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ACRONYMS

CBA – Central Bank of Azerbaijan
ILO – International Labour Organisation
IMF – International Monetary Fund
SAR – South African Republic
SSC – State Statistics Committee
CPI – Consumer Price Index
APPI – Agricultural Producer Price Index
NEER – Nominal Effective Exchange Rate
OPEC - Organization of the Petroleum Exporting Countries
REER – Real Effective Exchange Rate
RSM – Real Sector Monitoring
PPI – Producer Price Index
GDP – Gross Domestic Product
WTO – World Trade Organisation
USA – United States of America
FX – Foreign Exchange
SUMMARY

Favorable growth performance of the Azerbaijani economy has continued and macroeconomic stability was preserved in light of gradual recovery in the global economy and high volatility in the global commodity and financial markets. Generally, the negative effects of the global crisis were fully mitigated whereas the country has become financially more sustainable and foreign exchange reserves increased significantly.

CBA, according to previously declared key directions of the monetary policy, stated its targets as “maintenance of reasonable level of inflation, preserving exchange rate stability of the manat, providing stable growth and sustainability in the banking – financial sector”. During the year CBA has provided necessary support to preserve macroeconomic and financial stability as well as economic growth by making flexible corrections to its policy. CBA has broadly achieved monetary policy objectives. Inflation rate being the ultimate target of the monetary policy was at single digit level and primarily was affected by developments in global markets, and inflation in the trade partner countries.

Even though there were certain corrections in the policy towards “neutrality” by the end of the year, generally, CBA has pursued accommodative monetary policy during the year and money supply growth was adequate to economic growth.

Surplus of the balance of payments contributed to the stability of the bilateral manat/USD exchange rate significantly. CBA sterilized excess supply in the foreign exchange market thus preserving the balance of the foreign exchange market which led to increase in its foreign exchange reserves.

I. Global economic developments and national economy
1.1. Trends in the world economy

2010 is characterized with unstable recovery of global economy, revival of international trade, increase in employment, high volatility in global commodity and financial markets. However, economic outcomes of the year show signs of optimism regarding short run growth perspective.

After downturn of 2009, global growth recovered in 2010. According to initial IMF assessment, global economic growth for 2010 was 5 percent, including 3 percent in advanced economies and 7.1 percent in emerging and developing economies.

Fragile recovery started of the global economy in the beginning of the year stabilized in mid-2010, however it increased again in fourth quarter. Growth was stronger than expected in fourth quarter mainly because of recovery in private consumption in the countries as USA and Japan. In total, emerging economies of Asia (China, India) and Brazil were the driving forces of recovery throughout the year. High economic growth (5 percent) in African countries is associated with increase in export of raw materials and effective post-crisis management measures.

At the end of 2010 the industrial production in emerging and developing economies reached the pre-crisis level. Increase in capital inflows positively affected economic growth in these countries. However, capital inflows necessitate prudential supervisory measures to avoid bubbles and overheating in economy.

Chart 1. Global economic growth (over the previous year), %

Currently, one of the key specifics of the global recovery is sectoral asymmetry. Consequently, recovery is more vivid in corporate sector, but weak in the financial sector. The key reasons for asymmetry are the fact that fiscal support measures primarily aimed to boost production and problems in the financial sector are not resolved so far. From other
side these problems are more intensely transmitted from one country to another one. Main countries causing the asymmetry are Eurozone and the USA.

Though unstable, the global growth led to increase in employment and world trade. However, employment hasnt reached yet the pre-crisis level. In total, advanced economies (especially, Eurozone) accounts for 55 percent of the increase in global unemployment between 2007 – 2010. Within emerging economies, unemployment is very high in the countries of South-Eastern Europe and the CIS. Currently, the level of unemployment among young people is over 20 percent.

Growth symptoms starting with the beginning of 2010 in the world trade reached its peak in the first half of the year. While export of most developing economies succeeded the pre-crisis level, recovery of export in advanced economies is extremely slow.

Growth in the world trade gave a significant contribution to economic growth in African and South American countries.
Some countries tightened and others loosened their economic policy during the year. The policy of different countries to support economic growth through exchange rate raised concerns (regarding currency wars) in others, as well as in international organisations. While recovery trends are weak in the countries like Spain, Greece, Portugal, Ireland, Great Britain, France and others, they decided to go to fiscal consolidation. Apparently, consolidation measures includes increase in certain tax rates, staff reduction, pay cuts of public sector employees, pay-raise freeze for the following years, pension age rise and pensions decrease, considerable reduction of the military budget, levying additional taxes on banks etc.

**Box 1. Forecast of fiscal parameters.** Fiscal policy is gradually aimed at reduction of budget deficit rather than support of aggregate demand. Global budget deficit is expected to make 6 percent having decreased by 0.75 per cent in 2010.

**Table 1. Budget Balances (budget deficit/GDP, %)**

<table>
<thead>
<tr>
<th></th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>assumption 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>World</td>
<td>-0.4</td>
<td>-2.0</td>
<td>-6.8</td>
<td>-6.0</td>
<td>-4.9</td>
</tr>
<tr>
<td>Advanced economies</td>
<td>-1.1</td>
<td>-3.7</td>
<td>-8.9</td>
<td>-8.1</td>
<td>-6.8</td>
</tr>
<tr>
<td>Emerging and developing economies</td>
<td>0.0</td>
<td>-0.6</td>
<td>-4.8</td>
<td>-4.2</td>
<td>-3.3</td>
</tr>
<tr>
<td>Low-income countries</td>
<td>-1.8</td>
<td>-2.0</td>
<td>-4.4</td>
<td>-3.4</td>
<td>-3.2</td>
</tr>
<tr>
<td>Oil producing countries</td>
<td>2.2</td>
<td>1.9</td>
<td>-4.7</td>
<td>-3.2</td>
<td>-2.2</td>
</tr>
<tr>
<td>Top 20</td>
<td>-0.9</td>
<td>-2.7</td>
<td>-7.6</td>
<td>-6.8</td>
<td>-5.6</td>
</tr>
</tbody>
</table>

The key reason for 0.8 percent decrease of the budget deficit in advanced countries over the previous year is reduction of the US assistance to the financial sector. In 2010 recovery of economic activity, tight fiscal policy and low interest repayments are supposedly to decrease the budget deficit by 0.6 percent in emerging economies. Despite considerable difference among low income countries (LIC) 1.0 percent contraction is expected to be observed in the budget deficit as a result of high tax revenue and grants. Increase in oil prices and fiscal tightening measures in some countries have already reinforced budget balance in 2010.

