

CENTRAL BANK OF THE REPUBLIC OF ARMENIA

FINANCIAL  
STABILITY  
REPORT

*2009*

**This Financial Stability Report presents an assessment of potential risks that could threaten the stability of financial system of the Republic of Armenia as well as the capacity of the financial system to absorb such risks. More detailed information on Armenia's macroeconomic environment and financial system analyses is available in the Central Bank's periodicals, such as "Annual Report of the Central Bank", "Inflation Report" and "Armenian Financial System: Development, Regulation, Supervision".**

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## INTRODUCTION

Starting 2007 Central Bank of Armenia composes and publishes annual “Financial Stability Report”. The report presents risks challenging financial system and general assessment of the CBA of the activities aimed at the mitigation of those risks. Ongoing analysis allows early identification of such changes and fluctuations, which can undermine the financial stability or emerge a crisis.

Main goal of the Financial Stability Report is to improve awareness of financial institutions, companies, entrepreneurs and general public concerning measures taken by authorities to ensure financial system stability. On the other hand, the purpose of providing information on risk origins and vulnerability of financial stability is to orientate the public for taking decisions in various situations.

Main responsible body for financial stability in Armenia is the Central Bank, and this is defined by the law “On Central Bank”. The primary objective of the Central Bank of Armenia is to ensure price stability in the country, which is directly related to the issue of financial stability. Serious deteriorations of the financial system may undermine the implementation of the monetary policy and its effectiveness. At the same time, macroeconomic and monetary stability reduces the probability of the emergence of the risks undermining the financial stability.

In Financial Stability Report the financial stability of Armenian financial system is analyzed in two directions. First- assessment of effectiveness of financial system intermediation to macroeconomic processes. Second- assessment of financial system stability and the capacity of the financial system to mitigate and absorb risks. The report presents the risks revealed in macro environment and in financial system, their impact on the development of all sectors of the economy and financial system.

The risks affecting financial stability of Armenia can emerge in local economy, foreign economy and in financial system itself. In this aspect the main preconditions of the financial stability are:

- Sustainable development of local and foreign macroeconomic environment, in terms of which the local households and enterprises would be sufficiently creditworthy,

- Stable and efficient financial system, risks of which would be prudent and in manageable level,
- Efficient financial infrastructure, which would not hinder the functioning of financial system.

On the basis of abovementioned the possible risks affecting financial stability of Armenia are presented in 5 directions:

- Risks derived from the developments of world economy,
- Risks derived from the developments of Armenian macroeconomic environment,
- Risks derived from the developments of financial market of Armenia
- Risks derived from the developments of financial institutions of Armenia
- Risks derived from the developments of financial infrastructures.

The report presents risks revealed in those fields and their possible impact on the development of all sectors of the economy and financial system. Principal emphasis in the report is placed on the Armenian banking system risks and their trends since assets of domestic commercial banks account for more than 90 percent of assets of the financial system. Banking system, being the main component of the financial system, predefines the overall financial stability and financial system development directions. In this report assessment of banking system stability includes credit, market and liquidity risk analysis.

Extensive work was carried out by the CBA in 2009 to draft anti-crisis measures and ease the adverse impacts of the crisis on the financial system. More frequent and detailed monitoring, than standard reporting, was carried out during the year to examine financial institutions’ risks and the overall financial system development trends, risks and financial stability obstacles in the country. Financial institutions’ possible risks under various crisis situations, associated losses and systemic impact were periodically assessed through appropriate stress-scenarios.

In the terms of mitigating impact of the global crisis on Armenian financial system in 2009 CBA monetary policy was aimed at the combination of price stability and financial system stability. As a result of national currency depreciation pressures and

conversion of dram denominated deposits to foreign currency, the possibility of the emergence of risks associated with capital adequacy and foreign exchange liquidity rose. For mitigating those risks in the first quarter of 2009 the CBA increased its presence in foreign exchange market trying to temporary stabilize the foreign exchange rate. Such policy allowed the commercial banks to strengthen their financial positions and face challenges rising from global financial crisis. At the beginning of March, when the financial system was sufficiently capitalized and liquid (according to stress-tests), the CBA decided to stop its active intervention in foreign exchange market. As a result, the average annual nominal exchange rate of Armenian dram against US dollar depreciated for 18.8 percent.

In environment of weak internal and foreign inflation pressures the monetary policy of the CBA during the year was also targeted at the support of economic growth and liquidity injection for ensuring financial stability. For this reasons the CBA gradually decreased the Repo (repurchase agreement) interest rate, extended the terms of some monetary instruments and implemented quantitative easing policy.

Anti-crisis measures were in the center of attention of the Government of Armenia, which targeted on the assurance of macroeconomic and financial stability, mitigating risks derived from global crisis. Anti-crisis action plan of the Government<sup>1</sup> was presented to the Parliament in November 2008 and includes the following steps: improvement of business environment, financial support of businesses, financial resource attraction for SME lending, implementation of infrastructure development and socially oriented programs. Overall, in 2009 the Government initiatives had expansive fiscal impact and were continuously synchronized with the CBA monetary policy.

With the deepening of global economic crisis in 2009 the economic activity declined conditioned by decrease of foreign direct investments, private remittances, mining sector production level and investment programs in construction sector. As a result of reduction of foreign financial inflow and local production export decline, starting the second half of 2008 expectations of Armenian dram

depreciation emerged. As a result, depreciation of Armenian dram against currencies of main partner countries was observed. Decline of economic activity, reduction of foreign financing of private sector, sharp depreciation of Armenian dram in their turn had negative impact on Armenian financial system. Armenian commercial banks having excess capital adequacy, liquidity and manageable level of risks, were able to face the problems without significant losses and shocks.

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<sup>1</sup> For more detail see official website of the Government of Armenia [www.gov.am](http://www.gov.am).

## 1. DEVELOPMENTS IN WORLD ECONOMY

After the Great Depression the 2007-2009 the global financial crisis resulted in the deepest economic recession. Almost all countries, to some extent, were affected by the current crisis, although its impact and speed of spreading is underestimated all over the world. Starting from September 2008 the crisis continued to deepen hampering the world economic growth and increasing uncertainties concerning future developments. Economic recession and financial instability continued also in 2009 both in developed and developing countries. Targeting recovery of financial stability, authorities of almost all countries continued to inject large-scale liquidity into financial markets, support financial organizations and big producers, and carry out expansive monetary and fiscal policy. Only after second half of 2009 improvement of world economy could be stated. Positive developments in real sector had encouraging impact on financial institutions. Nevertheless the world financial system is still sensitive to possible negative risks. In this situation it is of great importance for regulatory bodies to recover confidence in financial markets and financial intermediation level. Only in case of recovered confidence in financial system and financial intermediation the financial system can support the economic growth.

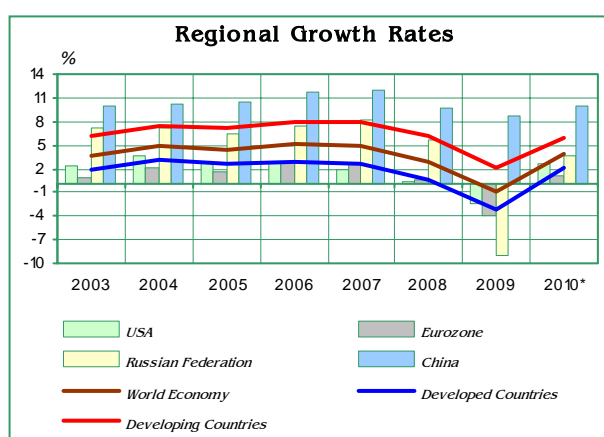
### 1.1. MACROECONOMIC ENVIRONMENT

World economy entered a recovery stage in third-fourth quarter of 2009. Economic deterioration in the first quarter was the reason for negative expectations among entrepreneurs, business entities and households. This was expressed in reevaluating forecasts of different organizations in downfall direction. In 2007-2009 these forecasts were: significant decline of economic activity, credit restrictions, cost-cutting and decrease of real sector investments.

The forecasts were revised in upward direction only in the second half of 2009 owing to positive results of large-scale anti-crisis programs in main economies.

It is remarkable that in 2009 the indicators were better than the upsurge forecasts. According to the last estimates of IMF the

world economic downturn totaled -0.8 percent decreasing by 3.8 percentage points in comparison with previous year. Economic recession in developed countries in 2009 totaled -3.2 percent following 0.5 percent growth in the previous year. The economic growth forecasts for 2010 are positive totaling 2 percent. High unemployment rates and public debt, as well as not-fully-recovered financial system can hamper the rapid economic recovery of those economies. According to forecasts the GDP growth will remain below its pre-crisis level until 2011.



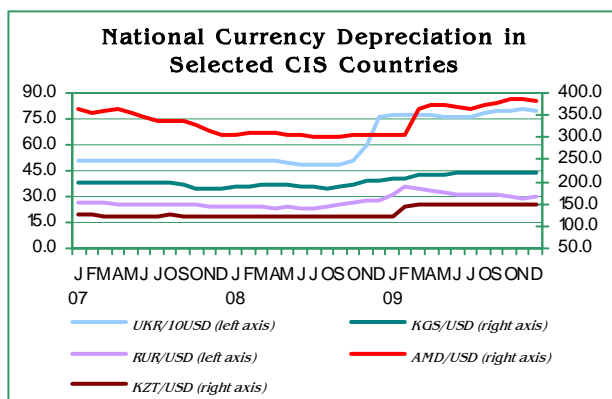
Source: IMF

In 2009 2.1 percent economic growth was observed in developing countries, which is 4 percentage points less than in the previous year, while 2010 forecast is 6 percent growth. The impact of global financial crisis was mainly expressed by the risks associated with large debt burden of economic agents, instability of capital inflow and short term financing. In Central and Eastern European, CIS countries the external debt-to-GDP ratio is rather high. In 2009 these countries increased their external debt due to insufficient external reserves and attracting resources for economic support. The budget deficit of those countries significantly increased due to large-scale anti-crisis programs and declining tax incomes. In mid-term stretch this can restrict future growth of the deficit and create inflation pressures.

Drop of capital inflow and exports affected also the balance of payment of developing countries. Even in terms of falling gross domestic demand, the decrease of imports didn't hamper growing trade deficit. Number

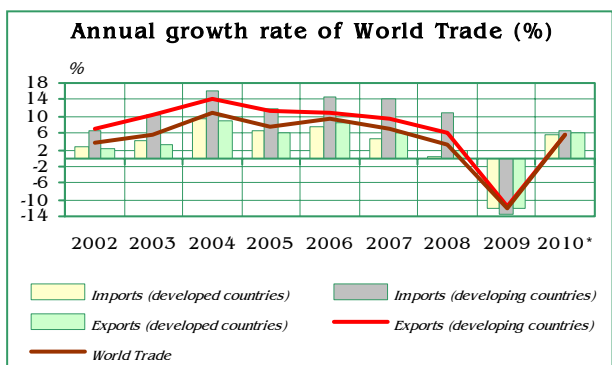
\* In graphs 2010 indicators are the IMF forecast.

of countries, particularly CIS countries, tried to improve their trade balance by devaluing their national currency, and in this way to restrain imports and boost the exports.



Source: Central banks

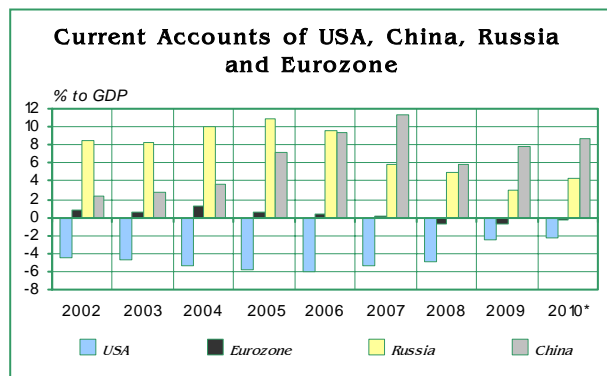
Despite similarities between crisis infusion directions and its further deepening the mentioned macroeconomic indicators differed across developing countries. Some Asian developing countries e.g. China and India acted as main leaders and contributors to the recovery of world economy. China registered 8.7 percent GDP growth (forecast by IMF for 2010 10 percent), India 5.6 percent growth (forecast by IMF for 2010 7.7 percent). Meanwhile CIS countries are significantly lagging behind in terms of economic activity. In 2009 the GDP drop totaled 7.5 percent and according to IMF forecasts the economic recovery can be very slow (economic growth for 2010 3.8 percent).



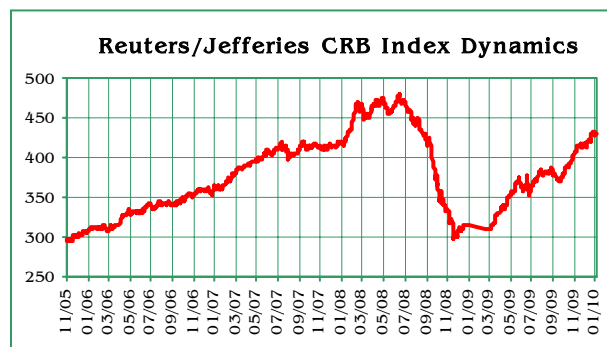
Source: IMF

Starting the second half of 2009, in line with the recovery of economic activity, the world trade started to activate mainly driven by rising demand of developing countries. Though, in the terms of macroeconomic instability the former trade volumes could not be recovered. In 2009 the decline totaled 12.3 percent following 2.8 percent growth in previous year.

As in 2008, in 2009 also, in comparison with partner countries, the US economic recession, domestic demand reduction, and depreciation of US dollar contributed to the reduction of current account deficit. As a result, in USA current account deficit/GDP ratio dropped almost twice totaling 2.6 percent. In 2009 in comparison with the previous year, the current account surplus/GDP ratio increased by 2 percentage points in China and 1.5 percentage points in Russia and respectively totaled 7.8 percent and 4.4 percent at the yearend. In 2009, the reduction of world trade was both due to economic crisis, decline of world demand, and slow increase of raw material and food prices. In the first quarter, in conditions of deepening economic recession, reduction of mining sector financing and decrease of world demand, the prices of main goods (raw materials and food) continued to fall. First signs of recovery were observed in the end of second quarter of 2009 driven by positive expectations of world economic recovery and to some extent with the weakening of US dollar positions. Rise of raw material and food prices was registered, which was also shown by 31 percent growth of Reuters/Jefferies CRB index<sup>2</sup>.



Source: IMF



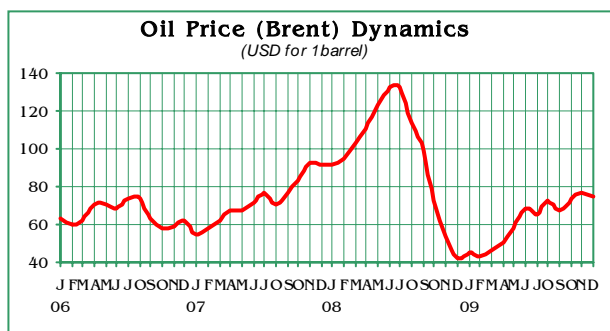
Source: Bloomberg

<sup>2</sup> Historic integral index, which includes prices for 19 raw materials.

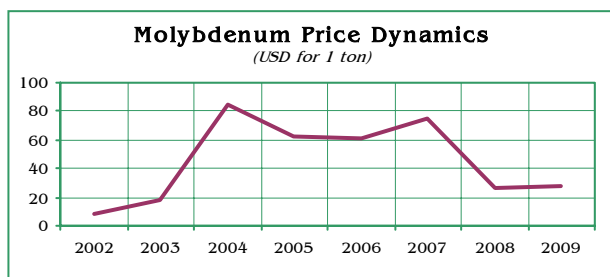
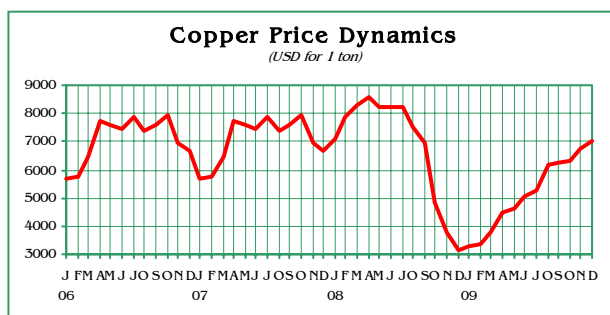


Starting the second quarter positive expectations of market participants, state recovery programs and rising demand for raw materials from developing countries contributed to the growth of prices in commodity market. Besides, the upsurge trends of raw material prices were driven by the policy of China and other developing countries aimed at replenishing reserves and OPEC's oil supply regulating policy.

