CENTRAL BANK OF
MONTENEGRO

RESEARCH AND STATISTICS AND IT DEPARTMENT

# INFLATION REPORT
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# 1. INFLATION INDICATORS

Consumer prices recorded growth of only 0.1% in the fourth quarter, which represents the lowest quarterly prices' change in 2009. The highest growth was recorded in the first quarter amounting to 0.8%. Prices of transportation increased by 1.6% mostly due to the growth of fuel prices (3.1%) and prices from the category "clothes and footwear"(0.6%), due to higher prices of footwear. Prices of alcoholic beverages and tobacco increased by 0.2% due to the increase of prices of alcoholic beverages of 0.7%, while prices from the category "culture and entertainment" increased by 0.1%. Observed on a monthly level, consumer prices growth was recorded only in December (0.1%), while the prices in October and November remained unchanged. At the annual level, consumer prices increased by 1.5%, while the average rate amounted to 3.4%.

The prices from category "food and non-alcoholic beverages" recorded decrease of 0.1%, mostly due to decrease in prices of fruits (14.7%) and prices of oil and fats (9.6%). This period was characterized by the growth of vegetables' prices (9.2%), meet 0.4% and non-alcoholic beverages 0.3%. Prices of other food products did not significantly change. The prices from this category recorded continuous decline, except the increase in the first quarter, which resulted in low annual inflation rate. Prices from category "furniture and appliances "decreased by 0.8%, mostly due to lower prices of appliances (-1.7%) and prices of goods and services for regular maintenance (-0.5%). The prices from category "housing"decreased by 0.3% due to lower prices of solid fuels (-1.1%). The prices from category "health" also declined by 0.3%, due to lower price of pharmaceutical products (-0.3%). The prices from categories "education," "restaurants and hotels" and "other goods and services" did not change in relation to the previous quarter. High share of transportation (173.9%) and clothes and footwear (58.7%) in total inflation in the fourth quarter was annulled by negative share of food and non-alcoholic beverages (-60.2%), housing (-35.4%), furniture and appliances (-45.4%) and health (-6.8%).

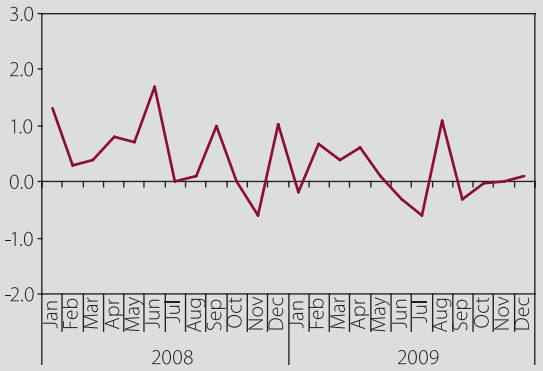
Annual **core inflation** rate in December amounted to only 0.04% and was lower than the total annual inflation rate (by 1.42 percentage points). Core inflation with slight oscillations gradually decreased. Namely, in January 2009, the annual core inflation rate amounted to 5.69%, and in December it amounted 0.04%. Due to "calming down" of prices which make core inflation, and increase of some of excluded products (prices of housing-communal services, tobacco, fuels etc.), core inflation significantly decreased in relation to total inflation. For example, core inflation in December 2008 was higher than the total inflation by 0.76 percentage points.

**Table 1 – Inflation, %**

| | 2008 | | | | 2009 | | | |
|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |
| Change in relation to the end of the previous year | 2,0 | 5,3 | 6,5 | 6,9 | 0,8 | 1,2 | 1,4 | 1,5 |
| Annual change | 8,7 | 9,9 | 8,4 | 6,9 | 5,5 | 2,8 | 1,7 | 1,5 |

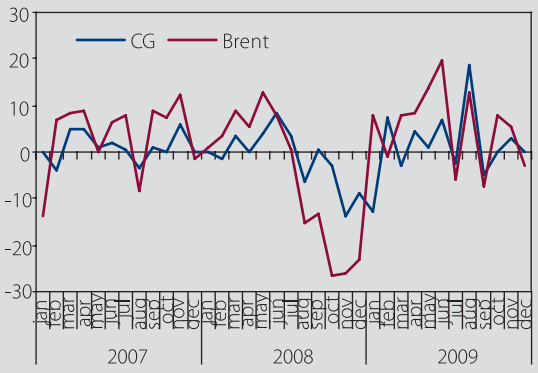
***Source: Monstat***

**Graph 1 - Consumer prices, monthly rate**




*Source: Monstat*

**Graph 2 - Oil prices, monthly growth rate**




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

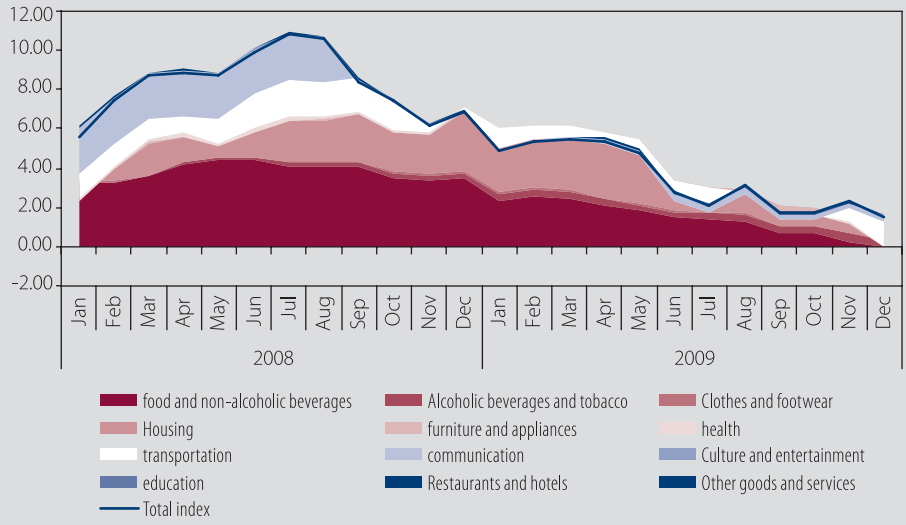
Although 2009 can be characterized as one of the worst years regarding the world's demand for oil, announcements on economic recovery may positively influence the demand for this product. With certain oscillations, oil price at the world's markets is increasing as of the beginning of 2009. Thus, the highest price of the reference basket in 2009 was recorded in November, amounting to 76.25 USD/barrel. The price of OPEC reference basket in the fourth quarter averagely amounted to 74.3 USD/barrel, which was by 9.8% higher than the average price from the third quarter of the current year. The average price of "brent" oil in the fourth quarter amounted to 74.6 USD/barrel, which was by 9.2% more than the average price form the third quarter of 2009. The highest "brent"oil price was recorded in November, amounting to 76.66 USD/barrel. At year-end the demand for oil increased due to strong winter which affected USA and certain parts of Europe, but also due to the analysts' announcement on slight recovery of American, Japanese and Euro area economies.