Next year fiscal consolidation will deepen in advances economies to primarily improve budget indicators and support economic activity in the long run Primary and cyclically adjusted budget deficit are expected to decrease respectively by 1.3 percent and 0.9 percent in advances economies in 2011. The goal of gradual reduction in budget deficit is to avoid slump in economic activity in the short run.

Recent debates regarding fiscal policy of advances economies in 2011 triggered two counter-arguments. According to one side, tightening of the fiscal policy would not be rational, as long as employment remains below precrisis level. According to other one, when the level of public debt is high, fiscal consolidation is inevitable.

High reduction of the budget deficit poses risk when market conditions are unclear. However, fiscal regulation cannot be postponed due to two reasons. First, the market may lose confidence in the government’s ability to meet its debt obligations. Second, high budget deficit increases public debt which in turn adversely affects economic growth. **Thus, 10 percent growth in public debt decreases potential GDP growth in advances economies by 0.15 percent.** It would be ideal for countries to hold back from fiscal consolidation now and do it in future. However, the government should apply austerity measures in order to generate assurance in exact implementation of its future plans.

*Source: Fiscal Monitor Bulletin*  [www.imf.org](http://www.imf.org)
In 2010 commodity prices index went up by 23.4 percent and food price index by 26.8 percent. Price hike is mainly due to recovery of economic activity and negative impact of a number of natural disasters on productivity. 93 percent of price hike in food products occurred in the second half of the year.

Chart 4. Dynamics of global price indices (2005=100)

Price hike was primarily observed in grain, corn, rice and ground sugar. The price for ground sugar reached its peak during the last 30 years. Future price cuts are largely dependent on productivity in Brazil and India and sugar supply by these countries to the market.

Rise in price of grain is due to production and export being lower than expected in Russia, Kazakhstan and Ukraine as well as damage to grain fields in Australia caused by rainfall.

### Box 2. Effect of price hike on poverty

In recent years the World Bank has done various simulations to measure effect of changes in food prices on poverty. According to the simulation by Wodon and Zaman (2008) 10 percent increase for 7 key food items is to raise the number of people living in poverty by 0.4 basis points. According to another research (De Hoyos and Medvedev 2009) 5.5 percent price hike of agricultural products will raise the poverty level in the world by 0.6 percent basis points.

Source: Annual report of the International Labor Organisation

Albeit increase in demand for oil and oil products in 2010, supply remained relatively stable. As a result average price for crude oil went up by 28 percent comparatively 2009.
Hike pressures on oil price are expected to endure in 2011.

Though a number of vulnerabilities still endure, overall, situation in financial markets in the second half of 2010 relatively improved. Activity indices increased on an ongoing basis, risk spreads shrunk, terms of small and medium enterprises lending in advances economies comparatively softened.

Due to budget unsustainability in Ireland at the yearend of 2010 the situation in financial markets of Eurozone aggravated. However, the measures taken enabled to stabilize financial standing within short period of time and limit risks within Eurozone.

Unlike global financial markets, trends of stagnation in real estate markets are still continue.
IMF upwardly revised forecast for global economy for 2011 (25 January 2011 “World Economic Outlook”). Thus, the global economic growth having been increased by 0.2 basis points compare to the previous forecast reached 4.4 percent.

Table 1. IMF forecast on the world economy

<table>
<thead>
<tr>
<th></th>
<th>2010</th>
<th>2011(p)</th>
<th>2012(p)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Economic growth, over the previous year, by %</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>World</td>
<td>5</td>
<td>4.4</td>
<td>4.5</td>
</tr>
<tr>
<td>Advances economies</td>
<td>3</td>
<td>2.5</td>
<td>2.5</td>
</tr>
<tr>
<td>USA</td>
<td>2.8</td>
<td>3</td>
<td>2.7</td>
</tr>
<tr>
<td>Eurozone</td>
<td>1.8</td>
<td>1.5</td>
<td>1.7</td>
</tr>
<tr>
<td>Emerging economies</td>
<td>7.1</td>
<td>6.5</td>
<td>6.5</td>
</tr>
<tr>
<td>China</td>
<td>10.3</td>
<td>9.6</td>
<td>9.5</td>
</tr>
<tr>
<td>CIS</td>
<td>4.2</td>
<td>4.7</td>
<td>4.6</td>
</tr>
<tr>
<td><strong>Export, over the previous year, by %</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advances economies</td>
<td>11.4</td>
<td>6.2</td>
<td>5.8</td>
</tr>
<tr>
<td>Emerging economies</td>
<td>12.8</td>
<td>9.2</td>
<td>8.8</td>
</tr>
<tr>
<td><strong>Consumer prices, over the previous year, by %</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advances economies</td>
<td>0.1</td>
<td>1.5</td>
<td>1.6</td>
</tr>
<tr>
<td>Emerging economies</td>
<td>5.2</td>
<td>6.3</td>
<td>6</td>
</tr>
</tbody>
</table>

The forecast for advances economies was raised up by 0.3 basis points. The reason is the budget package adopted in the USA at the end of 2010. This incentive is expected to increase economic growth in the USA by 0.5 basis points in 2011. Economic growth in emerging economies is expected to endure as well. Economic activity is expected to be higher in Asian countries, Africa is expected to lag only behind Asia.