In 2009, the oil prices had upsurge trend, though the high levels of the previous year were not exceeded. In 2009, the average oil price totaled 62 dollars. Price for one barrel of Brent crude oil increased from 44 dollars to 74 dollars, at the year-end registering 80 percent growth in comparison with the same period in 2008. According to current forecasts, in the short term the oil prices are unlikely to increase, but in case of recovery of world economy, growth of world demand and reduction of oil reserves the prices may go up. According to IMF forecasts the average prices for three types of crude oil will fluctuate in 76-78 dollars per barrel in 2010.



Source: Bloomberg



Source: Bloomberg

In 2009, the copper prices had continuous growth trend rising from 3300 dollars per ton at the beginning of the year to 7000 dollars at the year-end. This was mainly driven by the recovery of world economy and the growth of "risk appetite". The average copper price for 2009 (5200 dollars) didn't exceed the average price for 2008 (6960 dollars), as in 2008 the copper price dropped only in fourth quarter and in 2009 the copper price, though slowly, grew all year.

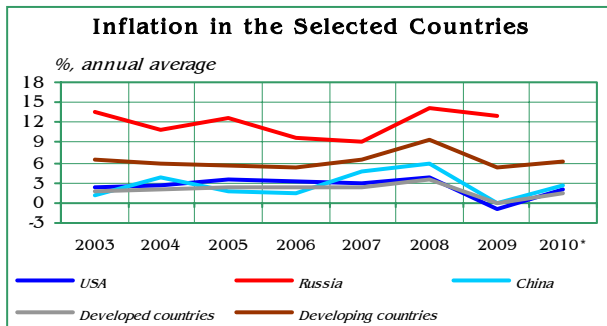
The prices in different food markets behaved in different patterns. In particular, the prices for grain fluctuated in 5-7 dollar per bushel range. A 33.9<sup>3</sup> percent unprecedented growth was observed in sugar market registering the highest price level for last 20 years (the average sugar price for 2009 was 18.8 cents per one pound). The main reasons for such growth were negative expectations of India's sugar yield due to drought (India is major sugar producer and consumer). According to estimations, in 2010-2011 India may import 5 million tons of sugar, in contrast to 2008-2009 2.7 million tons.

The shift of world economy to decline phase had a direct impact on the reduction of world inflation rate. The recovery trends observed in commodity markets didn't impose upsurge pressures on inflation. This was not inherent to the previous years, and starting from the beginning of 2009 drop of inflation rate was registered in number of countries.

According to IMF estimations in 2009 the world inflation will be 3 percentage points less than in 2008. The price reduction in developed countries was more evident than in developing countries due to significant cut of domestic demand and inflation expectations. In 2009 nearly zero level inflation was registered, and in 2010, parallel to expected price rise of number of commodities, the inflation rate is estimated 1.25 percent. The economic activity decline had a restrictive impact on developing countries' inflation, but the inflation reduced to lesser extent and totaled 5.2 percent. The reason behind this was the depreciation of national currency in number of developing countries, which didn't allow local prices to react to world price cut in a likely manner. In 2010, 6.2 percent inflation is expected in developing countries triggered by the growth of capital inflow and domestic demand support policy (especially in China,

<sup>3</sup> Source: Bloomberg.

which has a major share in this group of countries). Liquidity injections by the authorities and the low interest rate monetary policy in case of rapid economic growth can initiate another inflation upsurge. Under these circumstances the governments should draft clear-cut “exit strategy”, which upon fold of anti-crisis programs will suppose tightening of liquidity supply terms.



Source: IMF

## SUMMARY

In second half of 2009 the world economy, though with unsteady steps, entered recovery phase. For overcoming economic recession some countries continue to implement anti-crisis measures. The upsurge trend of raw material prices recovered, which in its turn activated the economies. According to forecasts the world economic growth will continue to recover also in 2010, although the inflation and external debt risks also are expected to increase.

### 1.2. INTERNATIONAL FINANCIAL MARKETS

In the second half of 2009, the international financial markets recovered faster than expected owing to the improvement of economic fundamentals and positive impact of state initiated anti-crisis actions. So called “risk appetite” of market participants recovered, situation in securities market improved and as a result the capital markets reopened. In 2009 the prices for some assets rapidly grew in comparison with their historical bottoms. These favorable developments contributed to the systemic risk mitigation. General credit and market risk levels decreased creating favorable environment for the improvement of economic outlooks and for the mitigation of macroeconomic risks. Despite mentioned

favorable developments, the recovery of the financial system is not over yet and the financial stability is still fragile. Large-scale state liquidity injections and deepening budget deficit are creating new risks for future macroeconomic developments.

In 2009 central banks and governments of developed countries continued to inject short-term liquidity through expansion of different monetary policy tools and injection volumes, and through easing monetary terms. So called “Credit easing” policy was implemented in full scale, which targeted at easing credit terms and lending recovery. In particular, ECB significantly eased the emission volume and rating requirements for the bonds it purchases. It will continue to purchase such bonds in primary and secondary markets until June 2010. Other steps of ECB “Credit easing” policy are the extension of volumes and terms of credits issued to banks.

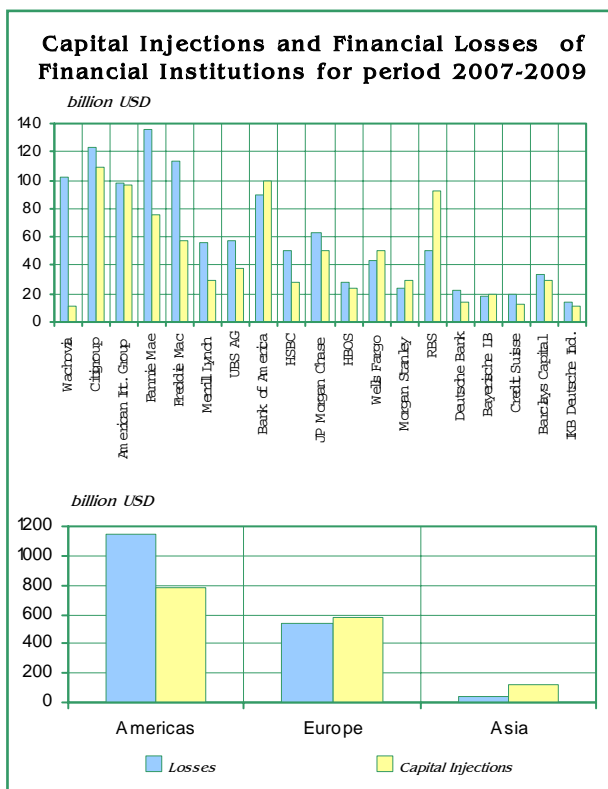
The Federal Reserve System and the Treasury extended the timeframe of quantitative expansion measures, which according to initial plan should be over in fourth quarter of 2009. Particularly, the duration of mortgage backed and state agency debt bond purchase program was extended until March 2010.

Nevertheless, despite the anti-crisis measures implemented by different governments, the losses of the financial institutions continued to grow. According to IMF assessments the total losses of the world financial system for the period between the second half of 2007 and fourth quarter of 2009, totaled 1.7 trillion dollars and 97 percent of the loss was incurred by US and European financial institutions. In 2009, the troubled banks, mainly US and European banks, had around 1.5 trillion dollar capital injections. In 2009, the capital injections were carried out from funds of state initiated anti-crisis programs.

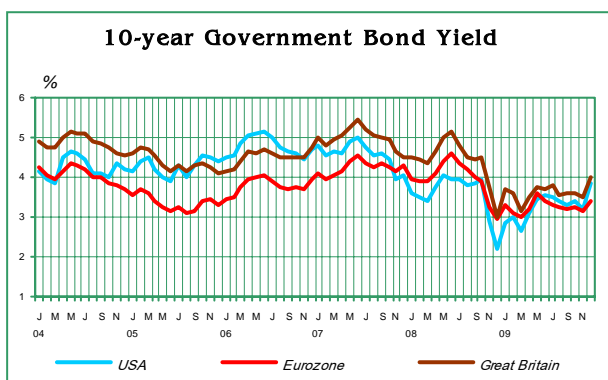
Financial injections in major banks, other financial institutions, markets, automobile industry, and also the reduction of tax incomes driven by expansive fiscal policy contributed to the growth of budget deficit and state debt. For example, US closed the financial year (which ended in September) with 1.4 trillion budget deficit, which accounts 9.9 percent of GDP and is the highest since 1945. In the fourth quarter of 2009 state treasury indicators of number of EU member countries (Greece, Spain, Portugal) were

published, which breached the EU requirements. State budget deficit and the public debt growth created big difficulties for monetary and fiscal authorities and also rose risks for financial stability. Growing emissions of government bonds caused lower government bond yield. Such developments in future can curb the lending to private sector, gradually raise the interest rates for private borrowers and finally delay the economic recovery.

ECB in 1 percent range. No changes of Federal Reserve interest rate are expected during 2010: until the second half of 2010 the interest rate of fed funds will stay at a low level. Similar developments are also expected in Eurozone: in the first half of 2010 the ECB refinancing interest rate will probably stay in 1 percent range. This forecast is mainly based on low inflation pressure probability in Continental Europe. According to some assessments, the possible growth of oil prices can trigger sharp increase of prices, while low economic activity can offset it.

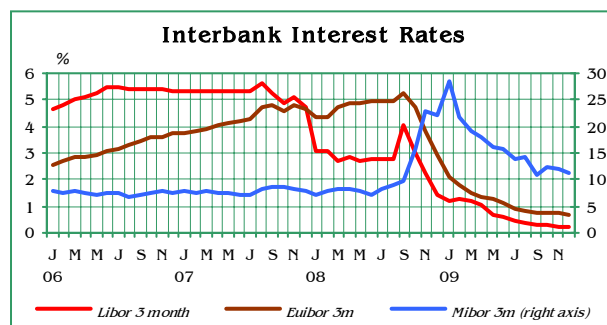
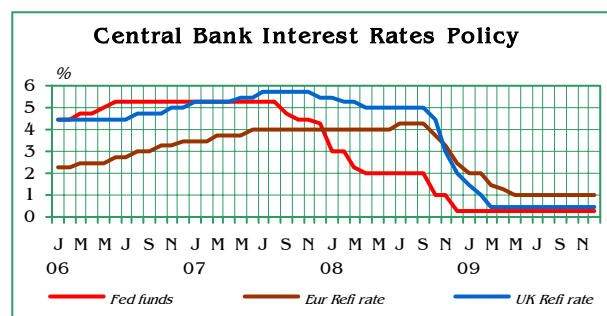


Source: Bloomberg



Source: Bloomberg

With the view of overcoming credit crunch and supporting economic growth, in 2009 the ECB and Federal Reserve Bank continued to follow refinancing interest rate cutting policy. US Federal Reserve Bank kept the refinancing interest rate in 0-0.25 percent range, and the

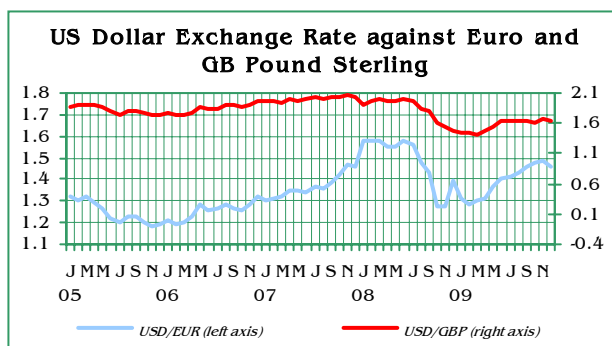


Source: Bloomberg

Reduction of base interest rates, quantitative easing policy and inflation rate decrease contributed to the dropping of the interbank interest rates, which was observed starting from the beginning of 2009.

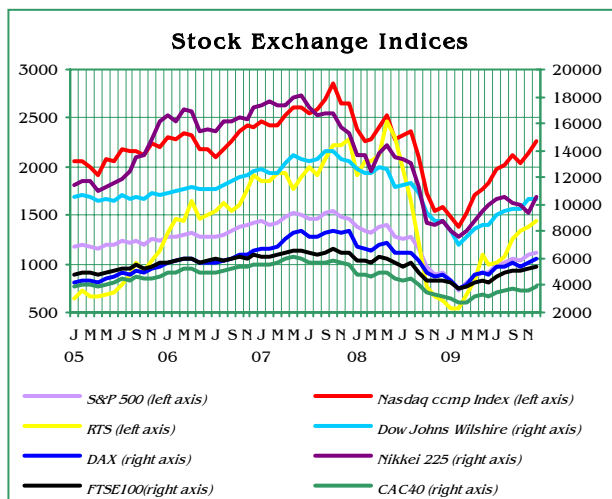
The global economic crisis and large-scale state injections had a significant impact on the dynamics of the main currencies. During the year, the US dollar continued to depreciate against other main currencies. The reasons of dollar weakening are growth of US public debt and budget deficit, recession in main economic sectors and overall unfavorable economic environment. The US dollar was also negatively affected by early recovery of some of Eurozone countries (Germany and France), when USA continued to stay in decline phase. In the fourth quarter of 2009, appreciation of US dollar against euro was observed, due to reduction of investor confidence in Eurozone financial

stability. This was mainly associated with the publication of budget problems in Greece, Spain and Portugal. In 2009, US dollar depreciation against euro totaled 5.4 percent and 15 percent against GB pound sterling.



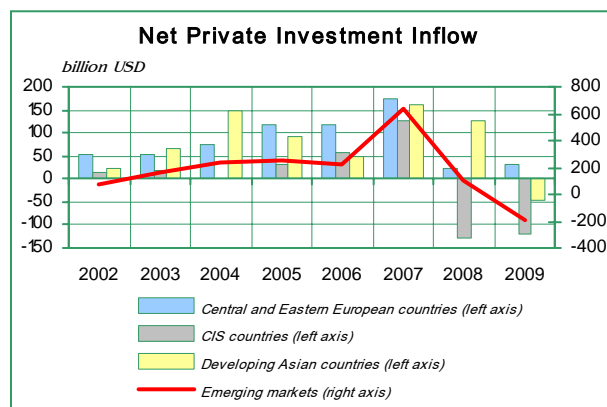
Source: Bloomberg

Due to the expectations on further deepening of economic recession, securities markets of different countries exhibited volatile behavior. US and European stock exchange indices registered unprecedented drop, but starting the second quarter of 2009 the stock markets registered steady growth. Growth of stock exchange indices was mainly driven by financial resources provided to financial institutions for boosting real sector. Though, those resources outflowed to financial markets creating overheating and speculative risks. Comparatively steady growth of the developing countries raised investment interest towards the latter. As a result, in 2009 stock indices of developing countries registered larger growth than in developed countries. In comparison with 2008 December, in December 2009 RTS index grew by 128.6 percent, while the index growth rate in developed countries totaled only 19-22 percent.



Source: Bloomberg

Capital flow to developing countries started to recover in 2009. The recovery of portfolio investments was mainly driven by the growth of asset prices, especially by real estate price growth. Also in the first half of 2009, the "risk appetite" recovered, which was due to expansive fiscal measures. Successful expansive fiscal policy contributed to the recovery of the confidence towards developing countries, which led to the growth of capital inflow. There are some concerns that the capital inflow in developing countries can result in asset bubbles and foreign exchange pressures.



Source: IMF

Despite positive developments in developing countries in the end of 2009, risks associated with financial stability are present due to volatility of financial markets and possible decrease of capital inflow. Financial market volatility and capital inflow decline risks are more probable to emerge in European and CIS developing countries, which have major dependency on external financing. Due to improvement of current account the need of external financing reduced, but this was mainly caused by imports decrease rather than financial independence.

## SUMMARY

2009 anti-crisis measures made it possible to stabilize the world financial system and create preconditions for economic recovery. Conservative lending behavior of the banks in its turn created obstacles for faster recovery transferring state provided funds to financial markets. In 2009, encouraging developments were observed both in developed and developing countries, though the latter were not totally "healthy" and had significant

dependency on world capital flow pattern. According to IMF forecasts, investor interest towards developing countries will continue also in 2010 creating additional driving force for economic recovery. In case of stable economic growth, probably the financial markets of developed countries will not face new shocks.

### 1.3. RUSSIAN FEDERATION

Developments in the Russian Federation are of essential significance for the Armenian economy, as Russia is considered one of major trade partner countries to Armenia, and Russian investments to Armenia's different sectors of the economy are increasing day by day<sup>4</sup>. There are large numbers of Armenian nationals who live or seek seasonal works in Russia and make notable remittances to Armenia.

In 2009 Russian economy developed under global crisis conditions and exhibited diverse behavior. In the first half of 2009, deterioration of external economic conditions, falling exports and credit crunch resulted in unprecedented recession of investment activity and industry. The industrial recession in Russia was also driven by drop of the fuel and metal prices, and also by capital outflow. Starting the second half of 2009 the economy turned to the recovery phase, which was mostly due to improvement of economic climate in the world.

