 3% to 5%.

Inflation forecast model with the 90% probability forecasted that the inflation in 2011 will range from 1.94% to 5%. However, all imperfections of the econometric inflation rate forecast in Montenegro should be considered.

From the aforementioned we can state our expectations (expert's assessment) that the inflation rate in 2011 will be ranging from 3.50% to 5.75%. Due to high uncertainty, the asymmetric forecast was made, with higher interval of fluctuation ranging from realistic to pessimistic forecast. Due to this uncertainty and the transmission of negative shocks from the international market, the assessment should be taken with reserve).

Table 3 – Forecasted inflation rate

Optimistic assessment	Realistic assessment	Pessimistic assessment
3.50%	4.50%	5.75%

Assumptions on which this assessment is based are the same as the assumptions on which model assessment is based.

[8] Deteriorated political situation in some large oil producers could affect the additional increase in oil prices.