Probability of low economic growth in advances economies in 2011-2012 could be reason of weak employment recovery in those countries. Despite comparatively high economic growth in emerging economies employment is not expected to be significantly resumed.

The effect of productivity decline in 2010 on food prices index is expected to keep up to 2011 harvest. As a result, IMF predicts 11 percent increase in non-oil commodity prices in 2011.
1.2. Macroeconomic developments in Azerbaijan

In 2010 economic activity was accompanied by growth in both aggregate demand and aggregate supply. Relative improvement in export environment and recovery of foreign capital inflow positively affected domestic economic growth.

1.2.1. External sector

In 2010 external position of the country continued to improve in the environment of post-crisis recovery developments, especially ongoing rise in oil prices.

According to the data of the State Statistical Committee (SSC) in January – November 2010 foreign trade turnover was USD 25.1 billion, of which export is 19.4 billion and import 5.7 billion.

![Chart 7. Foreign trade. mln $](chart.png)

Source: SSC

If to compare with the relevant period of 2009, export increased by 47 percent against 5 percent increase in import, foreign trade surplus grew by 1.8 times as much. Thus, surplus in foreign trade balance equals to USD 13.7 billion.

The share of export in GDP increased from 36 percent to 43 percent, and the share of import reduced from 15 percent to 13 percent compared to relevant period of 2009.

Crude oil, white sugar, tea and vegetable oils are taking rapid upward trend in exports.
Import goods with upward trend include wheat, raw sugar, metal pipes and surfactants.

According to the SSC, prices for Azerbaijani export commodities grow more rapidly compared to import commodity prices. Thus, if to compare with the relevant period of 2009 in January-November of 2010 prices of export goods went up by 16.7 percent, and import goods by 2.8 percent.
This displays increase in opportunities to import more commodities and services through less export, in other words, improvement of trade conditions during the reporting period.

Beside export, remittances, capital flows had a significant role in FX inflows to the country.

Inflows of remittances in January–November of the 2010 year increased by 21 percent compared to the similar period of the previous year.

According to the SSC, foreign investments to the economy in 2010 amounted to AZN 2.4 billion, having increased by 41 percent.
In 2010 strategic foreign exchange reserves (FR) of the country increased by 46 percent and amounted to USD 29.8 billion which is sufficient for three-year goods-and-services-import.

![Chart 12. Sufficiency of foreign reserves, mln.$](image)

**Source:** CBA

Foreign exchange reserves of the CBA have increased by 24 percent in 2010 and as at 31.12.2010 exceeded USD 6.4 billion, which covers financing of 8 month-goods-and-services-import.

![Chart 13. Foreign reserves to GDP, %](image)

**Source:** CBA

In the post-crisis period high growth rate of strategic foreign exchange reserves recovered again.
1.2.2. Aggregate demand

During the reporting year all components of aggregate demand, including final consumption expenditures, investments and external demand had a positive effect on economic growth. Increase in income of the households and in investments in economy (primarily domestic investments) as gradually improving global environment, i.e. export prices prevailing over import prices, led to recovery in demand components of GDP.

1.2.2.1 Final consumption expenditures. Final consumption expenditures were one of the key determinants of economic growth in 2010.

Households consumption. Households nominal incomes increased by 13.3 percent and reached AZN 2866 per capita or on average AZN 238 per month. 70 percent of income has directed to consumption and spent on purchase of goods and services. Final consumption expenditures of the households having increased by more than 21 percent in nominal term has equaled to AZN 18 bln or 43 percent of GDP as compared to the similar period of the previous year.

Average monthly salary increased by 9.1 percent made AZN 325 that contributed to maintenance of high share of final consumption in GDP.
Salary income of hired labor during the period equaled to 17.4 percent of total income of the population.

Parallel increase of credit to economy, including credit to households had a positive effect on the demand as well. Thus, in 2010 credit to economy increased by 9 percent including 16 percent increase in household lending.

Demand growth displays itself in increase of retail trade turnover and off-free services to the population.
In 2010 the retail trade turnover increased by 9 percent whereas retail trade turnover on non-food products grew by 14 percent retail off-free services to households increased by 11 percent.

**Government and public organisations.** Government’s consumption expenditures have been primarily shaped through expenditures on commodity and services from the state budget. In January – November of the reporting year salaries, pensions and allowances of the population made up 35.2 percent of the budget expenditures about half of which was spent on social protection and social security.

1.2.2.2 **Investment expenditures.** Investment in the economy from all sources in 2010 increased by 21.2 percent and made up AZN 9.7 bln and equals to 23 percent of GDP. It includes 20 percent increase in domestic investments and 41 percent increase in foreign investments.
70 percent of investments was directed to non-oil sector. In total, investments to non-oil sector exceed the previous year level by 15 percent. In non-oil sector, growth rate of investments to construction, machinery and equipment manufacturing, chemistry and agriculture was particularly high.

Chart 19. Structure of investment sources

Bank loans payed important role in investment activity of non-oil sector along with public investments. Thus, investment financed by bank loans increased by 44 percent compared to the similar period of the previous year.

Business tendency survey conducted by the CBA also demonstrates increase in investment activity.

1.2.3. Aggregate supply

In 2010 GDP increased by 5 percent and made up AZN 41.6 billion. Both real growth rate and the GDP deflator (11.3 percent) had an incremental effect on the nominal GDP. Real economic growth in oil and gas sector and non-oil sector was 1.8 percent and 7.9 percent respectively. 65 percent of total value added comes from production and 35 percent from services. GDP per capita increased by 3.7 percent and made AZN 4653.3 or USD 5797\(^1\).