**Table 2 – Share of individual categories in total inflation**

| | weights | XII 09/IX XII 09 | rate | contribution | share in total inflation |
|---|---|---|---|---|---|
| TOTAL | 10000 | 100.09 | 0.09 | 0.09 | 100.0 |
| food and non-alcoholic beverages | 4249 | 99.87 | -0.13 | -0.05 | -60.15 |
| Alcoholic beverages and tobacco | 483 | 100.22 | 0.22 | 0.01 | 11.81 |
| Clothes and footwear | 822 | 100.65 | 0.65 | 0.05 | 58.66 |
| Housing | 1277 | 99.75 | -0.25 | -0.03 | -35.39 |
| furniture and appliances | 542 | 99.24 | -0.76 | -0.04 | -45.35 |
| health | 225 | 99.73 | -0.27 | -0.01 | -6.77 |
| transportation | 995 | 101.59 | 1.59 | 0.16 | 173.90 |
| communication | 660 | 100.02 | 0.02 | 0.00 | 1.23 |
| Culture and entertainment | 293 | 100.09 | 0.09 | 0.00 | 2.85 |
| education | 20 | 100.00 | 0.00 | 0.00 | 0.00 |
| Restaurants and hotels | 5 | 100.00 | 0.00 | 0.00 | 0.00 |
| Other goods and services | 429 | 99.98 | -0.02 | 0.00 | -0.80 |

*Source: Monstat and CBM calculations*

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

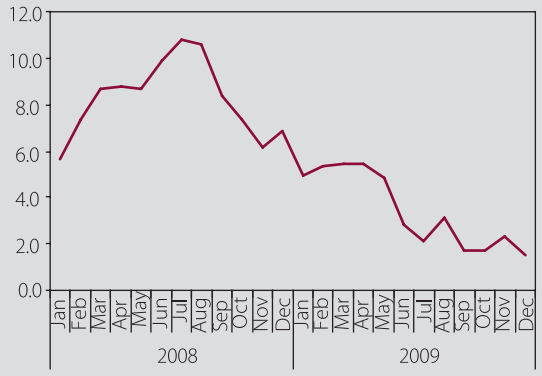



*Source: Monstat and CBM calculation*

The annual consumer prices rate in December amounted to 1.5% and was by 0.2 percentage points lower in relation to the annual rate from September. The prices from category „food and non-alcoholic beverages" recorded zero rate (with certain oscilations) at the annual level, while the prices form category "alocholic beverages and tobacco" with the growth of 7.8% and the prices from the category „transportation" with the growth of 12,6% mostly contributed to the growth of inflation by 1.5%.

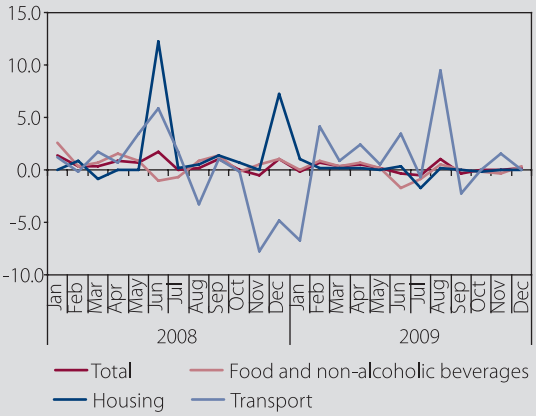
The growth of these two categories, with the regular two-week adjustment of oil prices, was influenced also by the excise duties changes for certain products. The annual growth of prices from category „restaurants and hotels" of 15.9% does not provide accurate information on price movements in this category, because this increase referrs only to the prices of services in dormitories.

**Graph 4 – Consumer prices, annual rate**




*Source: Monstat*

**Graph 5 – Movement of selected categories – consumer prices, monthly rate**



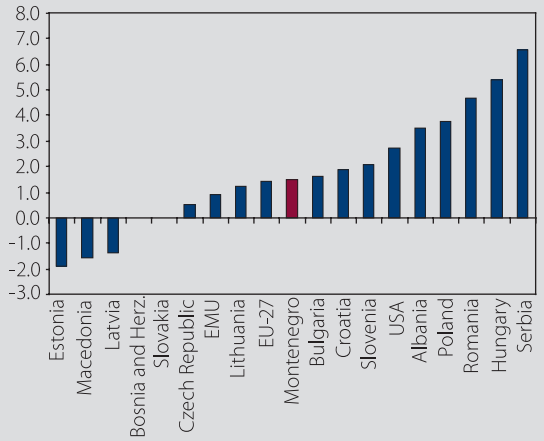

*Source: Monstat*

**Producers' prices of manufactured products** recorded decrease of 1.1% in relation to the previous quarter, whereby the prices in the manufacturing industry recorded growth of 1.8%, while the prices of mining and quarrying decreased by 0.5%. The production prices of electricity, gas and water remained unchanged. Observed at the annual level, the producers' prices of manufactured products decreased by 3.4%, whereby the prices of mining and quarrying, the prices of manufacturing industry, and the prices of electricity, gas and water recorded decrease of 1.6%, 3.8% and 2.7%, respectively.

The comparison of annual inflation in Montenegro with the selected countries shows that Bulgaria (1.6%), Croatia (1.9%), Slovenia (2.1%), USA (2.7%), Albania (3.5%) Poland (3.8%), Romania (4.7%), Hungary (5.4%) and Serbia (6.6%) had a higher annual inflation rate.

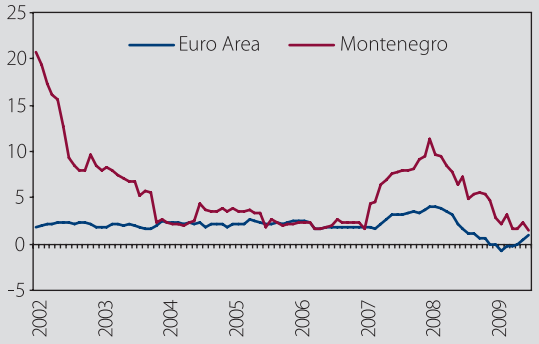
The annual rate in Euro area, measured by harmonized Consumer Prices Index, amounted to 0.9%, while in Montenegro, measured by Consumer Price Index, it amounted to 1.5%, and it was compliant with Maastricht criteria on inflation.

**Graph 6 - Annual inflation rate in selected countries, December 2009**




*Source: National Statistical Offices and Eurostat*

**Graph 7 – Inflation in Eurozone and Montenegro since introduction of euro (annual rates)**



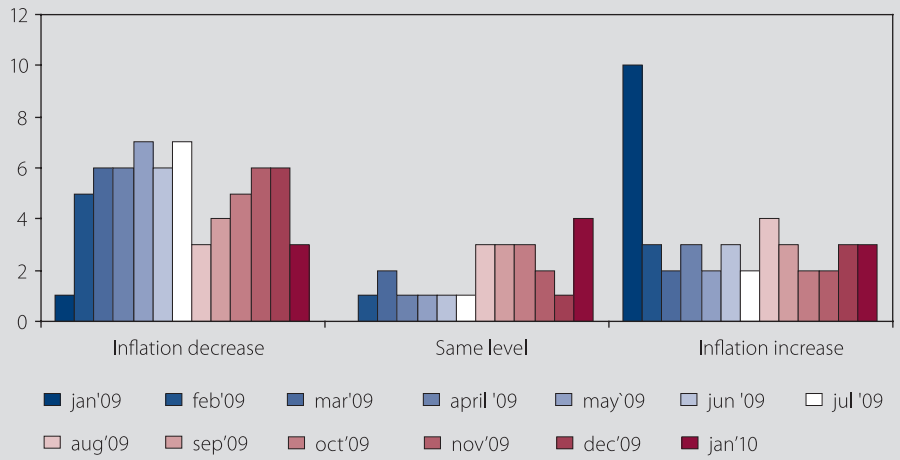

*Source: Monstat and Eurostat*

# 2. INFLATION FORECASTS

## Banks' expectations

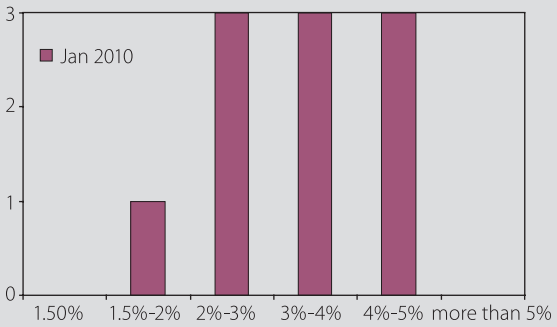
Regarding the banks' inflation expectations, based on survey results from January 2010, where new ranges (from 1.5% to 5% and over) on inflation were offered, three banks expect a lower, that is, higher inflation rate in relation to 2009, while four banks expect that it shall remain at the same level from 2009 (Graph 8).[1]