In contrast to high growth rate registered during previous years, in 2009 Russian economy faced recession. According to Russian State Statistics Federal Service, recession totaled 7.9 percent. In the first quarter of 2009 recession was registered (quar. /quar. -9.8 percent), which deepened in the second quarter (quar. /quar. -10.9 percent). And only in the third quarter upturn of economic environment was observed. In the fourth quarter the GDP grew by 5.7 percent in comparison with previous quarter. This allowed minimizing the fourth quarter recession (on annual basis) to 2 percent.

The biggest annual decline was observed in processing industry sector (-16.0 percent) and in construction sector (-16.4 percent). The

mining sector contracted by 2 percent, while trade declined by 8.3 percent. Decline of abovementioned four sectors contributed 47 percent of GDP decrease (3.8 percentage points out from 7.9 percent). Private consumption mainly followed quarterly dynamics of economy declining by year on year 8.1 percent and contributing 3.9 percentage points to GDP reduction. The decline of consumption growth rate contributed to 2.8 percent decline of average salary growth rate and 32 percent growth of unemployment rate (compared to the previous year). At the year-end the number of unemployed totaled 8.2 percent of economically active population.

Private savings rate kept at rather high level (13-15 percent), which will probably be important factor for GDP growth in 2010.

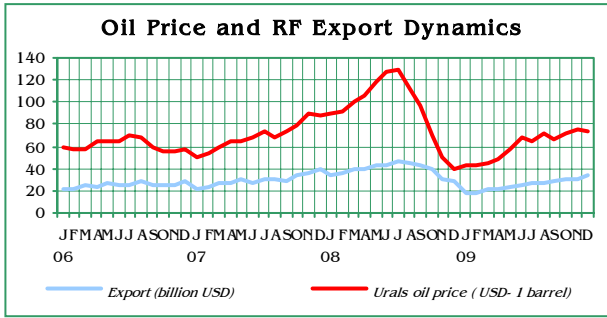
During 2009, investments decreased by 30 billion dollars and capital outflow totaled 52 billion dollars. Capital flows changed directions during the year. In the first and third quarters large-scale capital outflows were observed (around 34 billion dollars) mainly due to redemption of foreign bank liabilities (the enterprises had 110 billion dollar credit redemption and interest payment issue) and foreign asset growth. While in the second and fourth quarters capital inflow was observed mainly driven by decrease of foreign asset demand by banks and also by decline of foreign exchange demand.

Export of products in 2009 totaled 303.3 billion dollars, which in dollar terms decreased by 35.7 percent. This is mainly result of decline of raw material prices, while the export volume declined by 3.5 percent. Starting April exports value started to grow driven by recovery of oil prices. In the last months "base effect" was in force i.e. the low export level in previous year.

According to estimations, imports totaled 192.7 dollars in dollar terms declining by 34.0 percent. Value reduction of imports is caused by volume reduction of purchases, which totaled 34.4 percent. Reduction was mainly observed at the beginning of 2009. Starting June 2009 stable growth was observed, which was mainly driven by ruble exchange rate recovery and growth of domestic demand. The biggest volume contraction was observed for imports of investment goods, recovery of which is under suspicion due to investment slump.

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<sup>4</sup> Economic development in other countries of region (Georgia, Azerbaijan, Turkey, Iran) are not presented separately as the latter do not significant impact on Armenian economy and financial system.



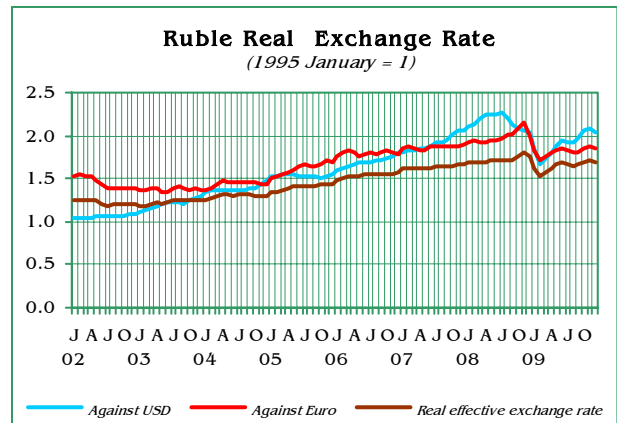
Source: Ministry of Economic Development of RF

In 2009, the factors affecting domestic currency market of Russia were diverse. In the beginning of the year the foreign exchange demand exceeded the supply, which was mainly propelled by the continuous extension of bi-currency basket fluctuation range by RF Central Bank. As a result of mentioned adjustments and the following stabilization of market participant expectations, the foreign exchange market came to equilibrium.

In September-November parallel to the growth of attractiveness of local investments ruble appreciation trends were observed. According to the calculations Ministry of Economic Development of RF, in 2009, the real depreciation of RF ruble against US dollar was 0.4 percent, against euro 6.5 percent and 8.8 percent against GB pound sterling. The depreciation of real effective exchange rate totaled 3.8 percent (on annual bases).

For 12 months of 2009, consumer price growth totaled 8.8 percent, instead of expected 11.5-12 percent- the lowest level ever since 1991. Compared to the previous year the inflation dropped by 4.5 percentage points, which is also unprecedented for Russia. In the first quarter the inflation totaled

5.4 percent versus 4.8 percent in the first quarter of 2008 mainly under ruble depreciation and significant import deterioration circumstances. The inflation was also affected by annual price increases by natural monopolies and also costly credits due to interest rate increase by the Central Bank. But starting from the fourth quarter the inflation rapidly decreased due domestic demand contraction driven by economic crisis and production reduction. In the second half of 2009 the inflation decreased to minimum 1.3 percent level.



Source: Ministry of Economic Development of RF

Under the circumstance of production level reduction and inflation pressures and taking into consideration issues related with boosting consumer demand and lending in banking sector, monetary policy of Central Bank of RF was aimed at shaping positive expectations. For this purpose the interest rate of monetary policy instruments were continuously reduced. As a result, during 2009 refinancing rate dropped from 13 percent to 8.75 percent.

## 2. FINANCIAL STABILITY IN ARMENIA'S MACROECONOMIC ENVIRONMENT

### 2.1. MACROECONOMIC DEVELOPMENTS

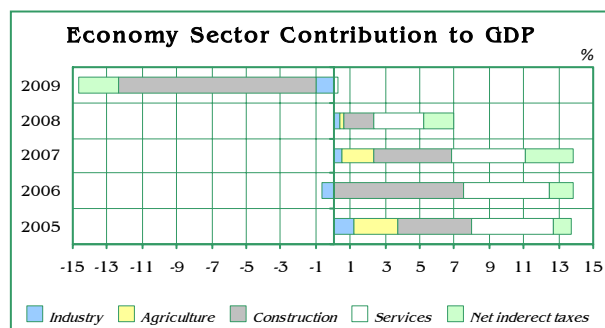
The negative developments of global crisis affected the real sector of Armenian economy in the fourth quarter of 2008 and deepened during 2009. The vulnerability of Armenian economy is due to high dependency of real sector on external factors, high concentration of sectoral output and large share of factor income and private remittances in Gross Domestic Disposable Income. The crisis penetrated Armenian economy through three vulnerable channels: foreign capital inflow, reduction of private remittances and metal price reduction.

As a consequence of global economic crisis, already in second quarter of 2009 economic recession topped its highest level 21.8 percent mainly driven by decline in construction and industry sectors. Decline of construction sector was mainly due to significant reduction of external capital and private remittance inflow. Decline of industry sector was mainly due to reduction of external demand driven by decrease of industrial demand of electricity and natural gas, production level of chemical, construction material and food processing sectors.

During next two quarters of 2009 Government initiated anti-crisis measures (tax relief for SME, Government guarantees for big businesses of construction and industry sectors, attraction of credit funds and promoting SME) shaped preconditions for certain positive expectations. Owing to Government anti-crisis measures, gradual recovery of world economy and growth of raw material prices, in the fourth quarter of 2009 economic activity recovered in all sectors and the economic recession rate slowed down. Economic recession (5.3 percent year/year) registered in fourth quarter of 2009 allowed to contract annual recession rate up to 14.4 percent. Nevertheless, on annual basis, recession is registered almost in all sectors except in service sector. In comparison with other CIS countries, the contraction rate of Armenia's GDP falls behind only Ukraine's recession rate.

Economic recession in agriculture sector totaled 0.1 percent (1.3 percent growth in 2008). Cattle breeding sub-sector production

grew by 1.0 percent, while plant vegetation sub-sector registered 0.7 percent drop.



Source: National Statistics Service of Armenia (RA NSS)

Reduction of added value of industry sector totaled 7.6 percent (2.4 percent growth in 2008) driven by reduction in food, construction material, chemical sub-sectors. Growth was registered in ore mining and metallurgical industries respectively totaling 10.0 and 20.9 percent. The growth in mentioned sectors was mainly registered in fourth quarter due to increase of world prices of metal.

In January-December 2009 the real reduction of food processing sector totaled 6.2 percent, mainly in tinned food, brandy, and animal oil production sectors. 24.3 percent drop of construction material production (January-December) was driven by slackened demand of cement, industrial concrete, and aluminum items due to construction volume contraction. 34.1 percent drop of chemical industry was due to reduction of caustic soda production and closure of synthetic corundum production. Due to slackened economic activity, the industrial demand for electricity and natural gas dropped. This caused 13.3 percent drop in energy sub-industry for January-December 2009. Until the last quarter of 2008, favorable conditions were formed in Armenia for rapid growth of construction and service sectors. It is worth mentioning some of the favorable factors such as foreign capital inflow, growth of private remittances and household income. As a result of reduction of private remittances and household income volume of individual construction, dropped by 70.5 percent. Restrained sources of construction financing and real estate price drop led to 42.3 percent decline of added value of construction sector (January-February).

The growth of service sector totaled 0.7 percent for January-February 2009 (8.5 percent in 2008) mainly driven by 0.5 percent growth of retail trade. The growth rate of the sector mostly declined because of reduction of wholesale and automobile trade. Parallel to drop of household income and remittances, automobile trade decreased by 38.2 percent, while wholesale trade declined by 7.9 percent.

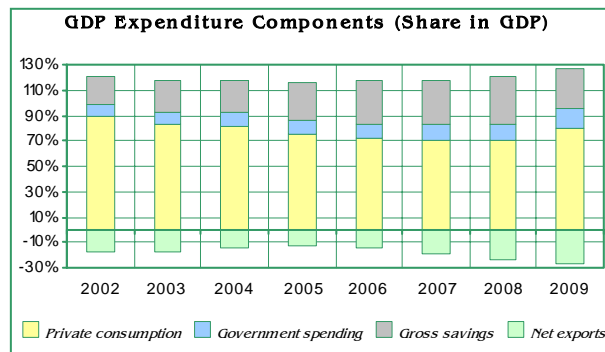
During 2009 lending to main sectors of economy continued to grow. Metallurgical, construction material production, chemical, food processing, energy industry and construction sectors were credited both through banks' own funds and Government anti-crisis program. In the first half of 2009, parallel to the slackening of lending activity by banks, the share of non-performing loans grew twice totaling 10.6 percent. Measures taken by the Government and the CBA contributed to the recovery of lending activity and to the rapid improvement of loan quality reaching 4.8 percent at the yearend. Reduction of corporate and household income and liquidity due to the crisis had an adverse impact on credit default rate and losses associated with credit risk grew. Share of non-performing loans doubled in food processing, agriculture and trade sectors, which have a large share in credit portfolio of the banking sector, but don't have high per bank concentration level. The loans to service<sup>5</sup> sector account quarter of banking system credit portfolio, but also have low per bank concentration level in banking system.

Over the last quarter of 2008 the banks tightened lending policies<sup>6</sup> both for SME and major business lending, particularly lending conditions for long-term credits. The banks were inclined to more cautious and prudent lending policy to handle the negative developments of global financial crisis and Armenian macroeconomic environment. In the last quarter of 2009 some credit policy easing tendencies are observed, particularly credit interest rates were reduced and the maturities were extended. Nevertheless, the banks were adhering to more strict and conservative manner of borrower selection. From this point of view, borrower selection, creditworthiness assessment, credit servicing and collateralizing procedures were clarified and tightened. As factors contributing to credit easing the banks

<sup>5</sup> Include: wholesale and retail trade, transport and communication, public food and other sectors.

<sup>6</sup> Source: the CBA 2009 December survey "On loans made by the banks and credit organizations".

mentioned accessibility of money markets and high liquidity. However, economic activity growth expectations didn't have effect on lending policy revision (according to this survey), but it was mentioned that decrease of risk level in some sectors affected borrower selection.



Source: RA NSS

On the GDP expenditure components side, the consumption level decreased by 3.5 percent during the first three quarters of 2009<sup>7</sup>. This was mostly driven by reduction of household real income and was result of drop of private remittances and decline of wage growth rate. The private consumption decreased by 2.6 percent, government spending by 8.6 percent, and the biggest reduction was observed in gross savings 44.0 percent. In terms of imports, exports and GDP reduction, in 2009 the negative share of net exports in GDP increased by 3.4 percent and totaled 26.4 percent.

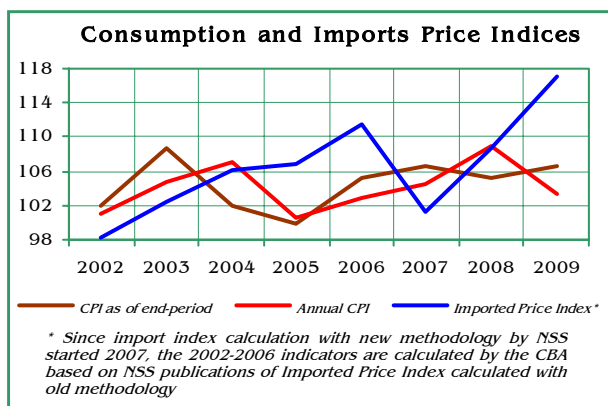
During 2009, the inflation directions varied at year-end exceeding the upper limit of monetary policy target range ( $4 \pm 1.5$  percent) by 1 percent and totaled 6.5 percent. In the first quarter, due to continuous recession and absence of external inflation pressures, the inflation stayed lower than target range. Starting second quarter, main factors behind inflation were adjustment of import prices as a consequence of AMD depreciation and rise of some utility tariffs. As a consequence, in the third and fourth quarter the inflation was close to target range. In the fourth quarter 12-month inflation rate started to accelerate, but until November stayed in target range. Sharp growth of inflation rate was observed in December due to more vigorous seasonal growth of agriculture product prices.

Taking into consideration slackening of inflation pressures from world markets and

<sup>7</sup> The annual indicators for 2009 are calculated on the last day of the first quarter of 2010.



demand reduction, from the 2008 year-end and during 2009 the Central Bank periodically dropped repo interest rate. Parallel to that, the CBA implemented quantitative easing policy, which included implementation of long-term repo, active participation in secondary market of government securities and large-scale dram resource injection into banking system through implementation of credit programs within the framework of Government initiated anti-crisis program. Such direction of the policy allowed to some extent mitigating the global crisis impact and pursuing economic activity boosting objective. In these conditions 3.4 percent annual average inflation rate registered in Armenia in 2009 was lower than average inflation rate in CIS countries<sup>8</sup>.

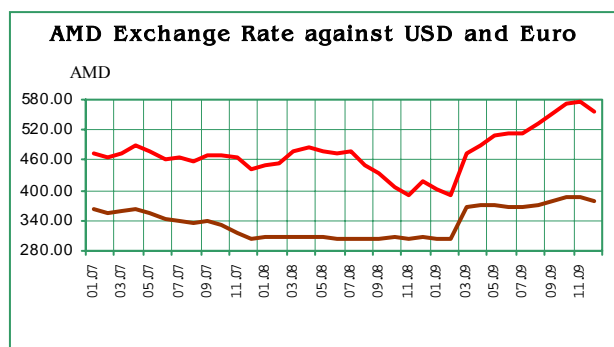


Source: RA NSS and CBA

Because of reduction of exports, private transfers, factor income and foreign investments the foreign exchange supply significantly shrunk. In conditions of decreasing inflow of capital and financial resources, the dram depreciation expectations caused tensions in foreign exchange market. Taking into consideration mentioned developments, in the last quarter of 2008 and in the first quarter of 2010 the CBA had comparatively active intervention in foreign exchange market. In March 2009 the Central Bank Board decided to cease the CBA active intervention in foreign exchange market, after which approximately 19 percent depreciation of Armenian dram took place. The decision of CBA board was based on fact, that during previous five months the Armenian banking system prepared for possible developments and risks of dram depreciation, significantly increased the capital cushion and took necessary actions for restructuring foreign

<sup>8</sup> For details see Inflation Report for IVQ 2009.

exchange asset and liability structure. The banking system suffered fewer losses than was calculated by stress-tests. Losses from dram depreciation amounted to 2.0 percent of total capital (as of March 2009). Depreciation of national currency in March 2009 and CBA monetary policy contributed to the reduction of speculative expectations in foreign exchange market and partially restricted imports propensity and further deepening of current account deficit. In the second half of 2009, the growth of main raw material prices in world markets furthermore stimulated the recovery of export-oriented sectors, the recession rate of which slowed down already in fourth quarter.