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\(^1\)This figure was calculated on the bases of nominal exchange rate of manat against USD. In order to make international comparisons, this indicator should be estimated on the base of Purchasing Power Parity exchange rate.
** Tradable sectors**. GDP growth was mainly affected by the activity in the non-tradable sector. Thus, about 40 percent of GDP is the share of non-tradable sector and these sectors made 3.5 basis points contribution to total growth.

Chart 20. Economic growth, %

Source: SSC

Growth in industry triggered growth in the tradable sector. There was 2.2 percent decline in agriculture which was due to unfavorable natural condition in the country.

Chart 21. Economic growth, %

Source: SSC

Oil-and-gas sector was a key player in growth of the economy. If to compare to the previous year, crude oil production increased by 2.2 percent, natural gas production by 14.5 percent.

---

2 Tradable sector includes agriculture and industry.
Gold production has continued, 1.9 tonnes of gold are extracted and was sent for purification in 2010.

Non-oil industry enjoyed 5.9 percent real growth. Economic growth in production of foodstuff that takes nearly half of the sector, being positive, played an important role in that. In total, the highest growth was observed in machinery, metallurgy, chemistry and production of garments.

Non-tradable sectors. Growth was observed in all areas of non-tradable sector in 2010. The highest growth rate was observed in communication and construction.

Economic growth expectations. In the nearest horizon economic growth in the country is expected to continue according to forecasts of the Government, CBA as well as international institutions. The IMF in the latest disclosed regional economic outlook mentioned endurance of economic growth by Azerbaijan in the following year. The Fund predicts around 5 percent

---

3 Non-tradable sector includes construction, transport, communication, catering, hotel services etc.
growth of non-oil sector in the country for 2011 and 2012\textsuperscript{4}. Business Tendency Survey conducted by the CBA (covers around 300 entities) shows that expectations over economic activity are positive.

**Box 3.** In total, findings of monthly real sector monitoring conducted by the CBA demonstrate considerable improvement in the economy compared to the previous year. In sum, business confidence index in economy grew, actual production in industry, actual sale on durable goods, demand for services increased, commodity stocks declined due to increase in new orders, production and employment expectations went up, some indices left negative zone for positive over the previous year. An index in positive zone evidences growth orientation of business tendency and index in negative zone shows downward trend. Overall, the findings of the monitoring may be summarized as thus *.

**Business Confidence Index:**
- **Industry** – last year +1, 2010 year + 9
- **Trade** - last year -27, 2010 year -13
- **Service** - last year +17, 2010 year +26

**Actual production, sale, demand for service:**
- **Industry** - last year -14, 2010 year +2
- **Trade** - last year -50, 2010 year -21
- **Service** - last year +11, 2010 year +21

**Production, sale expectations:**
- **Industry** - last year +19, 2010 year +19
- **Trade** - last year -6, 2010 year +20
- **Service** - last year +44, 2010 year +44

**Employment expectations:**
- **Industry** - last year -16, 2010 year -5
- **Trade** - last year -13, 2010 year +13
- **Service** - last year +34, 2010 year +38

*For monthly averages; methodology of calculating indices see: Monetary Policy Review, January – September, 2010

Thus, under the findings of survey, production expectations by industry and sale expectations by trade tend to be incremental from the beginning of the year.

---

\textsuperscript{4}Source: the IMF, [www.imf.org](http://www.imf.org) / regional economic outlook
Note: Moving average is used to smooth out fluctuations as it is not excluded of seasonal changes in monitoring results.
Source: CBA

Positive expectations were particularly observed in chemical, construction materials production and textile subsections, positive expectations in trade were observed in segments of sale of furniture and household appliances. Service sector shows similar trends. The highest positive expectations belong to communication and hotel subsectors. Such positive expectations manifested themselves in decrease of stocks in industry and trade.

In total, findings of RSM conducted by the CBA demonstrate increase in a number of enterprises with incremental production, and risen turnover. Thus, according to surveys conducted by the Central Bank, the share of respondents saying “decreased” to the question “what is the trend in economic activity”, went down twice as much, and the share of those saying “increased” went up.

CBA estimation shows that output gap (difference between potential and actual levels of GDP) has narrowed from 5.2 percent in 2009 to 4 percent in 2010 as a result of recovery in economic activity.

Chart 25. Output gap, %

Average forecast in 2011: -1%
Average for 2010: -4%

Source: CBA

The trend is predicted to be accelerated more in 2011; output gap is to reach -1 percent.
**Box 4. Output gap.** There are several definitions of output gap in economics. According to one definition, output gap is an percentage expression of the difference between actual and potential levels of GDP (the level to be reached through effective use of resources in production). According to another one, output gap is defined as percentage expression of the difference between actual volume of GDP and potential level of production under elastic price equilibrium. Positive output gap displays overloading of labor resources of production powers, excess of aggregate demand over aggregate supply, in the other case, vice versa.

In general, when estimating output gap in economy various qualitative and quantitative indicators can be used. The most widely used method of output gap evaluation is regular monitorings in real sector and calculation of quantitative and qualitativa indicators on this basis. To note, the CBA regularly monitors real sector and the output gap is qualitatively estimated on the basis of surveys.

On the other hand, there are diverse statistic and econometric evaluations in economics to provide quantitative estimating of output gap. Thus, Baxter-King (1995) methodology, Hodrick-Prescott (1980) approach are based upon just statistic methods. Hodrick-Prescott (1980) methodology is based upon the principle of minimizing difference between actual GDP ($y_t$) and trend GDP ($y_T$) with trend GDP changing combination on trend component:

$$\min_{y_T} \sum (y - y_T)^2 + \mu((y_{T+1} - y_T) - (y_T - y_{T-1}))^2$$

Here $\mu$ is the parameter of smoothing out. The weak part of HP filter is that availability of finite observations causes challenges in proper measurement of output gap.