**Graph 8 - Inflation forecasts (banks)**




[1] *One bank did not respond to the survey on inflation expectations.*

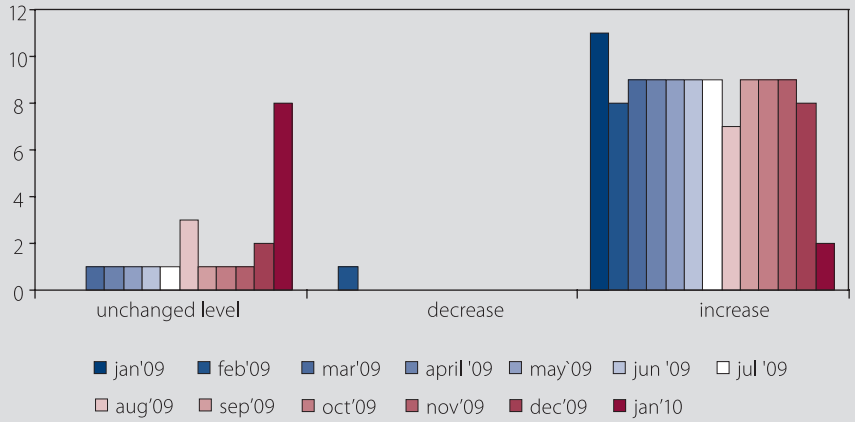
**Graph 9 – Forecasted inflation level (banks)**



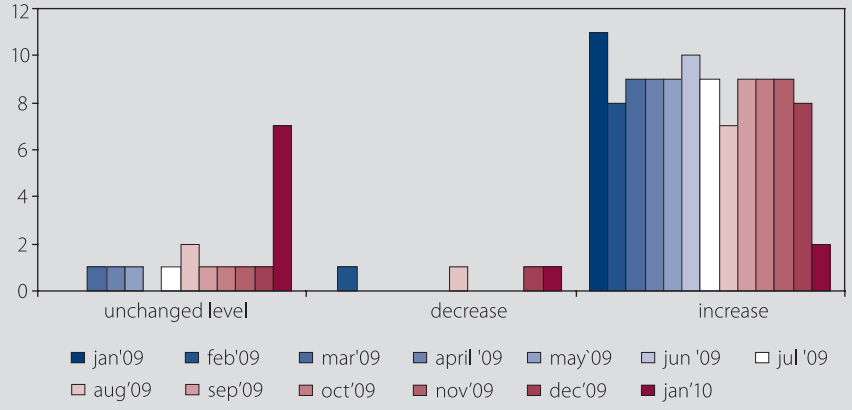

Concerning the expectations on the movement of lending interest rates, no bank forecasts a decrease of nominal while only one bank expects the decrease of effective interest rates. Eight banks expect that nominal rates will not change, while two banks expect an increase in both effective and nominal lending interest rates in 2010 in relation to 2009.

Concerning the expectations on the movement of deposit interest rates, four banks expect unchanged level, while four banks expect growth and two banks expect the decrease of deposit interest rates in 2010 in relation to 2009.

**Graph 10 – Nominal lending interest rates movement forecasts**

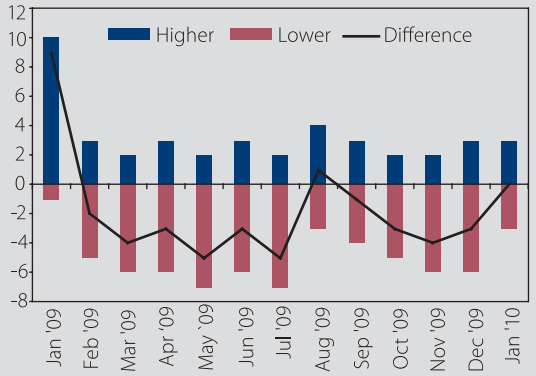



**Graph 11 – Effective lending interest rates movement forecasts**



For the purpose of calculating inflation forecasts we use market trend indicator (black line in Graph 12). It is calculated as the difference between the number of banks expecting an inflation increase (blue columns) and the number of banks expecting an inflation decrease (red columns). 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, then an unchanged inflation rate can be expected in the upcoming period. The more negative value, the lower inflation forecast, and vice versa. Although the expectations regarding inflation were somewhat more expressed in August, they were still lower in the fourth quarter of 2009 (Graph 12), whereby in January market trend indicator had zero value which indicates that the change in the inflation rate is expected.

**Graph 12 – Market indicator**



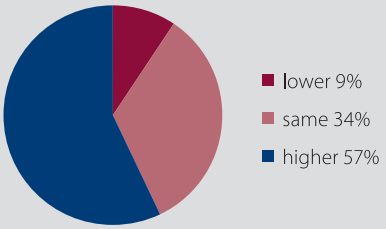

*Source: Nex Montenegro and Montenegro stock exchanges*

## Expectation of economy (except banks)

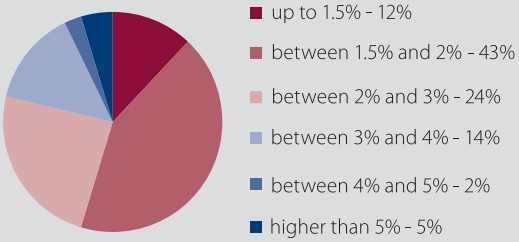
### *Inflation*

The company survey results show that 57% of companies expect the rise of inflation, 34% believe that there will be an unchanged level while 9% believe in lower inflation rate in 2010, in relation to 2009. Accordingly, 43% of surveyed companies believe that the inflation will range from 1.5% to -2% in 2009. Some 2% of companies expect that the salaries of their employees will be higher, 25% expects lower level, while 73% of them expect no change of salary levels. Most of surveyed companies (56% of them) expect the same value of prices of the production inputs, while 20% of them expect lower prices of their respective products (services) in 2010. Regarding the number of employees, 57% of the survey companies believe that this number will not change, 23% believes that it will be increased, while 20% believes that it will be reduced in 2010.

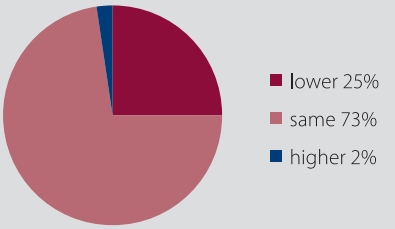
**Graph 13 - Forecasted inflation in 2010, in relation to 2009 (responses by percentage share[2])**




**Graph 14 – Forecasted inflation in 2010**

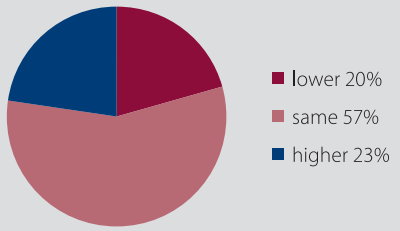



**Graph 15 – Expected level of salaries in 2010**

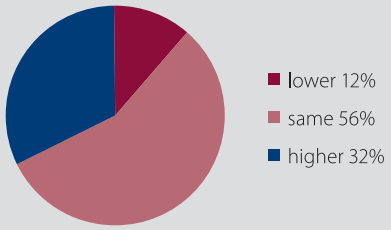



[2] *Responses to all questions from the survey on companies are presented as share, which hereinafter will not be specially indicated.*