Source: CBA

## SUMMARY

In comparison with 2008 in 2009 the macroeconomic developments of Armenia were mainly affected by developments in global economy. Economic recession is registered mostly in GDP contributing sectors and certain recovery was observed only in the last 3-4 months of 2009.

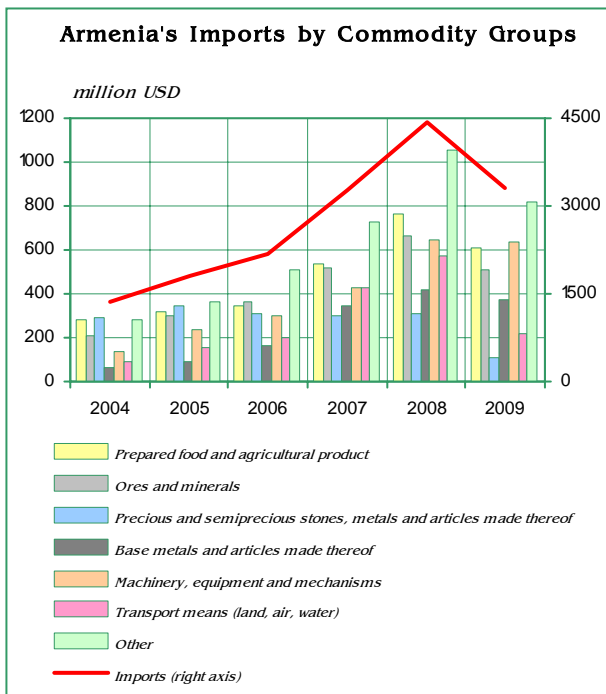
Armenian economy is expected to recover at slow pace in 2010. It is expected, that economic growth will be registered in construction, industry and service sectors. Government initiated anti-crisis measures will have significant effect on the recovery of economic growth. Internal and external inflation pressures can impose risks on inflation behavior, which is also reflected in monetary policy program of the CBA. The uncertainties concerning world economic developments and the effectiveness of Government anti-crisis programs can also affect the inflation level. In case of foreign exchange inflow (private transfers, factor income, foreign investments, and exports revenue) recovery of dram depreciation expectations can wane.

## 2.2. FOREIGN TRADE

The negative impacts of 2008-2009 global economic crisis were reflected also in Armenian foreign trade developments. Under circumstances of world price reduction and declining demand for some export commodities, drop of Armenian exports and imports was observed.

During 2009, import volumes decreased by 25.3 percent and totaled 3.3 billion USD. In 2009, dollar price of imports declined by 6.8 percent in contrast to 22.3 percent growth in 2008<sup>9</sup>.

Increase of commodity prices in global market in the fourth quarter can persist also in 2010, which combined with domestic demand growth can affect increase of imports.

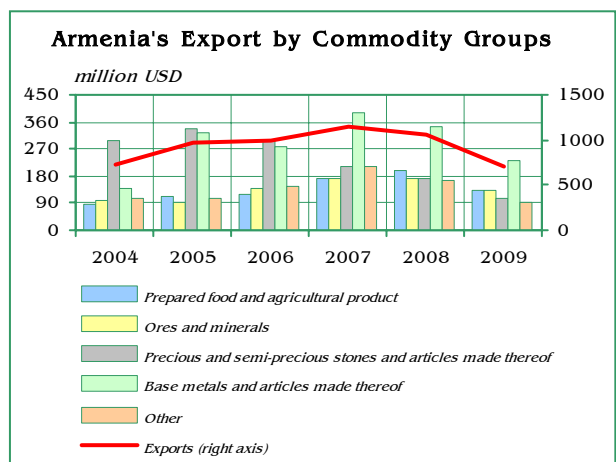


Source: RA NSS

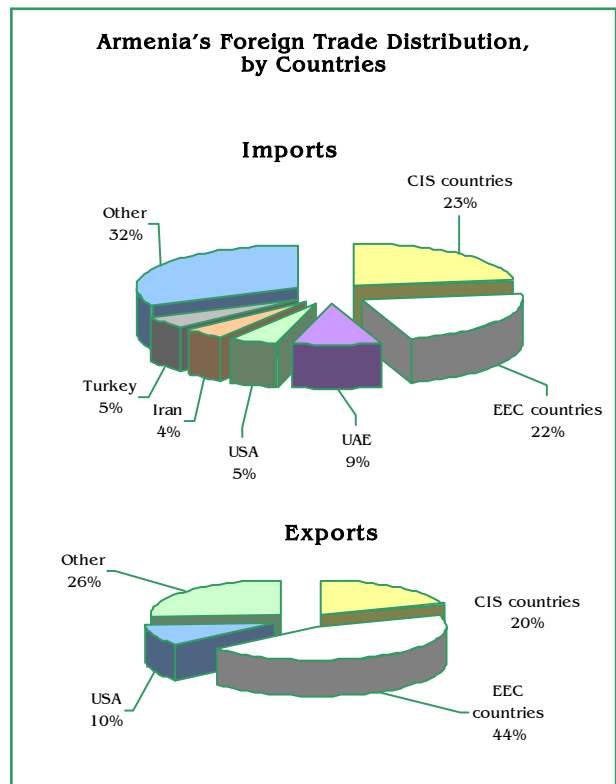
Compared with the previous year drop was registered for all commodity groups of imports. Reduction affected chiefly "Precious and semi-precious stones and articles made thereof", "Ores and minerals", "Prepared food and agricultural product" commodity groups related with decrease of domestic demand and imports prices.

In 2009 in dollar terms export decreased by 34.0 percent and totaled 697.8 million USD. Reduction was registered almost in all commodity groups mainly driven by slumping external demand of partner countries.

Decrease of imports and exports stroke the same commodity groups ("Precious and semi-precious stones and articles made thereof", "Ores and minerals", "Prepared food and agricultural product"). Armenia mainly exports ores, metals, particularly copper and molybdenum, prices of which grew in 2009; however demand reduction due to economic recession did not allow recovering export volumes. As a result of copper and molybdenum price cuts in the beginning of 2009 domestic producers reduced the production volumes and only in the last two quarters the production volumes grew, however the annual production volume was less than in previous year.



Source: RA NSS



Source: RA NSS

<sup>9</sup> For details see Inflation Report for IVQ 2009.

Armenia's Import Volumes by Commodity Group and Annual Growth( thousand USD, CIF prices)								
Year	Prepared food and agricultural product	Ores and minerals	Precious and semi-precious stones, metals and articles made thereof	Base metals and articles made thereof	Machinery and equipment	Transport means (land, air, water)	Other	Total
2005	315.9	297.4	347.6	94.1	232.5	151.8	362.5	1801.7
annual growth	11.8%	42.0%	19.2%	54.7%	72.0%	64.0%	30.3%	33.4%
2006	343.5	366.0	312.5	163.7	304.4	196.6	504.9	2191.6
annual growth	8.7%	23.1%	-10.1%	74.1%	31.1%	29.6%	39.3%	21.6%
2007	538.4	516.4	296.7	341.3	422.8	422.8.0	724.9	3267.8
annual growth	56.7%	41.1%	-5.0%	108.4%	41.4%	115.0%	43.6%	49.1%
2008	760.5	664.5	304.6	418.6	645.0	574.4	1058.4	4426.1
annual growth	41.3%	28.7%	2.7%	22.7%	50.9%	35.9%	46.0%	35.4%
2009	613.3	512.0	107.4	375.7	635.4	242.3	818.0	3304.1
annual growth	-19.4%	-23.0%	-64.7%	-10.3%	-1.5%	-57.8%	-22.7%	-25.3%

Armenia's Export Volumes by Commodity Group and Annual Growth (thousand USD, FOB prices)							
Year	Prepared food and agricultural product	Ores and minerals	Precious and semi-precious stones and articles made thereof	Base metals and articles made thereof	Other	Total exports	
2005	114.1	93.5	336.3	322.0	108.0	973.9	
annual growth	37.7%	-6.2%	12.4%	133.9%	4.4%	34.7%	
2006	121.8	136.6	301.0	280.9	144.8	985.1	
annual growth	6.8%	46.1%	-10.5%	-12.8%	34.1%	1.1%	
2007	169.6	173.5	208.7	390.2	210.3	1152.3	
annual growth	39.2%	27.1%	-30.6%	38.9%	45.2%	17.0%	
2008	199.6	172.5	173.1	346.8	165.1	1057.2	
annual growth	17.7%	-0.6%	-17.1%	-11.1%	-21.5%	-8.3%	
2009	135.2	132.1	105.0	231.2	94.3	697.8	
annual growth	-32.3%	-23.4%	-39.3%	-33.3%	-42.9%	-34.0%	

Source: RA NSS

2009 trade deficit remained at the 2008 level and totaled 2.6 billion USD. As the GDP shrunk the current account deficit/GDP ratio increased by 4.8 percentage points (compared to 2008) and totaled 29.9 percent. According to 2009 estimations, because of high contraction rate of GDP the share of current account deficit in GDP totaled 14.0 percent against 11.6 percent in 2008.

Geographic distribution of Armenia's foreign trade is rather concentrated. The main foreign trade partners of Armenia are Russian Federation and EU member countries. Due to economic recession/low growth in these countries the imports propensity dropped,

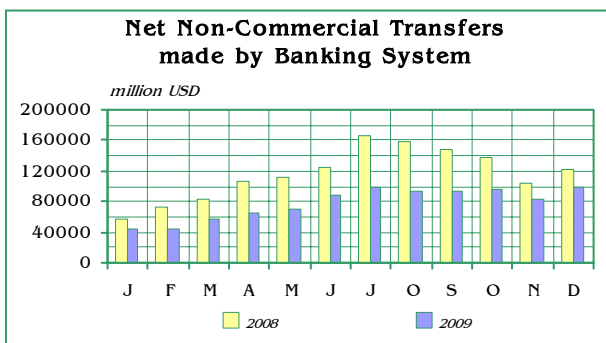
which had a negative impact on Armenian exports. The share of Russian Federation and EU member country in Armenian exports dropped by 20 percent, while the import structure stayed unchanged.

According to CBA forecasts, growth of imports and exports in 2010 will recover creating favorable conditions for financial stability of the enterprises. In 2009 Government of Armenia initiated measures for SME development. Particular boosting of export-oriented businesses was emphasized. Government support was also provided to large structural exporters.

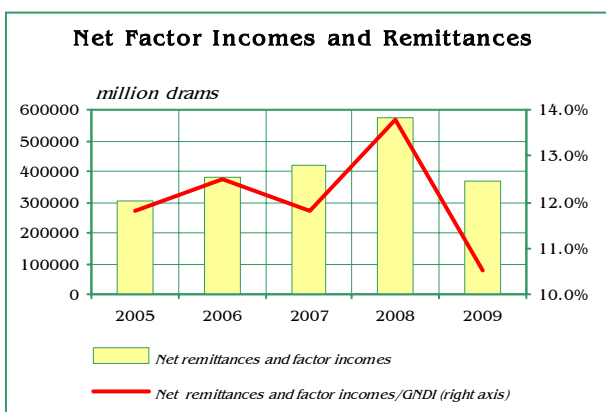
### 2.3. NET FACTOR INCOMES AND REMITTANCES

From the point of financial stability implementation, one of the major risks of external sector is the unfavorable changes of net factor incomes and private transfer flows, as those constitute a significant share in Armenia's population income. Major part of remittances is received from Russian Federation and their reduction in 2009 was mainly driven by the economic recession in Russian Federation.

In 2009, the inflow of net private transfers and factor incomes decreased and their share in Gross National Disposable Income (compared to 2008) dropped by 3.3 percent and totaled 10.5 percent (at 2008 year-end 13.8 percent). Reduction of net private transfers and factor incomes (in AMD terms) exceeded 15.9 percent reduction of GNDI and amounted to 35.2 percent. Though, during the year the inflow of the remittances had a slightly growing trend, however the 2008 level was not recovered.



Source: CBA



Source: RA NSS

In 2009, the net inflow of non-commercial transfer of the banking system totaled 929.2 million USD or 337.5 billion drams decreasing by 33.3 percent in comparison with 2008.

86.6 percent of private transfers carried out through Armenian banking system, were received from those living and working in Russian Federation. Remittances and factor incomes received from Russia are mainly spent on current consumption and to the financing of private construction. Because of this, the reduction of inflow had a negative impact on domestic consumption level and on household financed construction.

Majority of Armenians working and living in Russia are engaged in non-export (particularly trade and construction) sectors of Russian economy<sup>10</sup>. The development of the mentioned sectors are tightly interconnected with the developments of oil producing industry, fuel prices and Russian exports, which dropped during 2009. And as a result, recession was also registered in non-export sectors. The procedures of workforce immigration in Russia were significantly tightened. Because of immigration rules' tightening and economic recession in Russia many Armenian citizen were not able to immigrate to Russian Federation. Overall impact of all mentioned factors led to the reduction of remittances from Russian Federation. 2010 forecasts of factor income and remittance inflow are certainly linked to the rapid recovery of Russian economy. According to IMF estimates, in 2010 Russia will face slow economic recovery. As a result pre-crisis level of private transfers sent to CIS countries will also grow at a slow pace.

### 2.4. HOUSEHOLD INCOME AND DEBT BURDEN

In 2009, despite the economic recession, the unemployment rate increased by only 0.6 percentage points and totaled 6.9 points, while average monthly wage grew by 9.2 percent (2008 17.7 percent). Under declining rate of wage growth and unemployment growth the household income dropped by 11.8 percent. Reduction of net factor incomes and private transfers had a restrictive impact on household income growth.

Though in 2009 total credit investments of the banking system grew by 14.0 percent, the loans provided to households dropped by 6.4

<sup>10</sup> Source: Surveyed results of the Central Bank query conducted to identify the structure of non-commercial remittances that arrive from abroad on behalf of Armenian resident individuals.

Debt and Income Indicators (percent)						
	2004	2005	2006	2007	2008	2009
Annual growth rate of loans provided to households by banks	36.0	50.1	44.2	87.9	51.2	-6.4
Growth rate of Gross National Disposable Income	21.5	15.9	19.1	17.6	16.3	-18.8
Household borrowings from banks / Gross National Disposable Income	0.9	3.1	3.8	6.1	7.9	9.1
Household borrowings from banks, credit organizations and pawnshops / Gross National Disposable Income	0.9	3.3	4.2	6.8	8.8	10.3

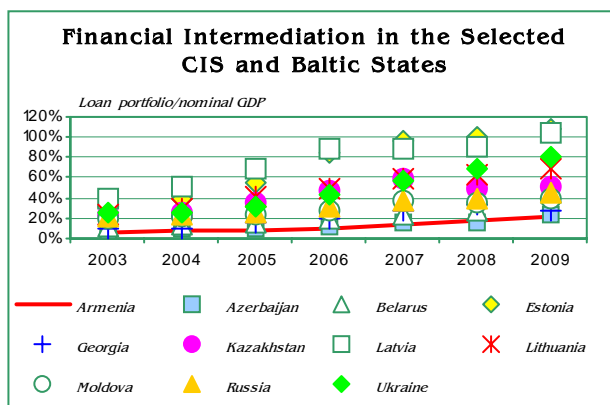
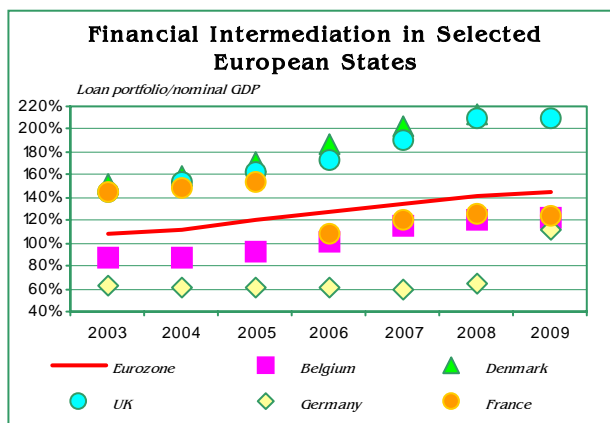
percent. The lending decreased mainly due to crisis impact, tightening of credit terms and deterioration of household creditworthiness. In contrast to reduction of bank lending, the debt/income ratio of households increased by 0.8 percentage points and totaled 8.7 percent.

Including of household borrowings from credit organizations and pawnshops the debt ratio will sum up 9.8 percent, which is 1.0 percentage points more than 2008.

The household debt burden growth was mainly driven by the reduction of household incomes and from financial stability point of view it can be a risk source. In 2009, the credit risk losses from household loans had growth trend, which didn't have impact on banks' solvency, but limited banks' willingness of household lending.