Beveridge-Nelson (1981) methodology is one of initial methodologies to provide quantitative estimation of output gap. Beveridge-Nelson decomposition divides actual GDP into unobserved components, permanent (trend) and temporary (cyclical) indicators.

Another methodology is a VAR approach developed by Blanchard and Donny Quah (1989) where potential portion of aggregate production is assumed to be shaped by aggregate supply, and cyclical portion – by aggregate demand. As such, under the assumption that structural supply shocks are permanent and supply shocks are of temporary effect, required parameters are identified through necessary constraints to VAR.

Kalman filter is as well of effective methodologies widely used in evaluation of unobservable components. This filter provides dynamics of observable and unobservable components. The simple Kalman filter to be developed for output gap may be as thus.

$$y_t = y^*_t + g_t$$
$$y_t = \mu_t + y_{t-1} + \epsilon_t^y$$
$$\mu_t = \mu_{t-1} + \epsilon_t^{\mu}$$
$$g_t = \phi_1 g_{t-1} + \phi_2 g_{t-2} + \epsilon_t^g$$

Here $y_t$ is actual GDP, $y^*_t$ potential GDP, $g_t$ cyclic component, $\mu_t$ drift in potential GDP, $\epsilon_t$ statistic deviation. GDP is segregated into trend and cyclical components only through use of actual time series.

Increase in positive output gap causes inflation pressures in economy, whereas increase in negative output gap is commented upon as a sign of recession. The most optimum level for output gap is its being close to zero.
1.2.4. Macroeconomic equilibrium

Macroeconomic stability is preserved in the country despite the acceleration of inflation trends in the world economy, recovery of seasonal factors and aggregate demand. According to analyses, inflation was mainly affected by supply shocks (mainly food) in 2010.

1.2.4.1. Consumer Price Index (CPI): Annual inflation made 7.9 percent, average annual inflation made 5.7 percent.

![Chart 26. Headline CPI, %](chart)

Source: SSC

Seasonal monthly deflation observed from May through July was replaced with price rise starting from August.

![Chart 27. Quarterly headline CPI, %](chart)

Source: SSC

3.9 basis points of average annual inflation were due to rise of food prices, 0.6 basis points – non-food products and 1.2 basis points – price hike of services. Average annual
inflation of food products equaled to 7.3 percent, and 12 month-inflation (December/December) was 12.7 percent.

Chart 28. Year on year CPI, %

Source: SSC

Average annual inflation of non-food products was 2.3 percent, and 3.4 percent. Prices of services went down by 0.1 percent, and average annual equaled to 4.4 percent.

Decomposition of inflation shows that prices mainly rose through price dynamics of food products in 2010. The key factor for price rise of food products was seasonal factors and increase in prices for grain crops in the world market.

Chart 29. Monthly headline CPI, %

Source: SSC

One of the key factors for price rise of non-food products was price hike of some imported construction materials due to forest fires in Russia.
Econometric calculations done at the CBA identified that 47 percent of average annual inflation during the reporting period is influenced by monetary factors and 53 of non-monetary factors.

Average annual core inflation\(^5\) was 3.5 percent, and 6 percent.

\(^5\) Core inflation is defined as inflation adjusted from changes in prices for commodities regulated by the government and seasonal factors.
Low core inflation once more emphasizes that the share of seasonal factors and inflation import is high in consumer price rise.

**1.2.4.2. Industrial Producer Price Index (IPPI):** In 2010 average annual industrial producer price index increased by 28.2 percent. High increase of IPPI is primarily due to significant increase of oil price in world markets compared to the previous year.

Non-oil IPPI increased by 6.5 percent on annual average within the year. IPPI changed variously in different sectors of industry. For instance, average annual increase of production prices was 19.8 percent on metallurgy, 19.8 percent on chemical industry, whereas it decreased by 7.7 percent in textile.
1.2.4.3. **Agricultural producer price index (APPI):** APPI increased on average annually by 4.2 percent. Price dynamics equaled to 2.1 percent on perennial herbs, and 4.4 percent on livestock and livestock products.

![Chart 34. Agricultural Producer Price Index, year on year, %](chart34.png)

Source: SSC

1.2.4.4. **Real estate prices:** According to "MBA LTD" Appraisal and Consulting Company, in 2010 no significant change was observed in dynamics of prices on segments of the real estate market (primary and secondary housing markets, land market, cottages, non-residential object) and rent fees. In 2010 price reduction in primary and secondary markets was 3 percent and 2.5 percent respectively. Residential rent fees went down by 11 percent, and rent fee for commercial objects decreased by 7 percent.

![Chart 35. Price change in house market, % (2008 Dec=100)](chart35.png)

Source: "MBA LTD" Appraisal and Consulting Co.
The number of contracts in primary market decreased by 4.4 percent in 2010 over the previous year, while it increased by 10.3 percent in secondary market. Acceleration of mortgage lending is the main reason of increasing activity in the secondary market. In 2010 assigned credit institutions issued mortgage loans up to 2500 persons amounting to AZN 97 million.

1.2.4.5. Inflation forecast. According to forecast of the Central Bank, inflation is predicted to be one-digit in 2011. This prediction is in consistent with forecast of international organisations. The IMF predicts 5 – 6 percent average annual inflation in Azerbaijan in 2011 – 2012.

According to the results of Real Sector Monitoring, there are no significant ups in price rise expectation in economy.

![Chart 36. Price expectations (3 months moving average)](chart.png)

Source: CBA

Forecast of price index on trade still being in negative zone is contracting. In industry and services these expectations follow low growth rates. Index on construction sector having left the negative zone is close to neutral point.