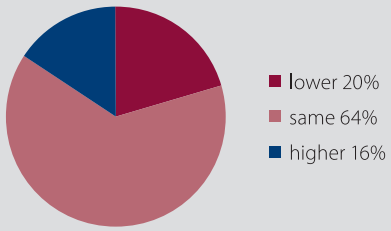
**Graph 16 – Expected Number of Employees in 2010**




**Graph 17 – Expected level of prices of production inputs in 2010**




**Graph 18 – Expected level of prices of products (services) in 2010**

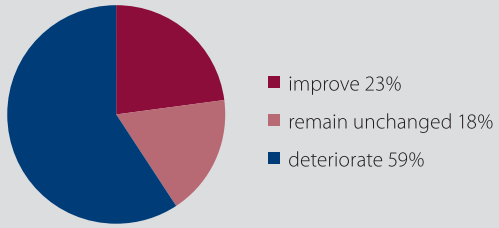



## *Business Environment*

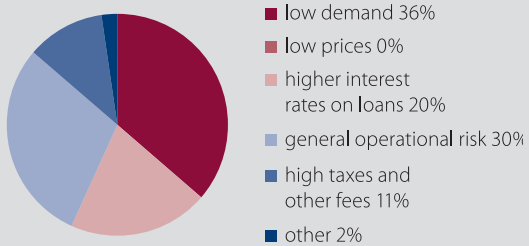
The survey results show that most of surveyed companies (59%) expect deterioration in the business environment. Some 18% expects unchanged and 23% the improved business environment.

In addition, 26% of surveyed companies expect lower, 37% unchanged, and higher lending interest rates in 2010 in relation to 2009. Concerning business barriers, most of the survey participants consider low demand (36% of the companies), general operational risks (30%) and high lending interest rates (20%) as obstacles.

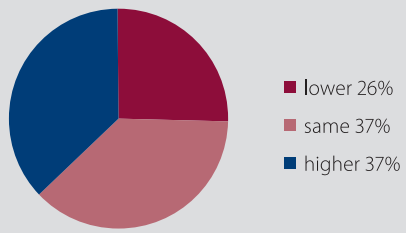
**Graph 19 – Expected business environment in 2010 in relation to 2009**




**Graph 20 – Business barriers**



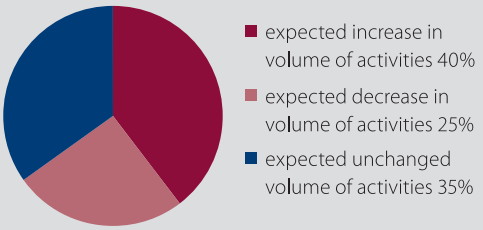

**Graph 21 – Expected level of lending interest rates in 2010 in relation to 2009**



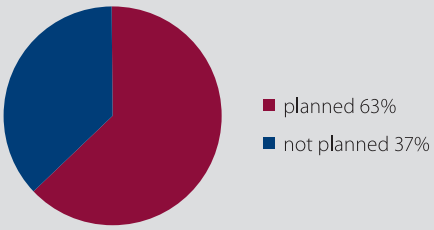
## *Investments*

Out of the total number of surveyed companies, 40% of them plan to increase the volume of activities in 2010, while 63% of them plan new investments. Most investments in the first six months (64%) relate to increase in fixed assets, while low demand (35%) and high interest rates are described as the largest obstacle to new investments.

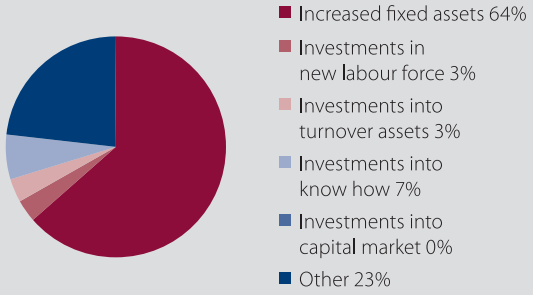
**Graph 22 – Expected Volume of Activities in 2010**



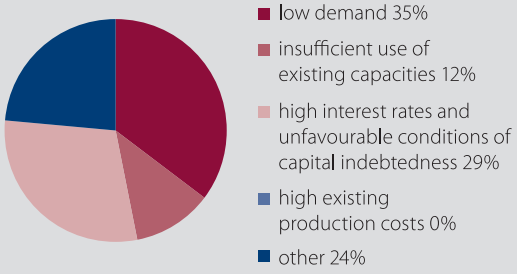

**Graph 23 - New investments in 2010**




**Graph 24 - Types of forecasted new investments for the first half of 2010**




**Graph 25 – Obstacles to new investments for the first half of 2010**



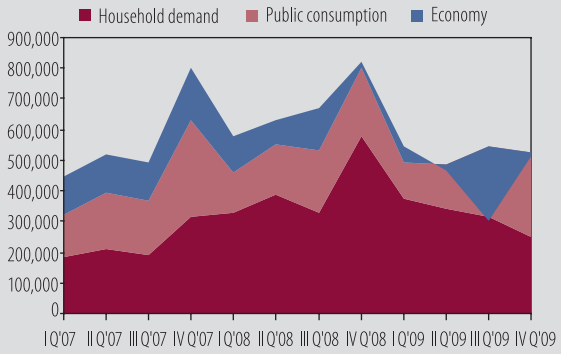
# 3. INFLATION DETERMINANTS

## 3.1. DEMAND

It is usual that the level of the aggregate demand is the highest in the last quarter, mostly due to the payment of outstanding liabilities by companies and budget. However, situation in 2009 affected especially the demand, meaning that the demand in the fourth quarter was lower than the total demand form the previous quarter and significantly lower than the demand from the last quarter of 2008. The lowest demand compared to the previous quarters of 2009 was recorded by the household sector. In the total structure, the public consumption was higher than the households' demand.

The level of aggregate demand in the fourth quarter of 2009 was significantly lower in relation to the same quarter from the previous two years.

**Graph 26 - Aggregated demand, EUR thousand**




### Box 1 - Aggregate demand calculation methodology

**For the purpose of an in-depth monitoring of aggregate demand as the inflation determinant, the CBM has developed the aggregate demand calculation methodology. The strating point of this methodology is that the aggregate demand is the total demand by three sectors: personal consumption (households), investment consumption (corporate sector) and public consuption. However, taking into account the lack of numerous data necessary for calculating the aggregated demand, the existing data on aggregate demand should not be treated as the indicator of the exact amount of aggregate demand, but as an indicator showing the direction of the aggregate demand. In the existing methodology, a number of significant data is not available, such as: corporate investments, revenues from selling shares, nonmarket incoms, 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

The average salary in Montenegro in the fourth quarter amounted to EUR 640, while the average salary without taxes and contributions amounted to EUR 461. Observed in relation to the previous quarter, the average salary recorded growth of 0.6%, while the average salary without taxes and contributions increased by 0.7%.

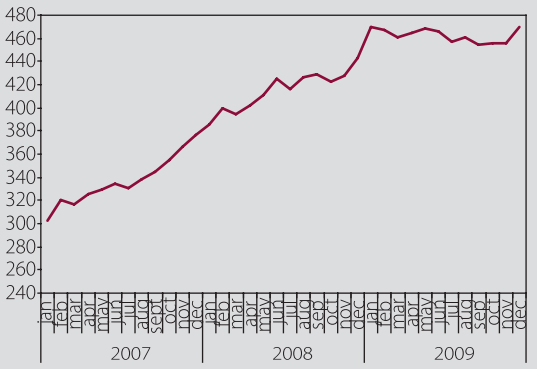
Taking into account the consumer prices, i.e. the movement of salaries in real amounts, it can be concluded that real salaries recorded growth in October and December, while a real change in wages was recorded in November. Real growth in December was somewhat higher, bearing in mind that outstanding payments are done, therefore, nominal wages in that month were higher than in the previous month by 3.2%, whereas consumer prices in December recorded growth of only 0.1%.