As the experience of almost all post-Soviet and Eastern European Countries shows, the unprecedented lending growth is followed by the growth of losses associated with credit defaults (regardless of global crisis impact). The growth of losses from the credit defaults in 2009 were partially a result of high growth rate of lending during previous two years, and partially were due to negative impact of the global crisis. Due to the low intermediation level in Armenia, the probability of large credit losses in Armenian financial institutions is much less than in countries with high level of financial penetration. In 2009, the credit portfolio/GDP ratio, characterizing the level of financial penetration, grew by 5 percentage points. However it was mainly due to the moderate growth of loans in conditions of GDP decline and not to improvement of credit accessibility. The growth of loans during 2009 was mainly contributed by the high growth of construction lending, which before 2009 had a low level.

Starting the last quarter of 2008 majority of Armenian banks tightened lending terms through increasing interest rates, cutting down loan amounts and terms<sup>11</sup>. Financial crisis was mentioned as the main reason for moving to a more cautious lending policy by the banks, which tightened the mortgage terms. Because of uncertain expectations concerning the real estate prices and household incomes from remittances, the mortgage lending is considered highly risky. As reasons for tightening consumer lending terms were mentioned economic recession expectations, uncertainties concerning economic developments and customer creditworthiness, collateral risk. According to CBA, in the second half of 2009 some credit easing tendencies, were observed, which were contributed by positive expectations



Source: IMF

<sup>11</sup> Source: CBA survey on "Loans provided by Armenian banks and credit organizations", December 2008.

### Dwelling House Operation by Sources of Financing

Sources of financing	Operated dwelling houses (Sq. meter)	Share in total	Percentage change to 2008
<b>Total of which:</b>	<b>415 162</b>	<b>100%</b>	<b>80.6%</b>
State budget	10376	2.5%	45.5%
Resources from organizations	70820	17.1%	58.8%
Household resources	333966	80.4%	89.8%

concerning economic recovery and also by the efficiency of Government initiated credit support programs.

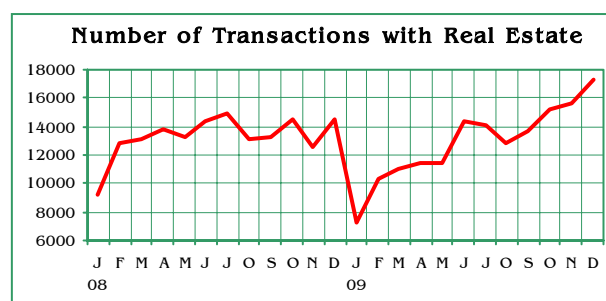
#### 2.5. REAL ESTATE PRICES

During last couple of years the real estate prices continued to grow at a steady pace, increasing the attractiveness of the construction sector. Due to price increase the investment demand for real estate expanded notably. Growth of real estate demand, to some extent, was also affected by the accessibility of mortgage lending.

2008-2009 crisis had rather negative impact on Armenian real estate market. Worsening of the conditions started in the third-fourth quarters of 2008, when difficulties with construction financing (related with reduction of household income and direct investments) combined with the reduction of real estate demand. The conditions continued to worsen also in 2009. The main sources of construction financing in Armenia are foreign investments, household funds (also resources collected from the sale of unfinished houses) and to some extent bank loans. Because of economic crisis, foreign financing, household incomes (particularly private remittances) dropped. Because of lending term tightening and deterioration of financial conditions of the construction companies the obtaining of bank credits became complicated. Reduction of preliminary sale of unfinished houses on its turn hampered further financing of construction sector.

In 2009 the drop of real estate supply was accompanied by sharp reduction of real estate demand. Reduction of real estate demand was driven by uncertainties of future economic developments, by the drop of growth rate of foreign investments, foreign demand for real estate and household incomes. In terms of declining prices and uncertain prospects, both speculative (investment) real estate demand

and real estate demand for personal and business use dropped. If we consider monthly average number of real estate transaction as a real estate market activity indicator, then compared to the end of 2008, the latter in the first three quarters of 2009 declined by 6 percent and recovered growth trend only in fourth quarter.



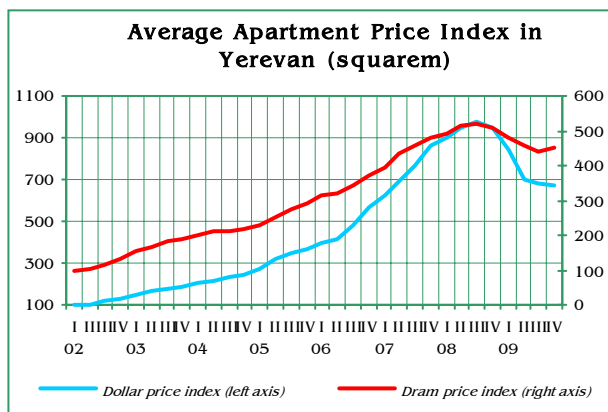
Source: State Committee of Real Estate Cadastre at the Government of Armenia

In the fourth quarter of 2009, besides seasonal growth of the market, extra activity was observed in real estate market driven both by mortgage loan accessibility easing and increase of private remittances. Main factors contributing to market recovery are low level of prices and growth expectations. The real estate price growth, observed in the last two months, was significantly affected by credit easing for construction and mortgage lending within the framework of Government initiated anti-crisis measures.

In this respect, the establishment of "National Mortgage Company" universal credit organization was an important event in 2009. The "National Mortgage Company" in the third-fourth quarters of 2009 refinanced 2.4 billion dram worth loans (336 in number) with interest rates significantly lower than the market rates. The loans were refinanced through the funds received from Russian Federation stabilization loan, and from the own capital of the company.

In the framework of abovementioned developments, in 2009 for the first time in the

last five years the dramatic prices of real estate (for multiple apartment houses) in Yerevan declined and the decline compared to the December 2008 totaled 10.3 percent (3.3 percent growth in 2008). The downward trend of Armenian real estate prices in regions was delayed as the regional real estate market is rather underdeveloped. In comparison with December 2008, in December 2009 3.9 percent growth was registered for real estate (for multiple apartment houses) prices in regions (31.6 percent growth in 2008). The maximum drop was registered in Armavir region 2.5 percent, while the biggest increase was registered in Syunik region 15.5 percent. By region and city analysis shows, that growth trends persisted in regions (marzes), where price growth started delayed, while price decrease was observed in regions and major cities neighboring Yerevan, where the real estate prices grew with the same pattern as in Yerevan.



Source: State Committee of Real Estate Cadastre at the Government of Armenia<sup>12</sup>.

According to assessments of some real estate agencies, in 2010, the growth rate registered in Yerevan during last two months of 2009 will persist, while the price growth in regions will be delayed until the second half of 2010.

In 2009, the growth rate of finished apartment houses, in comparison with the previous year, declined by 19.4 percent. 41.2

percent reduction was registered in volume of apartment house construction by organizations, but the share of organizations in total volume is small (17.1 percent). The main source of apartment house construction stays household incomes, share of which is fairly high 80.4 percent. The reduction of construction financed by households, in comparison with 2008, totaled 10.2 percent.

## SUMMARY

Overall, the macroeconomic developments of Armenia in 2009 were unfavorable and improvement of conditions was observed only in the fourth quarter. The impact of global economic crisis was expressed through deterioration of economic growth, household incomes and foreign trade balance. Deterioration of prices and demand for commodities having large share in export, reduction of foreign financial inflow and economic uncertainties preconditioned 2009 economic recession. Reduction of demand for export commodities and non-favorable price environment deepened trade deficit. Decrease of remittances and factor incomes significantly aggravated the financial wealth of households. Financial difficulties of the enterprises and deterioration of household incomes undermined credit risk of the financial institutions, although no significant risks emerged.

According to forecasts in 2010 improvement of macroeconomic indicators is expected. Parallel to the recovery of the world economy, the remittance and capital inflow can also recover, while the growth of world demand can contribute to the recovery of the Armenian exports.

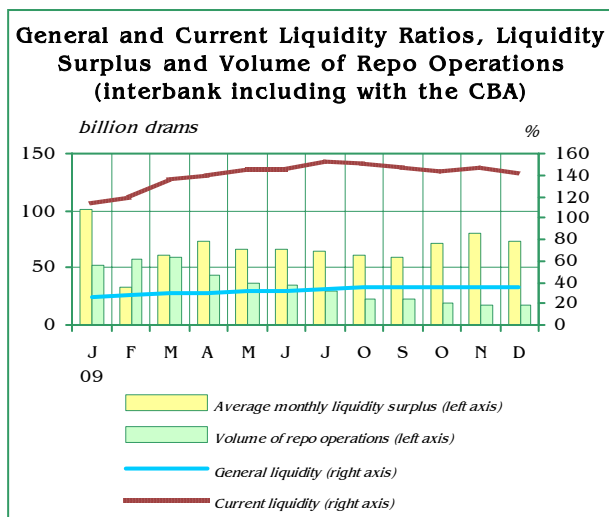
<sup>12</sup> Source: the Republic of Armenia State Committee of Cadastre's website [www.cadastr.am](http://www.cadastr.am) (because the website lacks a composite average real estate price index for Armenia, the average home price index for the city of Yerevan had been chosen as the best criteria/benchmark to reflect price developments in the Armenian real estate market). Before June of 2005, the real estate prices have been quoted in US dollars and, thereafter, in Armenian drams, so which is why, average price growth rates have been calculated in dollar and dram terms, respectively, in order to produce the composite average price index.

### 3. ARMENIAN FINANCIAL MARKET STABILITY

#### 3.1. MONEY AND CAPITAL MARKETS

The 2009 was rather controversial and complicated period for Armenian financial market. On one side financial crisis uncovered new challenges for the participants of the financial market, on the other side financial market played rather vital role for the preservation of the financial stability of the financial system. During short liquidity crunch the financial market managed to efficiently reallocate liquidity between different participants of the Armenian financial system.

As already mentioned, in terms of continuing global economic and financial crisis, the CBA carried out expansive monetary policy through combination of interest rate reduction and quantitative easing. Parallel to the reduction of refinancing interest rate by 2.25 percentage points the Central Bank, through existing and newly introduced instruments, activated quantitative easing policy. Commercial bank liquidity positions improved through offers of long-term repo and active participation of CBA in government security secondary market.



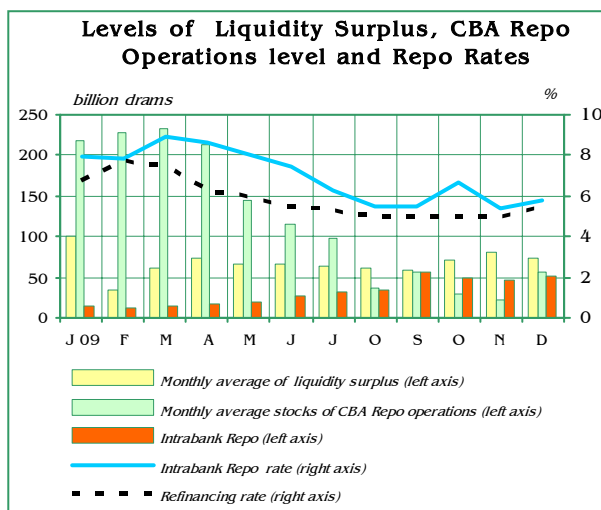
Source: CBA

The first half of the year was characterized by decrease of liquidity level due to emerged risks in Armenian banking system conditioned by global financial crisis and, particularly, by AMD depreciation.

The drop of liquidity surplus<sup>13</sup> and also of general<sup>14</sup> and current liquidity<sup>15</sup> ratios in first

<sup>13</sup> The difference between commercial banks' correspondent accounts with the CBA and funds subject to reserve requirement.

quarter was accompanied by growth of repo transactions (interbank and with CBA). However, in the second quarter the stable high liquidity level was restored accompanied by the low intervention of the CBA in financial markets.



Source: CBA

The liquidity demand in the second half of the year was lower than in first half and in second half the CBA managed to reestablish the required level of liquidity in interbank market.

During 2009, interest rate volatility rose, while mean square deviation of government securities in secondary market operations increased by 0.7 percentage points (in comparison with 2008) and totaled 2.2. Mean square deviation of market repo interest rates increased by 0.3 percentage points and totaled 1.3. In the end of 2009, interest rate of market repo totaled 5.79 percent dropping by 2.46 percentage points in comparison with 2008.

Modified Duration of Outstanding Government Securities as of 31.12.2009 for Different Maturity Baskets (including the Central Bank bonds)						
$D_M$	up to 6 months	from 6 months to 1 year	1-2 years	2-5 years	5-7 years	7-10 years
	0.24	0.67	1.2	2.63	5.1	6.2

Source: CBA

<sup>14</sup> Ratio between highly liquid assets and average daily value of total assets.

<sup>15</sup> Ratio between highly liquid assets and average daily value of on demand liabilities.

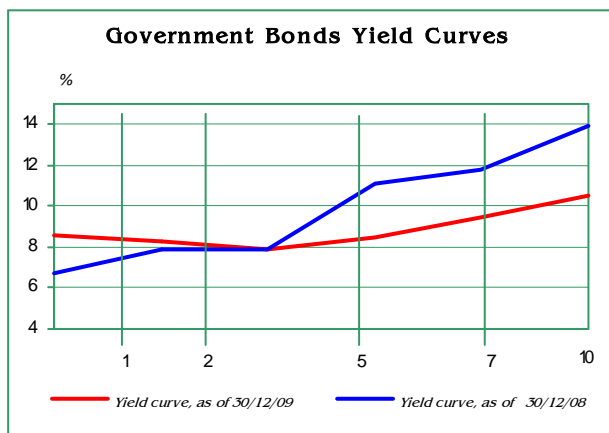


**Modified Duration of Government Securities in Trading Books of Commercial Banks as of 31.12.2009 and Probable Profit/Loss in case of 1% Change in Yield for Different Maturity Baskets**

	up to 6 months	from 6 months to 1 year	1-2 years	2-5 years	5-7 years	7-10 years	Total
Government securities in trading book (million of AMD)	16780.0	11447.0	8381.0	40195	7472.0	4056.0	88331.0
Share in total portfolio	19.0%	13.0%	9.4%	45.5%	8.5%	4.6%	100%
$D_M$	0.23	0.65	1.06	2.58	4.86	6.22	2.13
Price change +/- (million of AMD)	38.5	72.0	91.1	1084.1	344.7	216.3	1846.7

Source: CBA

The government security interest rate during 2009 showed diverse pattern. Decrease trend of short-term security interest rate was observed, while growth trend of mid-term and long-term securities was observed. Government security yield in secondary market at year-end 2009, in comparison with the same period in 2008, on average increased by 1.0 percentage point. The convexity of the yield curve significantly changed (from 0.11 to 0.37, see the chart), which shows the growth of the divergence between long-term and short-term bond interest rates.



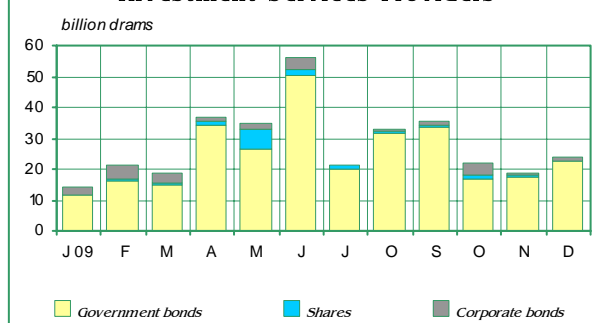
Source: CBA

The average maturity – duration of the outstanding government securities, in comparison with 2008, decreased by 65 days and totaled 912, as the yield for short-term bonds dropped, while the yield for mid-term and short-term grew.

The ratio of Average Modified Duration Indicator ( $D_M$ )<sup>16</sup> calculated to evaluate interest rate risk somewhat decreased in comparison with the previous year and at year-end 2009 for outstanding government securities 2.25 against 2.41 in 2008.

<sup>16</sup> Average Modified Duration Indicator denotes the level of change of price in relation to the change in yield.