1.2.4.6. Employment. The employment level showed an upward trend during the year. In 2010 economically active population was 4346.3 thousand, of which 4088 thousand are engaged in economy and various sectors of social area. The number of employed people increased by 0.4 percent in 2010. The number of hired labor is increasing in recent months.
Survey conducted by the CBA in up to 300 enterprises also demonstrates increase in employment. Thus, in monitored enterprises the number of staff increased by 10.2 percent.

According to the CBA monitoring expectations on employment in trade and services are in positive zone.
II. Monetary and exchange rate policies

In 2010 in accordance with the key directions of monetary policy declared by the Central Bank policy targets were maintained single-digit level of inflation, preserving exchange rate stability, endurance of stable development in banking-financial sector, adequate money growth consistent with demand. Generally CBA succeeded in achieving these targets.

2.1. Foreign exchange market and exchange rate of manat

In 2010 CBA conducted its exchange rate policy in the environment of expansion of supply channels in the foreign exchange market. In contrary to the 2009 when CBA sold foreign currency in net, it sterilised foreign currency amounting USD 1385.3 mln. in 2010.

![Chart 39: FX intervention of CBA](chart.png)

Source: CBA

Compared to the previous year decrease in demand for foreign currency in the foreign exchange market reveals itself in the decrease in cash foreign currency inflow to the country by banks and decrease in cash currency sold to population. Thus, the volume of net cash foreign currency inflow to the country by banks contracted by 6.1 percent against 2009, and the volume of net cash exchange operations decreased by 3.2 percent.
Manat appreciated only 0.65 percent against USD in 2010. Stability of exchange rate of the national currency created favorable conditions for stability of inflation, external debt burden and dollarisation in the country.

Whereas nominal exchange rate of manat depreciated against currencies of some trade partners, it appreciated against currencies of other countries during the year. Dynamics of nominal bilateral exchange rate of manat caused changes in real bilateral exchange rates. In 2010 manat depreciated both in nominal and real terms against currencies of some countries (Ukraine, Kazakhstan). While manat depreciated against currencies of Japan, Israel, China from nominal standpoint, it strengthened from real standpoint against them.

Table 2. Bilateral nominal and real exchange rate indices of manat against key trade partner-countries in 2010, in %

<table>
<thead>
<tr>
<th></th>
<th>Nominal bilateral exchange rate index *</th>
<th>Real bilateral exchange rate index</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>100.5</td>
<td>107.0</td>
</tr>
<tr>
<td>Eurozone</td>
<td>111.1</td>
<td>117.5</td>
</tr>
<tr>
<td>Great Britain</td>
<td>104.6</td>
<td>108.8</td>
</tr>
<tr>
<td>Turkey</td>
<td>101.3</td>
<td>102.8</td>
</tr>
<tr>
<td>Russia</td>
<td>103.3</td>
<td>102.4</td>
</tr>
<tr>
<td>Ukraine</td>
<td>99.7</td>
<td>98.7</td>
</tr>
<tr>
<td>Georgia</td>
<td>105.4</td>
<td>102.3</td>
</tr>
<tr>
<td>Iran</td>
<td>105.5</td>
<td>101.4</td>
</tr>
<tr>
<td>Kazakhstan</td>
<td>99.6</td>
<td>99.6</td>
</tr>
<tr>
<td>Japan</td>
<td>93.4</td>
<td>101.5</td>
</tr>
<tr>
<td>Israel</td>
<td>95.7</td>
<td>100.4</td>
</tr>
<tr>
<td>China</td>
<td>97.9</td>
<td>100.7</td>
</tr>
<tr>
<td>Belorussia</td>
<td>106.5</td>
<td>104.7</td>
</tr>
</tbody>
</table>

* average annual change of exchange rates of manat against currencies of partner-countries.
Nominal effective exchange rate on non-oil sector (trade turnover weighted) went up by 3.4 percent which had a contractionary effect on inflation during the period.

Chart 41. Non-oil trade weighted NEER and REER, (2009 dec=100), %

Chart 42. REER decomposition, %

Real effective exchange rate of non-oil sector was nearly neutral, vis-a-vis the near foreign countries, with a bulk – over 80 percent of non-oil export.
2.2. Monetary Policy Instruments

No changes were made in monetary policy instruments till the end of October 2010. However, in order to provide neutrality of parameters of monetary policy instruments against the level of inflation the refinancing rate was shifted from 2 percent to 3 percent, and there was applied 0.5 percent required reserve on foreign liabilities of the banking sector.

The CBA, when taking a decision regarding parameters of monetary policy instruments, considered analysis of up to 30 cyclical indicators. These include leading, coincidence and lagging cyclical indicators. Close to the yearend, the number of indicators for correction of the monetary policy among the permanently analysed cyclical indicators started to prevail.

Table 3. Cyclical indicators

<table>
<thead>
<tr>
<th>2010</th>
<th>Cyclical indicators</th>
<th>Lagging</th>
<th>Coincidence</th>
<th>Leading</th>
</tr>
</thead>
<tbody>
<tr>
<td>May</td>
<td>To tighten monetary policy</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>To loosen monetary policy</td>
<td>7</td>
<td>9</td>
<td>7</td>
</tr>
<tr>
<td>June</td>
<td>To tighten monetary policy</td>
<td>2</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>To loosen monetary policy</td>
<td>7</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>August</td>
<td>To tighten monetary policy</td>
<td>3</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>To loosen monetary policy</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>September</td>
<td>To tighten monetary policy</td>
<td>3</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>To loosen monetary policy</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>October</td>
<td>To tighten monetary policy</td>
<td>4</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>To loosen monetary policy</td>
<td>5</td>
<td>7</td>
<td>6</td>
</tr>
</tbody>
</table>

Box 5. The role of macroeconomic stability in competitiveness. According to the latest report of the World Economic Forum, Azerbaijan has the most favorable macroeconomic environment in the CIS. Azerbaijan ranks 13th among 139 countries having moved 14 positions up on relevant indicators. Just to compare, neighboring countries Georgia ranks 130th, Armenia 99th, Turkey 83rd, Russia 79th, and Iran 45th. High rating position is related to low level of ratio of the burden of public debt and budget deficit to the GDP, inflation and interest spread (difference between interest rates on loans and deposits) and high savings.