Lending to the household sector recorded negative trend in 2009. Monhly average of declining in this sector amounted to 1% (in 2008, loans averagely increased by 2.3% at the monthly level) and at end-2009 they amounted to EUR 919.3 million, which was by EUR 118.3 million or 11.4% lower in relation to end-2008.

The decline of loans granted to the household sector influenced the average indebtedness of households. Thus, per capita debt amounted to EUR 1,459 or 11.6% lower i relation to end-2008.

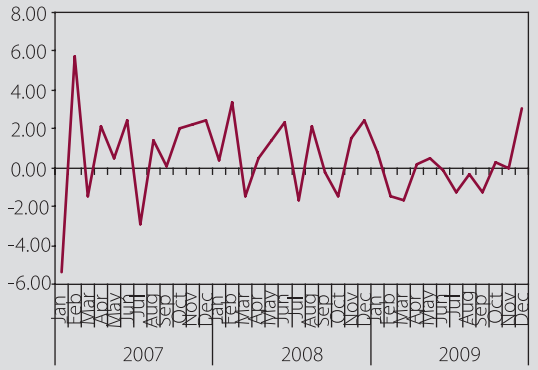
In addition to the reduction of household debt to banks from loans, their debt to microcredit financial institutions was also reduced by 9.6 million or 12.8% in relation to the end of 2008, so that the loans of this sector from MFI amounted to EUR 65.2 million at end-2009.

**Graph 27 - Average salaries without taxes and contributions in Montenegro**



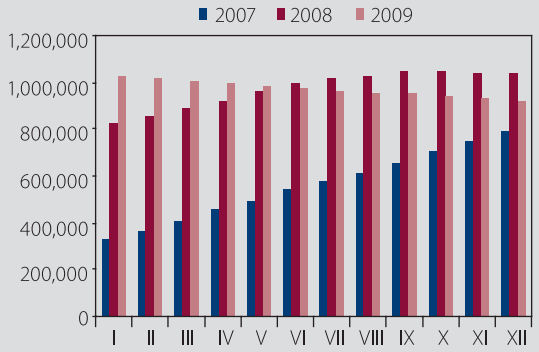

*Source: Monstat*

**Graph 28 – Real wages (monthly rate)**

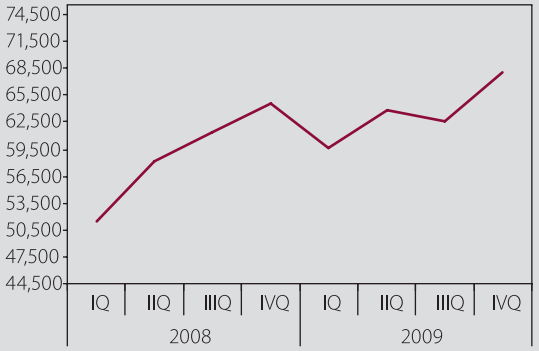



*Source: Monstat*

**Graph 29 - Loans to households, in EUR thousand**

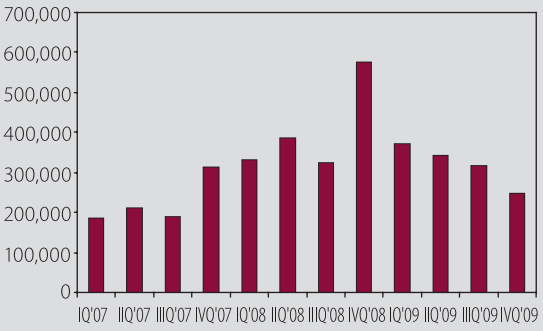



**Graph 30 - Inflow of funds from abroad to households, EUR thousand**




*Source: CBM*

**Graph 31 - Households' demand, EUR thousand**




At the end of 2009, household deposits amounted to EUR 843.9 million or 46.2% of total deposits, which was EUR 12.5 million or 1.4% lower than at the end of 2008. Observed by quarters, household deposits declined in the first two quarters (monthly average of 3% and 1.3%, respectively), while the increase of deposits in this sector was recorded in the third and fourth quarter (monthly average of 0.9% and 3.1%, respectively).

At the end of 2009, the loan-to-deposit ratio for the household sector amounted to 1.09, which represents improvement compared to the end of 2008 when it amounted to 1.21. Net household indebtedness to banks amounted to EUR 75.4 million at the end of June 2009 (in December 2008, it amounted to EUR 181 million).

The balance of payments statistics show that in the fourth quarter of 2009 the inflow of funds from abroad to natural persons was higher in relation to the previous quarter mostly due to the increase of inflow from inheritance, presents and assistance, as well as from employees' salaries and compensations.

Observing the total demand of household sector by quarters, it can be noticed that the demand was lower in the fourth quarter of 2009 compared to other quarters in 2009, and also with all quarters from 2008. A significant decrease in household demand was recorded compared to the demand in the last quarter of 2008.

## 3.1.2. Budgetary analysis

### *Consolidated public consumption*

The consolidated public consumption in 2009, as assessed by the Ministry of Finance, amounted to EUR 1.472,9 million or 49% of estimated GDP for 2009. Compared to the same period of the previous year, realized public consumption was 5.4% lower, while it was 7.2% lower than planned. The realized level of public consumption was financed from tax revenues in the amount of EUR 795.7 million, contributions (EUR 308 million), fees (EUR 106 million), taxes (EUR 29 million), other revenues (EUR 66 million), and revenues from loan repayments (EUR 61.7 million).

In addition to basic revenues, consolidated public expenditure in 2009 was financed from borrowings and loans in amount of 209.9 million, donations (EUR 9.4 million) and privatization and sale of property (EUR 123 million).

Current public revenues[3] amounted to EUR 1.366,5 million or 45.5% of estimated GDP for 2009. Current public revenues were 7% lower than planned and 12% lower than in the same period of the previous year. This reduction in current revenues resulted from an obvious reduction in all tax revenues, contributions, fees and other revenues. In the structure of public revenues, the revenues from taxes still have a dominant share of 58.2%, followed by the revenues from contributions (22.5%), while the contribution of all other revenues amounted to 19.3%.

The decrease of consolidated public expenditures in relation to 2008 resulted from the decrease in all categories of expenditures (current and capital expenditures, transfers to institutions, individuals, government and public sector, reserves and granted borrowings and loans), while at the same time social protection transfers, expenditures for interests and subventions increased. The current budgetary consumption (consolidated public expenditures reduced by capital expenditures of the current budget including local government and capital budget funds) amounted to EUR 1.220 million or 40.6% of GDP, which was 6% lower than planned, i.e. lower by 2% compared to the comparative period from the previous year.

In the structure of public expenditures, the highest share of 42% was recorded by transfers, followed by current expenditures (38%), capital expenditures (17.2%), while all other expenditures had share of 2.8% in total.

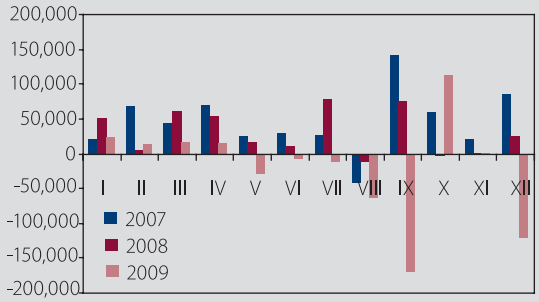
In 2009, public sector recorded deficit of EUR 106 million or 3.5% of estimated GDP.