**Volumes of Purchases and Sales of Securities (except transactions with CBA) by Investment Services Providers**

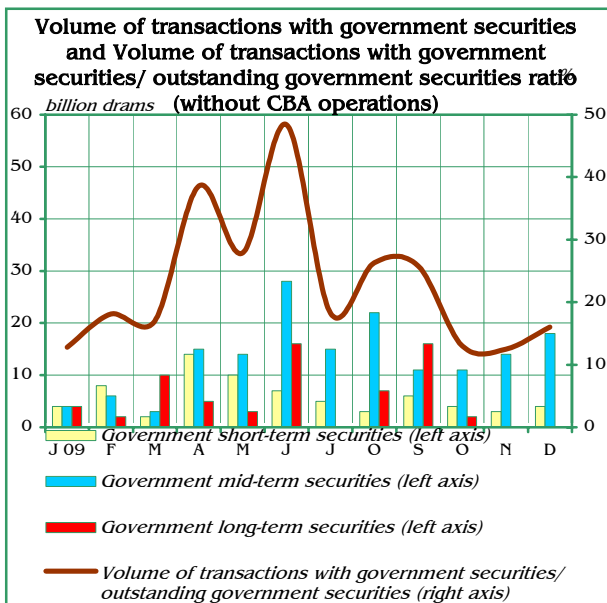


Source: CBA

In case of increase of yield by 1 percent, the likely loss in commercial banks' portfolio of government securities may reach a maximum of AMD 1.8 billion or 0.7 percent of total prudential capital assuming bigger portion of loss especially from short-term (with 2-5 year maturity) securities, since they have larger share in security portfolio. It is remarkable that in comparison with previous year, the results of above mentioned stress-test are more favorable. In case of increase of yield by 1 percent the financial loss of Armenian financial system will amount to 326 million less than in 2008.

Operation volumes (including Repo transactions, without transactions with CBA) in securities market carried out by investment services providers<sup>17</sup> increased by 41 percent and reached 146.0 billion drams. Securities buy/sell operations accounted 29 percent of abovementioned operations growing by 133 percent in comparison with 2008. It is remarkable, that the share of operations with government securities in total securities market turnover counted for about 87 percent. The share of corporate bonds and shares totaled respectively 8 and 5 percent.

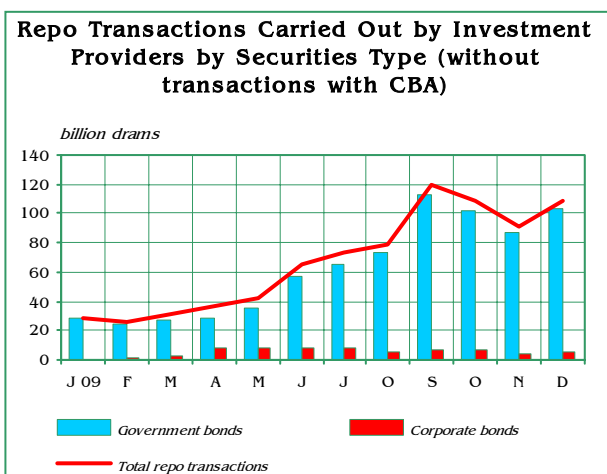
<sup>17</sup> As of December 31 2009, Armenia's investment service providers were 22 commercial banks and 8 investment companies.



Source: CBA

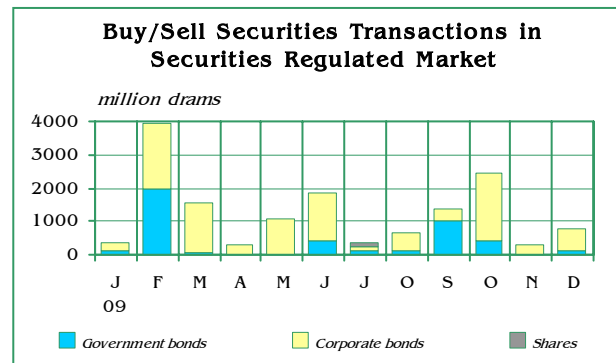
The liquidity of Armenian government security market was rather volatile, which is characterized as ratio between amount of monthly buy/sell transactions by investment service providers in securities secondary market and amount of outstanding government bonds. Mentioned liquidity indicator on average totaled 22.9 percent for 2009. At the same time, the standard deviation of the indicator was 11.2 percent, while the maximum volatility was observed in the first half of the year.

Buy/sell operations with mid-term government securities have large share in total transactions with government securities and in 2009 amounted to 55 percent of total turnover. The share of operations with short-term and long-term bonds amounted respectively to 23 and 22 percent of total turnover.



Source: CBA

The repo transactions (without transaction with CBA) carried out by investment service providers, in comparison with 2008, increased by 21 percent totaling 809.6 billion drams. Remarkably, overwhelming share (92 percent) of repo transactions were carried out with government securities, while repo transactions with corporate bonds accounted 8 percent and transactions with shares accounted 0.2 percent of total repo transactions.



Source: CBA

Though the share of transactions in regulated market in total amount of buy/sell transactions carried out by investment service providers is still small (14 percent), however it significantly grew (3.6 times) totaling 15.0 billion drams. The overwhelming part of the transactions in regulated market was with corporate bonds accounting 70 percent of total turnover. The share of transactions with government bonds and shares accounted respectively 29 and 1 percent of total turnover in securities regulated market.

The ratio of Armenian securities market capitalization/GDP<sup>18</sup> as of 31.12.2009 was 1.7 percent, growing by 0.2 percentage points against 2008.

### 3.2. FOREIGN EXCHANGE MARKET

Foreign exchange market of Armenia in 2009 was characterized by sharp devaluation. With the view of mitigating liquidity and credit risks emerged in banking system the CBA increased interventions in foreign exchange market aiming at stabilizing foreign exchange rate. After CBA ceased its intervention Armenian dram depreciated for 18.8 percent against US dollar. The volatility indicator amounted to 682, in contrast to 7.6 in 2008 and 332 in 2007.

<sup>18</sup> Market price of listed shares divided by GDP.

## SUMMARY

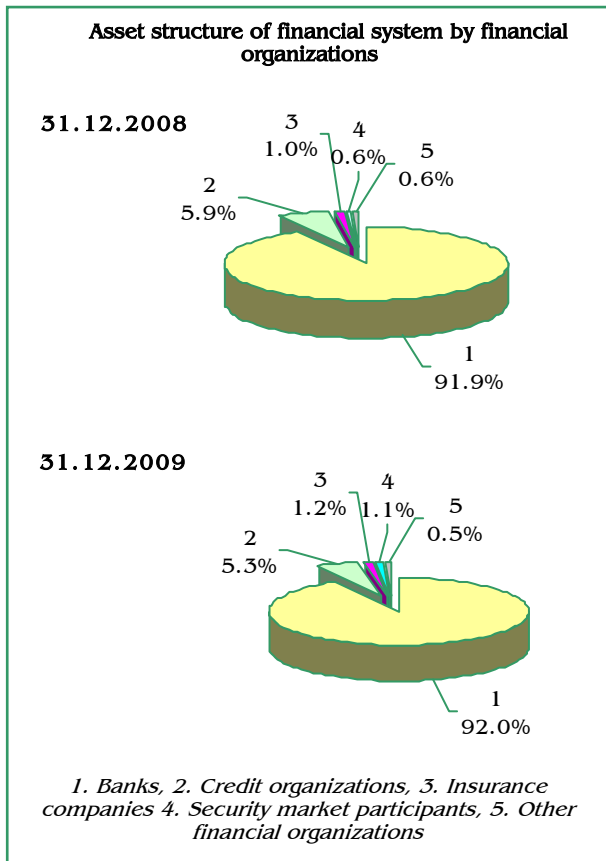
2009 crisis provided chance to test flexibility and vitality of Armenian financial market in terms of financial difficulties. The results of this test showed, that Armenian financial market not only managed to overcome liquidity shortage difficulties, but also contributed to the financial stability of the financial system. In comparison with previous years, Armenian financial market registered growth of transactions in securities secondary

market and increase of liquidity level, which contributed to the reallocation of liquid funds.

In 2009, another challenge for Armenian financial market was the growth of foreign exchange risk conditioned by dram depreciation in the first quarter of 2009 and by processes accompanying it. However in the second half of 2009 it was possible to stabilize depreciation expectations and restore stability of foreign exchange market.

## 4. ARMENIAN<sup>19</sup> FINANCIAL INSTITUTIONS STABILITY

Armenian banking system<sup>20</sup> accounts 92 percent of the financial system assets, and hence from the financial stability point of view the assessment and disclosure of risks inherent to the banking activity is rather important. Insurance companies, security market participants and other financial organizations are rather small in comparison with banking system and their possible impact on financial stability is estimated as minor.



Source: CBA

Year 2009 is characterized by crisis associated challenges for Armenian financial system. The banking system developments were different in two halves of the year. The first half of 2009 was a period for identifying and assessing the new risks derived from the global crisis, adjusting risk positions (risk appetite) and developing new mechanisms for risk mitigation. In the first half of 2009, because of cautious lending policy of the

banks, 1 percent lending drop was registered. Starting the second half, the credit market started to activate and at year-end registered 14 percent growth (December 2009 to December 2008). The lending recovery was contributed by expectations for income stability among banks and borrowers, expansive monetary policy of the CBA and also by Government anti-crisis programs.

Change of the borrower structure was one of the characteristics of the credit market, in 2009. Loans to legal entities accounted major part in total loan portfolio, which on its turn contributed to the recovery of economic activity in the second half of the year.

In contrast to many countries, during financial crisis Armenian financial system didn't face insolvency problems. The financial organizations managed to preserve the capital adequacy at higher level than required. During 2009, even some bank-owners, assessing possible risks, replenished the capital of the banks.

### 4.1. COMMERCIAL BANKS

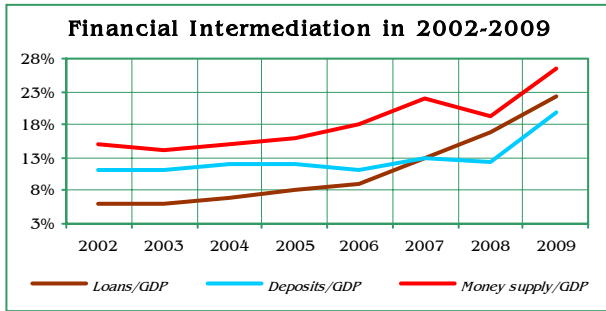
#### 4.1.1. Financial Intermediation, Concentration

Over 2009, the level of financial intermediation of banking system increased substantially, though it notably lags behind the respective level observed in the CIS countries. Parallel to the assets growth of banking system shrinkage of nominal GDP was recorded. As a result, the ratio of banking system assets to GDP, in 2009, increased by 13.8 percentage points totaling 41.9 percent. The banking system loan portfolio to GDP ratio grew by 5.3 percentage points to 22.2 percent. Acceleration of growth rate is recorded as well for broad money/GDP and deposits attracted by banks/GDP indicators, which describe the level of financial intermediation. Upsurge growth of lending of several branches namely construction and mining industries are worth mentioning as key factors contributing to the increase of financial intermediation owing to the credit easing policy of government anti-crisis program.

Over 2009, with the purpose of adequately resisting the increasing risks of economic crisis, Armenian bank investors, mainly foreign investors carried out additional replenishment of statutory capital.

<sup>19</sup> This presents the 2009 developments with the Armenian financial market participants and evaluates the risks that may emerge in the course of their activities. The main highlights are efforts to disclose risks emerging in the banking sector and evaluate as to what extent the banking system-specific risks would affect Armenia's financial stability if shock scenarios come out.

<sup>20</sup> In this document banking system includes 22 banks.

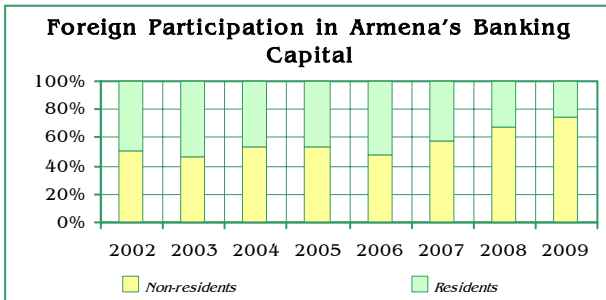


Source: CBA

Within the year an increase in own capital with the amount of 27.5 billion drams is recorded in 7 commercial banks and the share of non-resident participation in statutory capital of the banking system improved by 6.3 percentage points to reach 74.0 percent at the end of the year.

Generally, the ratio capital /assets of the banking system of Armenia is remarkably high- 0.21, compared to other countries which is a positive indicator in terms of the ability to cover the risks with its own resources.

The Herfindahl-Hirschman Index of Concentration<sup>21</sup> of the banking system for some items (assets, liabilities, capital, loans, and deposits) testifies about the low level of system concentration. In recent years concentration of the banking system in Armenia is notably low and due to it the effect of the concentration risk possibility is restricted.



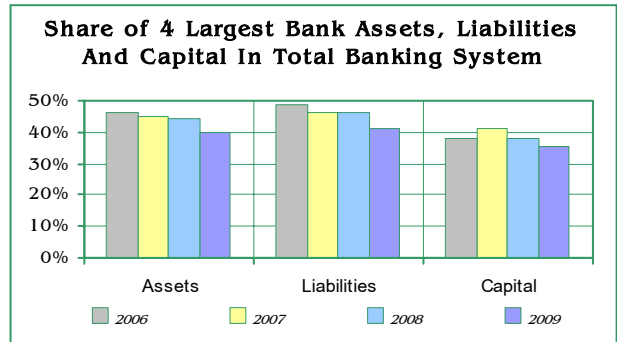
Source: CBA

	31.12.06	31.12.07	31.12.08	31.12.09
Total assets	0.08	0.08	0.07	0.07
Total liabilities	0.09	0.08	0.08	0.07
Total capital	0.07	0.07	0.06	0.06

Source: CBA

<sup>21</sup> The Herfindahl-Hirschman Index of Concentration varies between 0 and 1, characterizing the level of concentration (values close to 0 denote a low level of concentration).

In Armenia, the share of assets, liabilities and capital of 4 largest banks out of 22 banks declined by 2-5 percentage point indicating the decline of the share of major banks and consequently the decline of concentration.



Source: CBA

The level of competition in Armenian banking system was estimated also by the Panzar and Ross model<sup>22</sup>. The mentioned model was used to examine the impacts of cost factors such as salary, fixed assets and interest expenses on interest income of the Armenian banking system based on the 2004-2009 data of the Armenian banking system. The impact on cost factors on interest income is characterized by H-statistics<sup>23</sup>, which constituted 0.3 for the banking system of Armenia and points that the banking system of Armenia can be characterized by oligopoly competition.

#### 4.1.2. Credit Risk

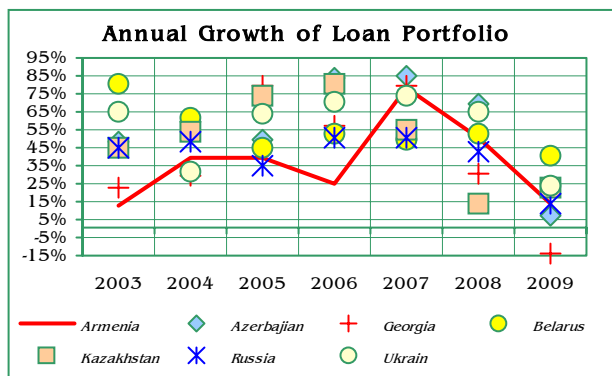
In the first half of 2009 both the banking system and the borrowers demonstrated significantly cautious loan strategy which resulted in some inactivity in loan market. However, starting from the second half of the year the loan market activity was restored which was contributed by certain expectations of income stability by banks and borrowers as well as by the easing policy implemented by the Central Bank and various projects supported by the government. Nonetheless,

<sup>22</sup> According to Panzar and Ross model, in a monopolistic market, rise in entry factor prices may cause marginal costs increase which brings output and total incomes to decline (as participants tend to reduce the entry factor acquisitions by high prices). In a competitive market, rise in entry factor prices causes marginal costs and incomes to increase in equal size. In oligopoly competition environment entry price rise leads to a non-proportional minor increase of incomes.

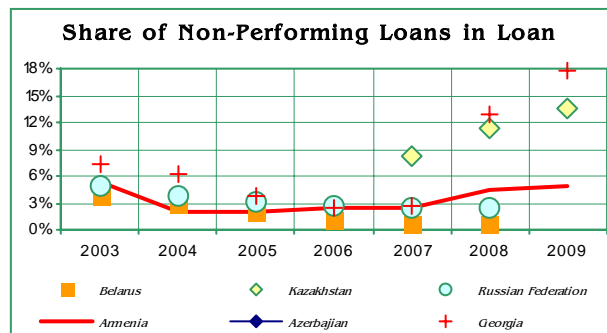
<sup>23</sup> Panzar and Ross model estimates an H-statistic, which describes the level of market competition. If the value of such H-statistic is close to 1, then it means existence of perfect competitive market, in case of  $0 < H < 1$  market can be described as oligopolistic, and in case of H is close to 0 value – market competition is monopolistic.

the rate of loan growth rapidly decreased to 14% as compared with that of the last year.