Source: WEF, Global Competitiveness Report 2010
In the view of these processes, as well as recovery of aggregate demand, inflation factors, and forecasts of the balance of payments, the Central Bank took a decision on moving the refinancing rate up to 3 percent November 1, as well as implementation of foreign liabilities of banks through 0.5 percent required reserve norm from.

Chart 36: Parameters of interest rate corridor, %

Average maintaining period of reserve requirement remaining 1 month both by deposits in manats and in foreign currencies created favorable conditions for optimum regulation of liquidity by banks.

Table 4. Liquidity balance, in billion manats

<table>
<thead>
<tr>
<th></th>
<th>1 January 2010</th>
<th>1 January 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liquidity injection instruments*</td>
<td>1483.5</td>
<td>2012.9</td>
</tr>
<tr>
<td>Liquidity withdrawal instruments**</td>
<td>29.5</td>
<td>63.9</td>
</tr>
<tr>
<td><strong>Liquidity balance</strong></td>
<td><strong>1454</strong></td>
<td><strong>1949</strong></td>
</tr>
</tbody>
</table>

* Loans to banks by the CBA, SWAP etc.
** Note portfolio, REPOs, reserve requirements in national and foreign currency.
The balance on liquidity operations of the CBA\(^6\) shifted from AZN 1454 mln. at the year beginning launch to AZN 1949 mln at the yearend. This served for creating a balance between money supply and demand of the economy. The amount of issued notes in 2010 equaled to AZN 311 mln of which AZN 261 mln was taken to auctions. AZN 223,8 mln of this on nominal or 86 percent was sold. At the last auction average return on notes made 2,08 percent. This number equaled to 1 percent at the beginning of the year.

Chart 44: Volume of CBA notes and repo operations, mln. manat

![Chart showing volume of CBA notes and repo operations](image)

Source: CBA

The volume of notes in circulation increased by AZN 31 mln (repo operations included) or by 3,4 as much and constituted AZN 40 mln at the end of the period. Total volume of repo operations was AZN 812 mln.

Institutional potential of the monetary policy was improved in parallel with its instrumental potential. Thus, a system of alternative indicators of economic activity was created the base for researches and forecasting being expanded.

\(^6\) This indicator is the difference between the balance of injected and withdrawn liquidity.
Box 6. Models used at the Central Bank

Model forevaluation of inflation determinants: There were used 2 empiric approaches in order to determine macroeconomic fundamentals affecting inflation and measure the scope of their impact:

1. Evaluation of linear model;
2. VAR model evaluation.

In both models, Nominal Effective Exchange Rate (NEER), money supply (M1) and prices in partners (CPlx) were considered as factors affecting inflation.

In linear evaluation the money supply affects inflation with a quarter delay, consequently 10 percent increase of the money supply results in 2.6 percent raise in inflation.

Unlike the linear model, the effect of VAR is not one-sided and mutually measures connection among variables. The channel of transmission in the VAR model is as thus:

\[ \text{NEER} \rightarrow \text{M1} \rightarrow \text{CPl} \]

The Model of Assessing Pass-Through Capacity of the Exchange Rate to Inflation: In the study there were made asymmetric and non-linear evaluations on exchange rate pass-through, pass-through capacity of changes in exchange rate to domestic prices was quantitatively measured and relevant features of pass-through capacity in the environment of Azerbaijan were analysed.

According to measurements made within the VAR model, change in NEER is transmitted to M1 money aggregate, consequently the total impact passes through to CPI. Upon evaluation of mutual connection between the variables, price pass-through capacity of the exchange rate was measured.

Model of Evaluating Real Estate Bubbles: Within the model there were identified supply and demand factors of affecting prices in real estate market, equilibrium level of prices on these factors were calculated and deviation of actual level from equilibrium level were found.

In order to determine the level of real estate bubbles in Azerbaijan, equilibrium level of prices in primary and secondary markets was assessed. According to econometric calculations, households real disposable income, real estate loans are supply factors in both markets, whereas term of exposure – just in the secondary market.

Based upon the IMF methodology, there was evaluated equilibrium level on both supply and demand in the primary market, whereas only on demand factors in the secondary market.

The Dynamic Stochastic General Equilibrium Model (DSGE) of Azerbaijan. The Central Bank has developed the DSGE model to identify economic cycles affected by random internal and external shocks, analyse relationship between macro fundamentals, as well as forecast them on medium and long term.

In DSGE model equilibrium level of endogenous fundamentals (real economic growth, real effective exchange rate, inflation, capital, investments, wage, foreign trade, interest rates and consumption, etc) is determined on the basis of behaviours of micro-agents.

Theoretical framework of the model includes habitual inertia of an exogenous consumer, differential labor supply and intense earnings, gradual optimization of salaries, or inflation indexation, differentiated interim product, non-elastic prices, and diverse monetary regimes. The DSGE model has been evaluated through calibration based upon existing literature and statistic indicators on the country.

The DSGE model enabled to simulate impact of many monetary regimes on macroeconomic fundamentals. Thus, under the regimes of specified exchange rate and inflation targeting, effects of technological and oil price shocks were determined.

Source: CBA
2.3. Money supply

In 2010 money supply kept pace with the demand of the economy for money. The money base increased by 31.6 percent and reached AZN 6397.1 mln.