### 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 demand approximation.

These data show that loans granted to the corporate sector were significantly higher than their deposits, so the corporate sector represented the net debtor. The structure of the loans granted to the corporate sector shows that the share of long-term loans in total loans disbursed to this sector amounted over 67% at end-2009, which means they were dominantly used for increasing the volume of economic activity.

**Graph 32 - Net Indebtedness of the Corporate Sector, Monthly Change, EUR thousands**




### 3.1.4. External demand and balance of payments current account

In 2009, significant decline of domestic and external demand was recorded in relation to previous years. The decrease of domestic demand was a consequence of corporate activity decline, decrease of indebtedness of companies and households in the country and abroad, while demand for export declined due to the global recession and the decrease of production. Preliminary data for 2009 show that the current account deficit was 43.5% lower in relation to the same period of the previous year. Current account deficit decline, though being positive, was a consequence of the economic crisis and negative influence of external factors on economy. Relatively high inflow of transfers in Montenegro contributed to the decrease of deficit. Current account deficit was fully financed by the net FDI inflow which amounted to 30.2% of GDP.

Foreign trade of goods was characterized by significant export and import of goods. As in previous years, the structure of import was dominated by raw materials and equipment, which recorded the highest decline in 2009 in relation to previous years, due to decline of domestic demand for products intended for end final consumption and investing. The largest decline of export in the past few years (34.3%) was recorded

[3] *Total current public revenues include budgetary revenues, and the revenues of funds and local government.*

in 2009, resulting from the economic activity and low prices of metal at the world's market. Coverage of import by export amounted to 18.4% whish represents the same level as in the previous year and it is extremely low coverage.

In the sector of services, Montenegro recorded a surplus of EUR 384.5 million, which was 3.7% lower than in 2008. The revenues from services amounted to EUR 680.4 million, which was 9.3% less compared to the previous year. The highest revenues were generated in the sectors of travel and tourism (EUR 474.7 million), transport (EUR 99 million), other business services (EUR 29.1 million) and construction services (EUR 27.7 million). The expenditures from services amounted to EUR 295.9 million, which was 15.8% less than in 2008.

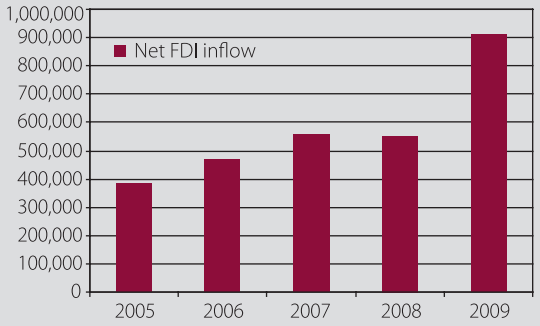
Factor revenue accounts, during the reporting period, recorded a surplus of EUR 5.3 million, which was significantly lower than the surplus recorded in 2008 (EUR 45.6 million). The inflow of current transfers, observed by quarters had the growth tendency over 2009 and at year-end it amounted to EUR 117.7 million, which was by 7.7% more in relation to the previous year. The surplus at the transfer account amounted to EUR 85.4 million or 16.9% more in relation to the previous year.

Capital-financial account recorded net inflow of EUR 535.8 million resulting from extremely high FDI inflow, while portfolio and other investments accounts recorded net outflow. In 2009, Montenegro recorded extremely high FDI inflow. Net FDI inflow (inflow minus outflow), according to preliminary data amounted to EUR 910.9 million, which was by 65.1% more in relation to the previous year, while the total inflow amounted to EUR 1.068,4 million.

In the observed period, energy and banking sectors recorded the highest level of investments. The highest FDI inflow was recorded from privatization and recapitalization of EPCG shares (Electric Power Company of Montenegro - 41%), and from recapitalization of banks (10%). Total investments in domestic companies and banks amounted to EUR 735.4 million or 181.3% more in relation to the same period of the previous year, while the investments in real estates amounted to EUR 170.5 or 46.7% less than in 2008. Some EUR 161.9 or 28.8% less was realized in the form of the inter-company debt. Inflow from decrease of capital in foreign banks and companies and sale of real-estates abroad amounted to EUR 571 thousand.

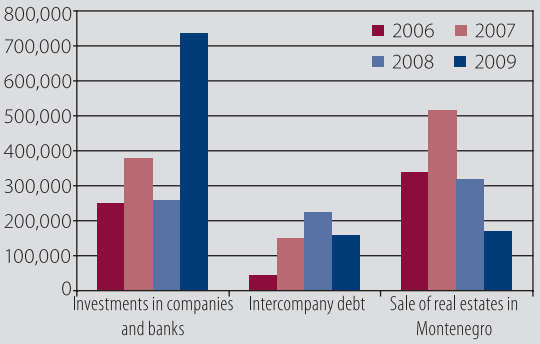
Total outflow of FDI in the observed period amounted to EUR 157.5 million which was by 40.5% less in relation to the same period of 2008.

**Graph 33- Foreign direct investments inflow during 2005-2009 by quarters, in EUR thousand**




*Source: CBM*

**Graph 34- Structure of total FDI inflow during the period 2006-2009, in EUR thousand**




*Source: CBM*

In the outflow structure, EUR 34.7 referred to the decrease of liabilities of domestic companies based on loans granted by parent companies. The outflow relating to real estates amounted to EUR 24.9 million. Investments of Montenegrin residents in foreign banks and companies amounted to EUR 29.1 while the outflow on the basis of withdrawal of the share of foreign capital in domestic banks and companies amounted to EUR 68.8 million. During the observed period, the account of **portfolio investments** recorded net outflow of EUR 41.9 million, which was higher than in the same period of 2008 when it amounted to EUR 15.5. Inflow of funds from portfolio investments amounted to 47.2 million,

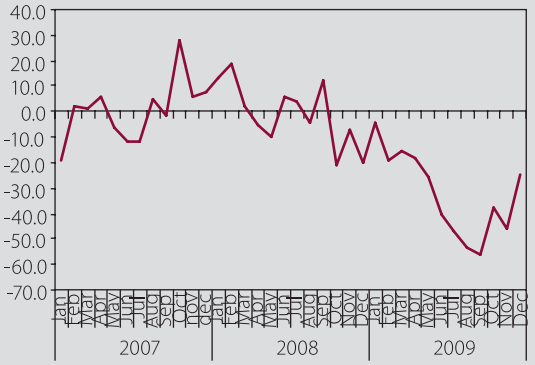
while a parallel outflow of funds amounted to EUR 89.1 million. Net outflow of assets at the **other investments** account (including loans, commercial credits, cash and deposits) amounted to EUR 274.6 million, unlike in the previous year when it recorded net inflow of EUR 638.7 million. Inflow from loans from abroad amounted to EUR 244.3 million, which was significantly lower than the inflow recorded in 2008 (EUR 816.2 million) resulting from lower indebtedness of companies and banks abroad due to unfavourable conditions at financial markets.

## 3.2. SUPPLY AND PRODUCTION

The physical volume of industrial production in the fourth quarter recorded increase of 48.2% compared to the previous quarter, and that is the only quarterly growth recorded in 2009. Monthly data on the physical volume of industrial production show that increase in industrial production was recorded in October (19.4%), and December (26%) while in November it decreased by 1.5%. Comparing twelve months of 2009 with the same period of the previous year, total decline in industrial production amounted to 32.2%, whereby the decrease was recorded in all three sectors of mining and quarrying (65.5%), manufacturing industry (38.6) and electricity, gas and water supply (2.4%).

Total annual growth of industrial production in December amounted to 24.6% while the decline was recorded in all three sectors.