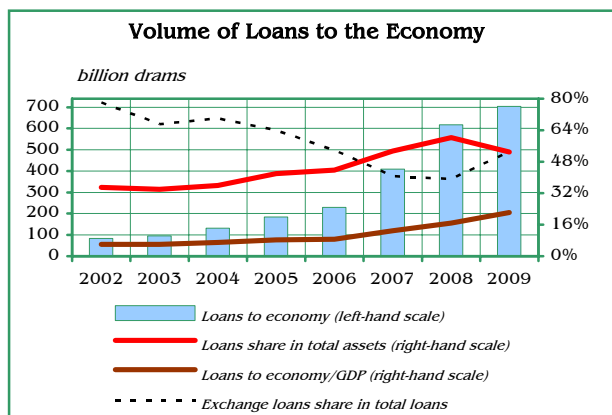
Due to conservative lending policy of the banks, the growth of total assets in 2009 outpaced the total loan portfolio growth and the share of loans in total assets of banking system decreased by 7.3 percentage points to make up 53.0 percent in the yearend.



loans were mainly granted to legal entities enhancing the latter's share in loan portfolio. In terms of economic crisis the banking system of Armenia through restructuring of loan portfolio and revision of lending directions tried to keep credit risk at manageable level and also to contribute to the growth of real sector of economy.



Source: CBA

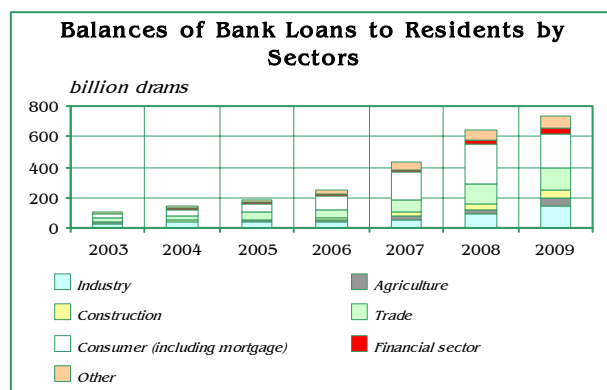


Source: CBA

The share of non-performing loans was relatively high in some branches of economy registering 7.4 percent in construction, 6.7 percent in trade, and 6.8 percent in mortgage sectors.

Loan concentration by sectors of the economy is not high, with the highest concentration for industrial sector 19.7 percent, trade loans 19.5 percent and consumer loans 18.3 percent. Within last 3-4 months of 2009 due to an active lending in industry and construction sectors, the share of consumer and mortgage loans declined.

Rapid lending growth in 2007 and 2008 as well as the impact of global economic crisis created certain preconditions for the deterioration of loan quality. In the first half of the year the share of non-performing loans<sup>24</sup> (the loans classified as "watching", "non-standard", "doubtful") increased from 4.4 percent in 2008 and reached 10 percent at the end of the first half of 2009. But it decreased in the second half constituting 4.8 percent of total loans at the year-end. However, the ratio of non-performing loans of the banking system in Armenia significantly falls behind the figures observed in a number of CIS countries. One of the typical developments of 2009 was the change in lending structure based on which in 2009



Source: CBA

In the previous years, the increase in consumer and mortgage loans was caused by sustainable economic growth, increased demand for loans due to continuous growth of household incomes (including private remittances) and by different foreign loan programs. Due to the decline in household income and conservative lending policy of

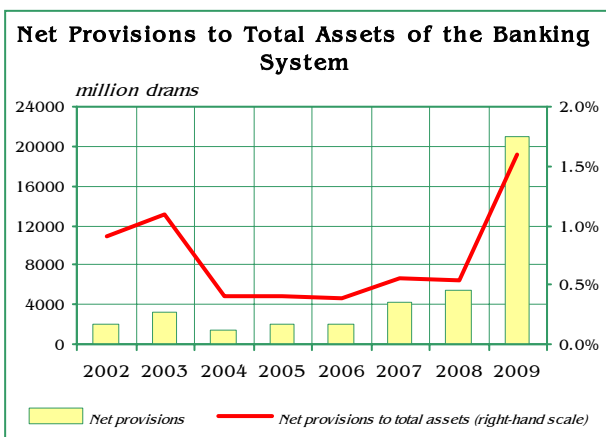
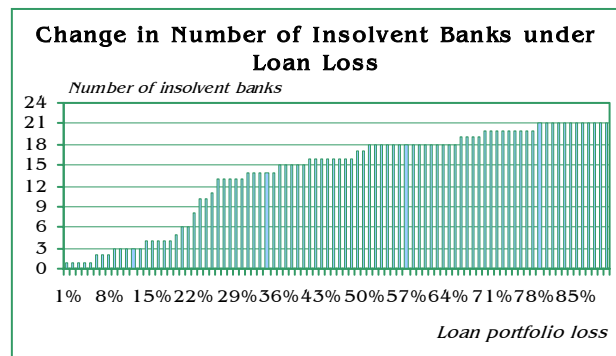
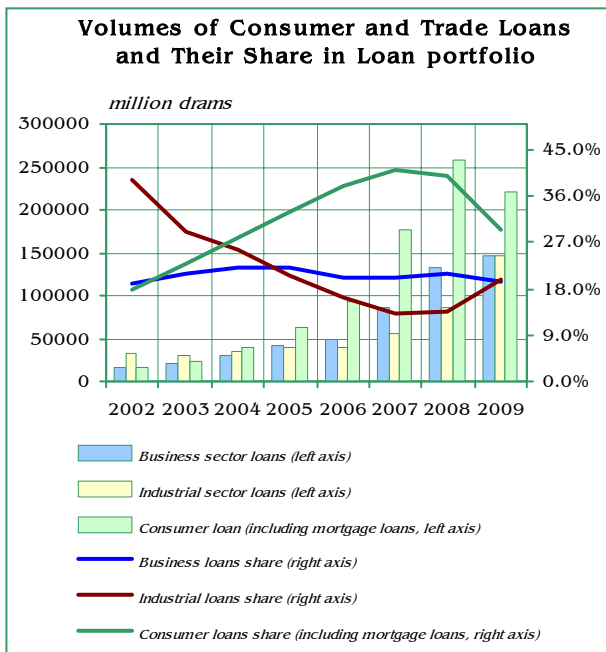
<sup>24</sup> According to the IMF methodology, non-performing loans are loss loans and those overdue for more than 90 days. In this case, the non-performing loans to total loans ratio will make up 6.1 percent.

Credit risk stress-scenarios <sup>25</sup>			
31.12.2009	25 percent of loans in watching, substandard and doubtful categories classified into loss loans	75 percent of loans in doubtful category classified into loss loans	30 percent of loans in standard category classified into watching loans
Loss of the banking system	AMD 6.8 billion or 2.6 percent of regulatory capital of the banking system	AMD 4.2 billion or 1.2 percent of regulatory capital of the banking system	AMD 19.4 billion or 7.5 percent of regulatory capital of the banking system
Total capital adequacy of the banking system in case of stress-scenario	27.9%	28.1 %	26.9 %

banks the lending growth rate of the mentioned sectors decreased. The lending growth in industry and construction sectors was contributed by Government anti-crises programs, specifically lending to SMEs and major businesses through resources of stabilization loan provided by the Russian Federation and of different international organizations.

In 2009 parallel to the growth of non-performing loans the ratio of loan net provisions to total assets increased by 1.1 percentage points totaling 1.6 percent at the end of the year. Growth in provisions is determined by the fact that the share of higher risk assets increased in non-performing assets for which, respectively, more reserves are required.

The results of credit risk stress-tests show that in case of worst possible stress-scenarios<sup>26</sup>, banking system losses will not cause a significant change in solvency of banks and will have no negative impact on Armenia's financial stability.



#### 4.1.3. Liquidity risk

In 2009 the liquidity at the banking system remained at considerably high level. As banking system of Armenia did not have short-term foreign liabilities, it did not have problems with financial (or capital) outflow and during the year the prevailing conservative lending policy resulted in a considerable accumulation of liquid funds.

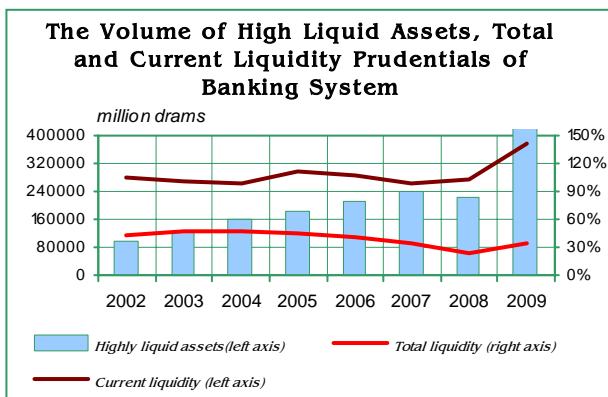
<sup>25</sup> Stress-scenarios are built on an assumption that the amounts of bank loans are unchanged and the collateral is ignored (which means that where loans are classified as bad, a possible sale of the collateral is not considered).

<sup>26</sup> This and further stress-scenarios presented in this report do not forecast any risks, but aim to reveal weaknesses of the financial system, as well as assess its ability to absorb such risks.

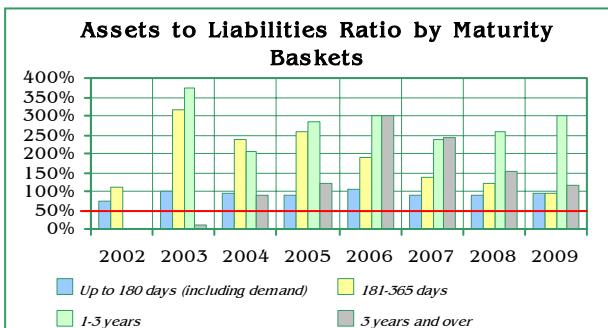
Stress-Scenarios on Liquidity Risks			
31.12.2009	Repayment of 25 percent of the time deposits of physical entities <sup>28</sup>	Repayment of 25 percent of demand liabilities	Repayment of 25 percent of demand liabilities and repayment of 25 percent of time deposits of physical entities
Ratio of highly liquid assets to total assets of the banking system	30.9%	30.2%	26.2%
Ratio of highly liquid assets to demand liabilities of the banking system	119.6%	153.7%	126.2%

Due to the prudent lending policy of commercial banks, 29.5 percent asset growth rate more than twice outpaced 14 percent growth rate of loans owing to which liquid funds of banking system noticeably increased.

The prudentials of total liquidity and current liquidity of the banking system were higher than required. In 2009, highly liquid assets increased by 88.8 percent and constituted 420.8 billion drams. The prudentials of total liquidity and current liquidity increased by 10.6 and 37.7 percentage points totaling 34.4 and 140.8 percent (the minimum requirements are 15 percent and 60 percent, respectively).



Source: CBA

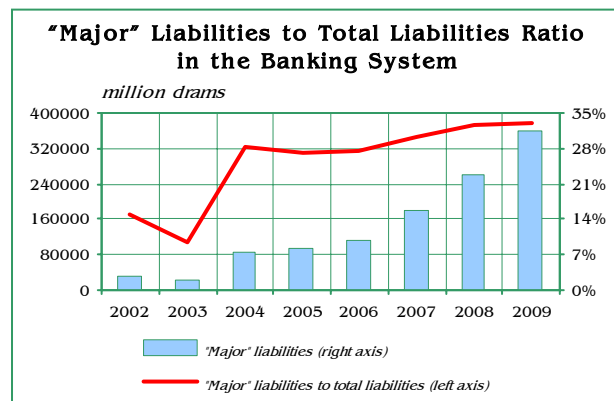


Source: CBA

Asset and liability maturity analysis show that in different maturity baskets assets are well above the liabilities and the likelihood of the liquidity shortage in any maturity basket is

low (keeping the present maturity structure of assets and liabilities unchanged).

If we are considering concentration of liabilities of banking system there are no essential changes in the risk structure: the share of "major" liabilities<sup>27</sup> in total liabilities in 2009 increased by 0.2 percentage point to make up 32.9 percent.



Source: CBA

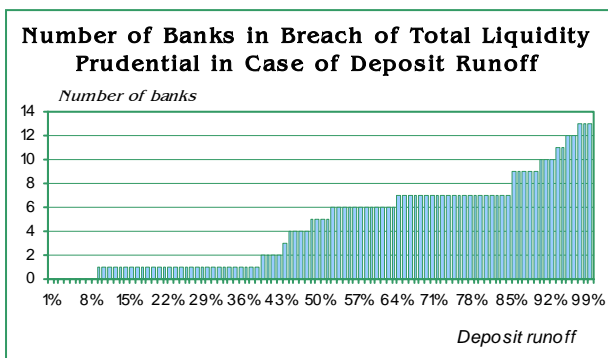
Foreign borrowings of commercial banks decreased by 61.8 million USD and amounted to 386.3 million USD at the end of 2009. Funds attracted from international financial organizations decreased by 8.8 percent (in 2008 they grew by 58 percent) and accounted 38.4 percent share in foreign borrowings. Main lender countries to the banks are Russia with 20.8 percent share (against 20.3 percent in the previous year), France with 13.8 percent share (against 11.6 percent in the previous year) and Germany with 11.6 percent share (against 10.7 percent in the previous year). As compared with the last year the concentration of foreign creditors notably

<sup>27</sup> Represents the sum of all liabilities to one entity that exceeds the 5 percent margin of total liabilities of a bank, without considering affiliation.

<sup>28</sup> As provided for in the Republic of Armenia Civil Code, Article 905(2), "Under any bank deposit contract, a bank must refund the amount of deposit or a part thereof at the first request of the depositor, except for deposits of legal entities for which a contract specifies other terms for refund".



dropped but at the same time the share of long-term loans was high (91.2 percent). Mentioned developments decrease the risks associated with unexpected refinancing of external borrowings of commercial banks.

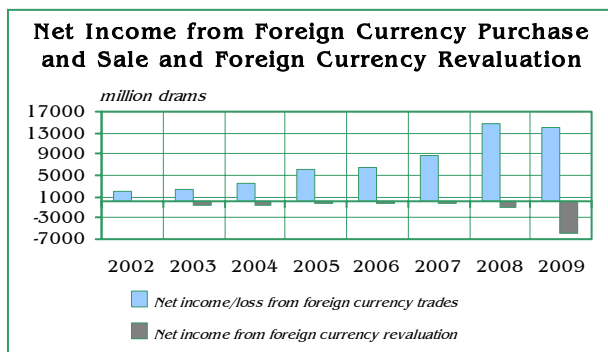


Source: CBA

The liquidity stress-tests point to a reasonable level of liquidity risk management in the banking system. Based on stress-tests estimation in case of worst possible stress-scenarios there is likelihood of breaching the total liquidity and the current liquidity prudentials. Nevertheless, the likelihood of liquidity problems is low in whole banking system.

#### 4.1.4. Market Risk

As compared with recent years, in 2009 the foreign exchange rate risk losses were high. This was caused by considerable depreciation of dram in March against other currencies. In 2009 the dram's fluctuations against other currencies led to a situation where the banking system incurred 5.7 billion dram revaluation losses, which constituted 2.2 percent of regulatory capital (0.4 percent in 2008). During 2009, 14 banks incurred FX revaluation loss and 8 banks posted profit. The banking system generated revenue of 13.8 billion dram on FX buy/sell operations lower by 5.7 percent compared to the revenue reported in the previous year.



Source: CBA

One of the negative influences of economic crisis was the deepening dollarization parallel to AMD depreciation. Due to decrease in dollar assets inflow (decrease of export, capital inflow, and private remittances) dram depreciation expectations grew in the fourth quarter of 2008 and banks, households, businesses and financial institutions tended to keep their assets in FX. During first two months of 2009 the dollarization of deposits brought to considerable growth of foreign exchange liabilities as a result short positions were established in commercial banks. During the year by means of the growth of foreign exchange loans the banking system succeeded in reducing the short position. As of the yearend foreign exchange positions of different commercial banks are almost closed. The net foreign exchange position of banking system makes 0.3 percent of regulatory capital.

In the table below are presented estimated bank losses in case of worst possible stress-scenarios incurred due to foreign currency risk, which can be neutralized by the banks and impact on their financial stability is hardly possible.

Stress-Scenarios on Foreign Exchange Risk <sup>29</sup>			
31.12.2009	Armenian dram's 20 percent appreciation (depreciation) vis-a-vis the US dollar	Armenian dram's 20 percent appreciation (depreciation) vis-a-vis Euro	loss estimated through VaR Model
Banking system's profit/loss from foreign currency revaluation	294 million dram or 0.1 percent of regulatory capital (-294 million dram)	203 million dram or 0.1 percent of regulatory capital (-203 million dram)	-2.0 billion dram

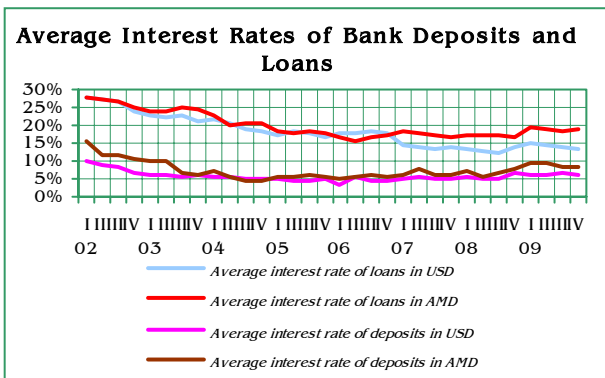
In the first quarter of 2009 certain upward trends of interest rates are observed which are determined by economic uncertainties, slowing growth rate of income and growing risk expectations. Decline in loan supply

<sup>29</sup> The calculation of losses estimated through stress-scenarios and the VaR Model (the VaR Model is not considered as a stress-scenario as the calculation of the model takes historical exchange rate series of currencies) is based on an assumption that the foreign currency position of the banking system would not change during the year.