![Chart 45. Change in money supply, %](chart)

Source: CBA

Upward trend of money multiplier indicates that the ability of the banking sector to generate money within the year is associated with increase both in non-cash and lending activity in banks.

Now volatility observed in dynamics of the money base, except December when growth was accelerated.

![Chart 46. Dynamics of reserve money in manat, mln AZN](chart)

Source: CBA
It can be seen from standard deviation of the money base indicator\(^7\). This was related to realisation of social payments and other significant budget expenditures close to the end of the year.

**Chart 47. Sources of money base change, mln manat**

Source: CBA

According to estimations, seasonally adjusted money base increased by 20.4 percent during the year and the seasonal factor peaked in December (6 percent).

**Chart 48. Effect of seasonal factors on monetary base**

Source: CBA

---

\(^7\) Standard deviation characterizes deviation of any indicator on the period from average level.
In 2010 broad money supply (M3) increased by 24.3 percent and reached AZN 10527.5 mln, broad money supply in manat (M2) increased by 34.5 percent and made AZN 8297.5 mln as of the yearend.

Box 7. Seasonal adjustment - is implemented through adjustment of seasonal and cyclical factors from time series in order to obtain clearer dynamics of indicators and smoother economic trends. We can exemplify seasonal factors through price hike of oil in September due to preparation for winter, landslide of prices for agricultural products in summer time that are of periodic nature. Such seasonal changes are reflected in economic indicators (money supply, inflation, output gap etc) and causes short-term ups and downs during the period.

Chart 49. Dynamics of M3 money supply, %

Source: CBA
Box 8. Moving average is a statistic method applied to time series of an indicator. Main point of this method is in calculation of the indicator as an arithmetical mean of the numbers it has in a certain time period. In general, averaging period is 3 or 6 months.

Example on application of moving average method:

e.g. monthly time series of conditional A indicator is thus:

\[ A = \{a_1; a_2; a_3; a_4; a_5; a_6; \ldots a_{n-1}; a_n\} \]

Sequence of A indicator through 3 month moving average method will be as follows:

\[ A_{\text{moving average}} = (\frac{a_1+a_2+a_3}{3}; \frac{a_2+a_3+a_4}{3}; \ldots; \frac{a_{n-2}+a_{n-1}+a_n}{3}) \]

Centered moving average method is calculated in the same way, but in this case arithmetical mean of the number in the row is calculated jointly with the one in the left and right:

\[ A_t=(a_{t-1}+a_t+a_{t+1})/3 \]

The advantage of moving average method is in mitigating volatility of the series through partial smoothing of sharp fluctuations (shocks) occurred in different periods. This method enables to more clearly observe long-term trends, and cycles. The longer averaging period, the more it will be possible to smooth out volatility of the row. This method is, as a rule, applied to longer time series comprising shorter periods (e.g. annual series of daily return on asset in financial markets etc). When making analyses, simple, cumulative, weighted, linear moving average methods are utilised.

Source: CBA

Table 5. Monetary aggregates, mln. manat

<table>
<thead>
<tr>
<th></th>
<th>01.01.10</th>
<th>01.07.10</th>
<th>01.01.11</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>M0</strong> (Cash)</td>
<td>4 174,8</td>
<td>4587.3</td>
<td>5455.8</td>
</tr>
<tr>
<td><strong>M1</strong> (Cash, demand deposits and savings)</td>
<td>5 239,8</td>
<td>5544.1</td>
<td>6718.9</td>
</tr>
<tr>
<td><strong>M2</strong> (Cash, demand and term deposits and savings, in manat)</td>
<td>6 169,2</td>
<td>6629.4</td>
<td>8297.5</td>
</tr>
<tr>
<td><strong>M3</strong> (Cash, demand and term deposits and savings in manat and FX)</td>
<td>8 469,2</td>
<td>9082.5</td>
<td>10527.5</td>
</tr>
</tbody>
</table>

Source: CBA

Increase in money supply sourced from both growth in cash in circulation and non-cash money supply.
High growth in savings and deposits is a manifestation of confidence of economic subjects in the banking sector. This growth was primarily sourced from deposits of individuals.

Thus, deposits of individuals increased by 30 percent within the year and made AZN 3029.8 mln as of the yearend.

The level of dollarization decreased within the year because of stable exchange rate of the manat. Thus, the share of deposits in foreign currency in M3 money aggregate decreased by 6 percentage points, and the share in total deposits decreased by 10 percentage points.
The share of deposits of the population in foreign currency shifted from 58.6 percent at the beginning of the year to 53.5 percent at the end of the year.

There was a change in currency composition of the loans to economy within the year as well. Thus, the share of loans in currency decreased by 6 basis points as compared to the beginning of the year. In the situation when money supply increased and nominal effective exchange rate of manat slightly strengthened. Monetary Condition Index in general, was neutral.
Increase in money supply was accompanied with decrease in interest rates. Thus, average interest rates on loans in manat decreased by 1.7 basis points, and average interest rates on deposits in manat decreased by 1.2. percentage points within the year.

Chart 54. Nominal average interest rates in manat

Source: CBA

The policy of promotion for reduction in deposits rate endured. Consequently, nominal interest rate on new deposits in manat\(^8\) decreased by 1.27 percentage points, interest rate on loans decreased by 4 percentage points. To the end of the year real interest rates\(^9\) contracted.

Chart 55. Real average interest rates in manat

Source: CBA

Thus, sterilization and market operations of the CBA lead to adequate reaction of the money supply to the economic growth, interest rates had a downward trend.

---

\(^8\) Newly attracted deposits and issued loans within the month, the portion of the portfolio added within the month.

\(^9\) Real interest rates are calculated through subtracting 12 month inflation rate from nominal interest rates.
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