**Graph 35 - Industrial production, monthly and annual growth rate**




*Source: Monstat*

Montenegro was visited by 1,207.7 thousand tourists in 2009, which was 1.6% more than in the same period of the previous year. The number of arrivals of domestic tourists increased by 4.3%, and of the foreign ones by 1.2%. The number of overnight stays in the observed period amounted to 7,552 thousand, which was 3.1% less than in the previous year.

Total **wood production** in 2009 amounted to 216.5 thousand $m^3$, which was 23% lower than in the same period of the previous year.

According to the preliminary Monstat data, total value of construction works in 2009 amounted to EUR 225.9 million, which was 21.5% less than in the comparative period. The construction activity measured by effective working hours was reduced by 19.2%.

In 2009, a decrease of 17.4% was recorded in the volume of passengers in road transportation, 26% decrease in railway transportation, while the number of passengers in air transportation decreased by 13.8% in relation to the previous year.

Road cargo transportation in 2009 recorded increase by 30.8% (in tonne kilometres), while in air transportation, cargo transport reduced by 1.1%, while in railway transportation it decreased by 45.3% (in tonne kilometres) in relation to the previous year.

Total turnover in harbours amounted to 1,481 thousand tonnes in 2009, which was by 24% lower in relation to the same period of the previous year, where the export decreased by 10.3% and import by 32%.

## 3.3. STOCK EXCHANGE INDICES

Total turnover at Montenegrin stock exchanges amounted to EUR 405.8 million in 2009, and in relation to 2008 it increased by 153.1%. The average monthly turnover amounted to EUR 33.8 million, which is significantly above the average monthly turnover recorded in 2008 (EUR 13.4 million). However, the annual growth of turnover was recorded mostly due to the sale of EPCG shares to the Italian partner (thus, turnover in May and September amounted to EUR 130.9 million and EUR 115.9 million, respectively).

In the turnover structure, the highest share was recorded by the shares of companies (93.6%), bonds (4.0%) while the joint investment funds' shares recorded 2.3% of total turnover. Turnover structure in 2009, in relation to 2008, moved in favour of companies' shares.

All three indices at Montenegrin stock exchanges recorded annual growth: Moste – 36.1%, NEX20 – 45.9% and NEX PIF-20.1%. Observed by quarters, situation was slightly different.

Compared to their maximum historical values (reached in 2007), at end-2009 all indices decreased: Moste – 74%, NEX20 – 70%, and NEX PIF – 86.2%.

**Table 3 – Quarterly changes of stock exchange indices**

| 2009. | MOSTE | NEX 20 | NEX PIF |
|---|---|---|---|
| I | -12.3% | -11.0% | -23.2% |
| II | 77.5% | 59.2% | 78.3% |
| III | 29.9% | 27.5% | 33.3% |
| IV | -32.7% | -19.2% | -34.2% |

**Graph 36 - MOSTE index**

*Source: Montenegro stock exchange*

**Graph 37 – NEX20 and NEX PIF indices**

*Source: Nex Montenegro stock exchange*

**Table 4 – General Data on Indices**

| | MOSTE | | NEX 20 | | NEXPIF | |
|---|---|---|---|---|---|---|
| Value as on 31 December 2009 | 638,99 | | 14.596,88 | | 7.020,66 | |
| Absolute, annual change of indices in 2009 | +169,5 | | +4594,0 | | +1.176,0 | |
| Starting index value | 100,0 | March 2003 | 1000,00 | March 2003 | 1000,00 | March 2003 |
| Maximum value over 2009 | 973,3 | 21.10.2009. | 19.135,38 | 02.10.2009. | 12.794,85 | 25.05.2009 |
| Maximum historical value | 2.455,4 | 07.05.2007 | 48.617,88 | 07.05.2007. | 50.780,54 | 17.08.2007 |
| Maximum historical value | 94,8 | 23.06.2004 | 918,57 | 14.04.2003 | 959,53 | 02.04.2003 |
| Annual growth (decline) | +36,1 | | +45,9 | | +20,1 | |

# 4. MONETARY POLICY

In 2009, CBM significantly changed the reserve requirement policy, adopted a number of key regulations referring to banks' operations and a set of temporary measures for the improvement of banks' position and maintenance of safety and soundness of the banking system.

By the end of February 2009, the Council of the Central Bank of Montenegro amended its regulations on application of instruments of reserve requirements[4]. The amendments concerned the Decision on reserve requirement for banks to be held with the Central Bank of Montenegro and the Decision on use of reserve requirement held with the CBM for a period longer than one day.

In June, the Council of the Central Bank revised the reserve requirement policy[5] and adopted a number of regulations[6] including: Decision Amending the Decision on minimum standards for credit risk management in banks; Decision Amending the Decision on capital adequacy of banks; Decision Amending the Decision on minimum standards for risk management in micro-credit financial institutions; Decision on reports to be submitted to the Central Bank of Montenegro Pursuant to the Banking Law (more detailed information provided under the Inflation Report for the second quarter of 2009).

In order to moderate the effects of the global financial crisis CBM Council addopted a set of temporary measures[7] in August 2009, which enabled more favourable conditions for restructuring of loans, asset classification and lower calculation of provisions for loan losses. The goal of these measures was the improvement of the position of banks and their debtors as well as mainteinance of safety and stability of the banking system (more detailed information provided under the Inflation Report for the third quarter of 2009).

At end-December, CBM amended the Decision on temporary measures for the credit risk management[8], which implies certain reliefs for banks aimed at starting the credit activity. New measures decreased provisions for certain classification groups. In addition, when assessing creditworthiness of borrower, banks may exclude operation indicators for 2009. Also, banks may classify loans granted for investments in development projects by analysis of the project cost-efficiency and not by the assessment of the debtor's creditworthiness. A novelty is that reliefs for loans' restructuring may be applied on loans that are past due up to 180 days (instead of former 90 days).

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*[4] "OGM, 15/09"*

*[5] Decision on amendments to the Decision on reserve requirement to be held with CBM, Decision on amendments to the Decision on use of reserve requirement of banks held with CBM for a period longer than one day.*

*[6] OGM, 41/09*

*[7] OGM, 64/09*

*[8] OGM, 87/09*

# 5. INFLATION FORECAST IN 2010

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 CPI[9]. In this direction, 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 very purpose of the Fan Chart is to point out and take into consideration any existing uncertainty in real economic flows, 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 2010 is based on the following three assessment components:

1. **Values of Central Projection**: The values of central projection of the Fan Chart are deducted from the ARIMA model, and also by applying the Tramo/Seats simulation in order to obtain the most efficient model.

2. The **Level of Uncertainly** determines the width of the Fan Chart. The level of uncertainly ratio is a result of analytic analysis and calculated relative effects of potential interior (expected increase in electricity prices) and exterior impacts (movements in oil prices) that may occur in the Montenegrin economy in 2009.

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.

**Fan Chart Central Projection - ARIMA Model for 2010**

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[10].

ARIMA model was used for the purpose of short-term forecasts (10 months of 2010); an iteration of 382 ARIMA models was prepared; all models were ranked according to their respective diagnostics efficiency and quality.

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*[9] Consumer Price Index (CPI)*

*[10] A detailed explanation of the ARIMA model of Montenegro is provided 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. In addition to this, although the CBM monitors, as the basic indicators of price levels, the Costs of Living Index (CLI), and CPI ( Consumer Price Index), inflation forecast is based on the retail price index for two reasons. First of all, the Costs Living Index, before it was improved in 2006, used to contain a set of negative values, which made the preparation of a projection more difficult; due to non-stationary series it had to be prepared in DLog format. Secondly, the CPI index has series is too short to create a model.*

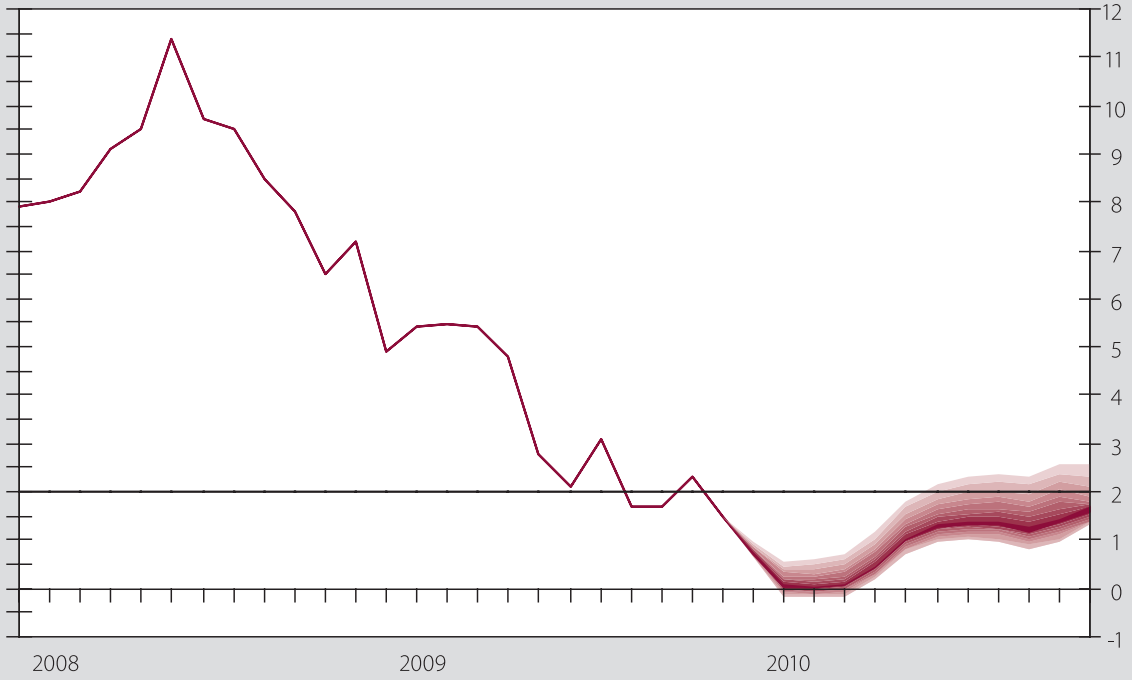
The selected ARIMA model, ARIMA (5, 1, 5)[11] has a sufficient number of levels of certainty for the forecasting purposes. The CPI time series was used for the forecasting purposes for the first time, which will be used as the basis for inflation forecasting in the future.

Following the Tramo/Seats[12] procedure, 4 breaking points were identified (Chow Test for the identification was used) in the previous series; those corresponded with significant changes in the structure of inflation from 2001 to the end of 2009, which was included into the ARIMA model through dummy variables. Results of ARIMA projects were compared to the values of projected values Tramo/Seats procedures which expressed significant level of compatibility.

The values of monthly projections were entered as the value of central projection of the Fan Chart of CPI for 2010. The resulting values represented a distribution style, meaning the values with the highest frequency in the distribution of this time series.

An average value of the produced model is 3.1, while curve ratio varied between 1.26 and 1.86, while the values of standard deviations amounted to σ2=1.43 and σ1=0.29. Like for 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 on the graph as a "thicker" range concentrated above the central "dominantly red" range.

**Graph 38 – Projected Consumer Price Index of Montenegro for 2010**




*[11] ARIMA Model is usually marked as ARIMA(p,d,q), where p represents the number of autoregresible variables, d refers to the level of depending variable stationarity, while q represents the number of variables, mouvable averages which are placed in the corresponding model.*

*[12] 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 occurance of Easter or Christmas effect, which allows for a superiod analysis and projection of ARIMA model. (for more details, please see the manual Tramo and Seats (Gómez and. Maravall, 1996).*

Fan Chart explains (represents) 90% of 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.[13] The Fan Chart has an equal number of bands (eight) on either side, with different colours, above and under the central band, whereby each band 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.

The Fan Chart showing the inflation in Montenegro, based on an ARIMA model assessment and Tramo/Seats simulations for 2010, shows the probability of 90% that the inflation, measured by Consumer Price Index, will move within an interval between -0.1%% and 2.3% depending on the month. Namely, the uncertainty increases as the time horizon for making a projection increases, and consequently the range of a forecast becomes wider.

The central Fan Chart projection relating to the darkest area on the chart represents a range of probability of 10%, forecasting that the inflation in 2010, measured by Consumer Price Index, will range between 0% and -1.7%, depending on the number of months covered by the projection.

Observed from the economic aspect, according to the model forecast, the inflation can realistically be expected to be low the first half of the year, primarily due to the slow down in economic growth, lower aggregate demand, unemployment growth, stagnation in earnings and available income.

External assumptions that were considered when the level of uncertainty was calculated were based on statistical approach:

1. The price of oil and oil derivatives will not exceed +15% of the price in December 2009;
2. The price of aluminium will be no more than 10% lower than the one in June 2009;
3. Real estate prices will decrease up to 7% in relation to the last quarter of 2009;
4. Real wages increase is 2%;
5. Global economic growth in 2010 will remain on the level projected by IMF in October 2009[14]
6. There will be no significant upward correction of taxes and excise duties;
7. Revenues from tourism will not decline more than 10% in relation to 2009.

*[13] The values of the current style (central projection) are usually found in the darkest part of the curve; nevertheless, if there is a significant level of risk, it may happen that none of these values are included into the central projection ( 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).*

*[14] IMF, World Macroeconomic Outlook, October 2009.*

# 6. EXPECTED INFLATION IN 2010

It is obvious that Montenegro ended 2009 in recession. The recession environment is characterized by the low inflation rate, which was present also in Montenegro over 2009. Available data for the first two months of 2010 do not show signs of recovery while the inflation rate is negative. However, announcements of many surveyed companies on planned investments in 2010 send positive signals.

The level of aggregate demand is decreasing, as well as the level of economic activity. External demand and import are on a downward trend, as well as the domestic consumption. Market indicator shows unchanged inflation level while corporate sector expects lower inflation rate.

The world's economy is starting to come out of recession and it is expected that economic growth will be slow and vulnerable. After the start of the new expansion phase, world economy may expect the growth of global inflation as a result of broadly implemented expansive remedial measures. However, such scenario is not expected in this year.

Model-based assumption shows 90% of probability that the inflation rate in 2010 will range from -0.1% to 2.3%. Our experts assessment is very similar to the model-based assumption, with forecast of slightly higher inflation rate, since the improvement of the economic environment is expected in the second half of 2010, and it indicates that inflation in this year might be ranging from 1% to 4%.

**Table 5 – Estimated Inflation Rate**

| Optimistic estimation | Realistic estimation | Pessimistic estimation |
|---|---|---|
| 1% | 2,5% | 4% |

The assumptions on which this estimation is based as well as the estimation in Fan Chart are the following:

- The prices of oil and oil derivatives will not increase more than 15% in relation to December 2009;
- Aluminium prices will not fluctuate over 10% in relation to June 2009;
- Real estates prices will not decline more than 7% in relation to the last quarter of 2009;
- Growth of real wages will not increase over 2%;
- World's economic growth remains at the level from October 2009 according to IMF forecast[15]
- There will be no significant corrections of taxes and excise duties;
- Tourism revenues will not fluctuate over 10% in relation to the level from 2009.

Deviation from any of the aforementioned indicators would require revision of the estimation.

[15] *IMF, World Macroeconomic Outlook, October 2009.*