Stress-Scenarios on Interest Rate Risk		
31.12.2009	Impact of 2 pp increase (decrease) of market interest rates on total portfolio, estimated through the duration	Where market interest rates decrease (increase) by 2 pp, there will be deviation from income expected on net interest income of the three months ahead, estimated through the 'Gap Method' (a method of interest rate-sensitive assets and liabilities gap)*
Banking system's profit/loss	AMD 1.5 billion or 0.6 percent of banking system capital (AMD -1.5 billion)	AMD 270 million or 0.1 percent of banking system capital (AMD -270 million)

\* The calculation is based on an assumption that the structure and volumes of assets and liabilities in a reviewed (3 months) period remain unchanged, that is, the assets and liabilities repaid are re-allocated and re-attracted but a new interest rate is applied thereon.

brought to the increase in interest rates in the beginning of year. While in the second half after an adjustment of risks banks restored the loan supply and the activation of credit market contributed to the drop in interest rate. At the end of the fourth quarter the interest rate almost returned to the pre-crisis level.



Source: CBA

The average weighted maturity gap of assets and liabilities remained almost unchanged, making up about half year. If this gap is retained in 2010, banks will be able to rapidly respond to the changes of market interest rates and adjust them accordingly.

In case of worst possible stress scenarios the interest rate risk losses will not damage system capital adequacy and financial stability.

Price risk in the Armenian banking system is estimated to be rather low, as the share of trading book in total assets is too small. The banking system did not incur losses on price risk over 2008, but reported revaluation loss of 6 million drams (0.02 percent of capital) from financial assets available for sale. Loss of 288 million drams (0.1 percent of capital) from revaluation of fixed assets was reported.

Real estate price volatility impact on the credit risk losses are at manageable level. It is worth mentioning, that Armenian banks provide such loans at no more than 60-70 percent loan to value ratio, and apply rather strict approach to evaluate borrower creditworthiness. Such restrictions effectively

help to absorb possible risks and handle real estate price volatilities.

The table below presents bank losses (due to price risk and credit risk) in the event of 30 percent depreciation of real estate, which substantially grew as compared with the last year.

Stress-Scenarios on Real Estate Price Change	
31.12.2009	30 percent depreciation of real estate
The banking system's loss due to revaluation of own real estate	AMD 15.2 billion (or 5.9 percent of banking system capital)
The banking system's loss due to a 30 percent loss of vulnerable credit portfolio <sup>30</sup> (taking into consideration that the collateral of those loans has been sold), in the event a stress-scenario occurs (credit risk)	AMD 4.1 billion (or 1.6 percent of banking system capital)
The banking system's loss due to a 100 percent loss of vulnerable credit portfolio (taking into consideration that the collateral of those loans has been sold), in the event a stress-scenario occurs (credit risk)	AMD 13.5.3.4 percent of banking system capital)

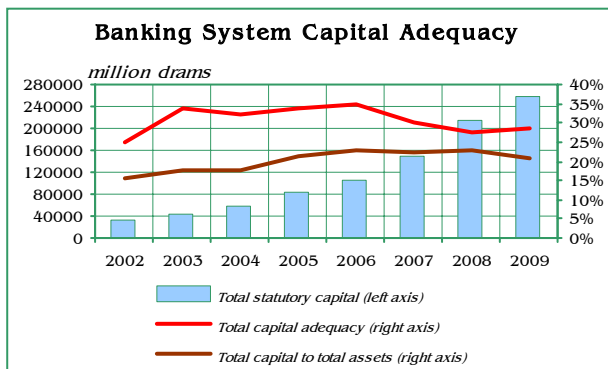
#### 4.1.5. Capital Adequacy and Profitability

As compared with Eastern European and a number of CIS countries, capital adequacy and profitability of the Armenian banking system is high enough to absorb risks with its own resources. In 2009, even in case of economic crisis Armenian banks kept sufficient solvency level which was mainly conditioned by the pre-crisis high level of capital adequacy. Nevertheless, profitability of the banking system decreased compared with previous years.

Over 2009, the growth of bank regulatory capital exceeded over the growth of risk weighted assets. As a result capital adequacy of banking system grew by 0.9 percentage point to 28.4 percent (required minimum is 12

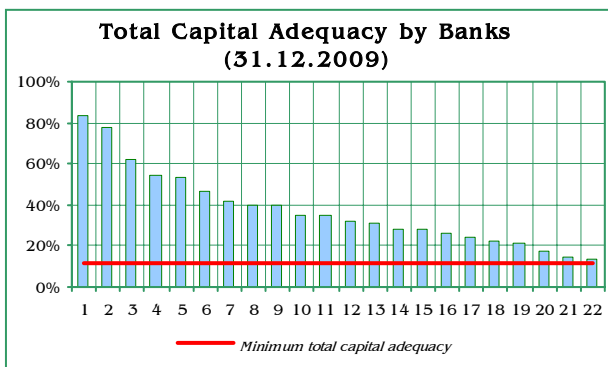
<sup>30</sup> A vulnerable credit portfolio involves the amount of those loan residuals for which the residual value exceeds the 30 percent depreciated collateral value.

percent). During the year 7 banks added up statutory capital by the total amount of 27.5 billion drams or by 19.1 percent.



Source: CBA

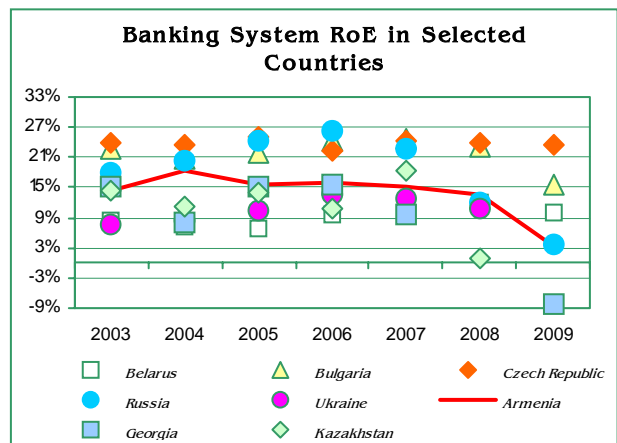
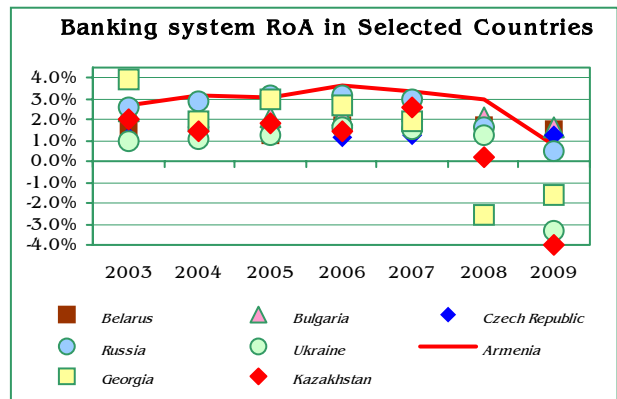
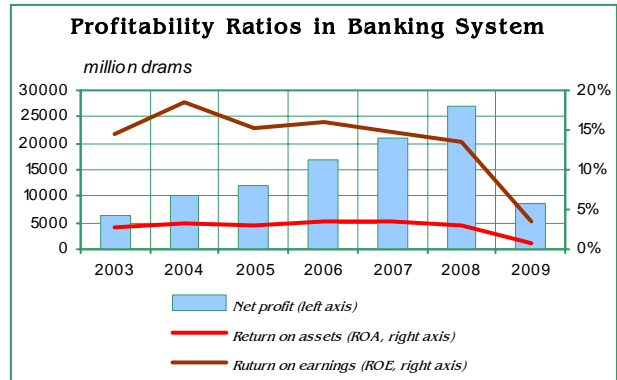
The capital adequacy ratio varies in the range of 12-83 percent for different banks. In general, banks are well-capitalized and no bank recorded any breaches of prudential standards of capital adequacy in the course of the year.



Source: CBA

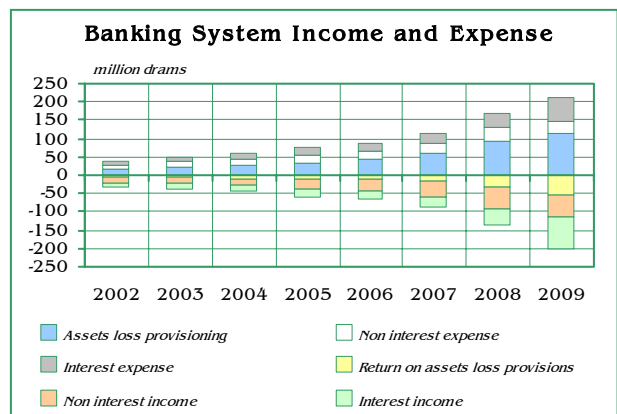
In 2009 banking system posted profit of 8.6 billion drams calculated according to Central Bank<sup>31</sup> requirements. Fourteen banks recorded profit and eight banks recorded loss. The main reason of low profit was bank losses associated with credit and foreign exchange risks. Though banking system capital and assets continued to grow compared with the previous year, profit decreased because of high net provisions and low non-interest incomes (mainly due to foreign exchange re-valuation loss and decrease of net commissions). Return on assets and return on earnings fairly decreased: return on assets decreased by 2.3 percentage points and return on equity decreased by 10.0 percentage points to 0.7 percent and 3.4 percent respectively.

<sup>31</sup> The main difference between CBA and IFRS reporting is in the provisioning of standard loans.



Source: CBA

According to IFRS, over 2009, banking system profit constituted 25.9 billion drams and in this case the return on assets totals 2.2 percent and the return on equity 10.4 percent.



Source: CBA

In 2009, gross income of the banking system totaled 214.1 billion drams, whereas gross expenditure amounted to 201.2 billion drams. In general, the share of allowance and return to/from assets loss provisions grew in income and expense structure.

In view of vulnerability of financial stability, as showed the developments in 2009, relatively high levels of profitability and capital adequacy of Armenian commercial banks allows them to cover growing risk exposures with own resources.

#### 4.2. CREDIT ORGANIZATIONS

The second major part of Armenian financial system is credit organizations with 5 percent share in total financial system assets. In the year observed credit organizations registered growth in assets, liabilities and capital.

<b>Credit organizations' Assets, Liabilities, Capital and Profit</b> (thousand drams)			
	31.12.2008	31.12.2009	Growth (%)
Assets	65238976	75822821	16.2
Liabilities	47407396	49573440	4.6
Capital	17831580	26249381	47.2
Net profit	2977297	2589929	-13.0

Source: CBA

Capitalization and profitability of credit organizations are higher than those of banks, and according to various stress-scenarios, they are fully capable to neutralize possible risks. During the year total capital to total assets ratio of credit organizations increased by 7.3 percentage point to make 34.6 percent at the end of the year. In 2009 twenty-one credit organizations recorded profit and six credit organizations recorded loss. Return on assets (ROA) mounted 3.7 percent and return on equity (ROE) - 11.8 percent.

Credit risk of credit organizations was not changed drastically as well, the share of standard loans dropped by 0.3 percentage point and the share of non-performing loans totaled 4.2 percent. In terms of loan distribution by the economy sectors, the share of non-performing loans is the highest (10 percent) in consumer loans and 8 percent in industrial sector. The ratio of assets loss provisions to total assets reached 3.7 percent at the yearend.

<b>Credit Risk Stress-Scenarios<sup>32</sup></b>			
31.12.2009	25 percent of loans in watching, substandard and doubtful categories classified into loss loans	75 percent of loans in doubtful category classified into loss loans	30 percent of loans in standard category classified into watching loans
Total loss of credit organizations	AMD 507 million or 2.0 percent of regulatory capital	AMD 185 million or 0.7 percent of regulatory capital	AMD 1.5 million or 6.0 percent of regulatory capital

In all maturity baskets of assets and liabilities (demand and up to 180 days from 180 days up to one year, more than one year) the asset volume surpass liability volume evidencing about the low level of liquidity risk in other things being equal.

#### 4.3. INSURANCE COMPANIES

Insurance market was also affected by the crisis of 2009. The basic indicators describing the activity level of insurance market, the accrued insurance premiums, increased only by 4 percent over 2009 to make 8.1 billion drams whereas the annual growth of the mentioned indicator was 56.5 percent in the last 2 years.

At the yearend most of the insurance companies carried out additional replenishment of capital to meet the minimum capital<sup>33</sup> requirement defined by the Central Bank. As a result, compared with the beginning of the year, insurance companies' capital increased by 65.2 percent and totaled 12.3 billion drams as of 31.12.2009.

The share of insurance company assets in total financial system assets continues to remain low; the assets of insurance companies make only 1.2 percent of the

<sup>32</sup> Stress-scenarios are built on an assumption that the amounts of credit organization loans are unchanged and the secured property is ignored (which means that where loans are classified as loss, a possible sale of the collateral is not considered).

<sup>33</sup> Local insurance companies holding non-life insurance license were obliged to replenish their capital up to 1 billion drams by January 1st 2010

assets in financial system. The accrued insurance premiums/GDP indicator (0.26 percent in 2009, 2008-0.21 percent, and 2007-0.16 percent) is reflecting the insurance sector low penetration and small size. Although this indicator increased compared with previous years, it falls behind the relevant indicator<sup>34</sup> of both developed and developing countries. Coverage of insurance industry is still low: a per capita insurance premium indicator<sup>35</sup> reaches only 2.5 thousand drams.

The below mentioned factors indicate a low risk profile of insurance companies:

- A major part of risks insured by insurance companies is reinsured: a reinsurer's share in insurance amounts is 89 percent. Domestic insurance companies primarily use the services of reinsurers with high rating<sup>36</sup>, thus minimizing the risk of non-performance of reinsurers;
- The loss ratio<sup>37</sup> of insurance companies as of 2009 was 29.6 percent, which is quite good indicator for a financially stable insurance market;
- In 2009 net profit of insurance organizations was 945.6 million drams outpacing the last year indicator by 36 percent;
- In 2009, Return on Assets (ROA) was 6.8 percent and ROE was 10.1 percent increasing by 0.3 and 0.4 percentage points respectively compared with the last year;
- As of 31.12.2009 the average of the prudential solvency requirement for insurance sector was 12 percent of regulatory total capital.

As of 31.12.2009 51.0 percent of assets of insurance companies were current deposits in resident banks, 10.4 percent were bank accounts in resident bank, 9.7 percent were amounts receivable from resident legal entity

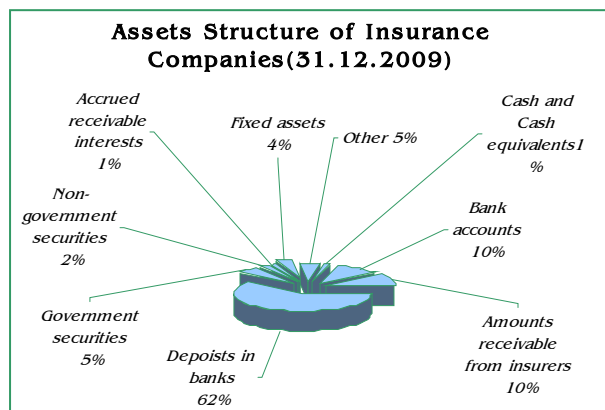
<sup>34</sup> According to 2008 data, non life insurance premiums/GDP average ratio in industrial countries totaled 3.57 percent and 1.28 percent in developing countries (Source: Swiss Re, Economic Research & Consulting, sigma No. 3/2008)

<sup>35</sup> According to 2008 data, average per capita insurance premiums in industrial countries totaled 454259 drams or 1481 USD and 12882 drams or 42 USD in developing countries (Source: Swiss Re, Economic Research & Consulting, sigma No. 3/2008)

<sup>36</sup> As of 31.12.2009 the share of the risks transferred to reinsurers, which are not forbidden by CBA and are compliant to credibility requirements, in total risks transferred to reinsurers amounted 99.7 percent

<sup>37</sup> The loss ratio is calculated as the ratio between compensations accrued during the year and the difference of changes of accrued premiums and unearned premiums.

insurers, 9.4 percent were non-current deposits in resident banks. It means the assets are of high liquidity and have low credit and market risks.



Source: CBA

As currently the penetration level of insurance market is low and the latters have low risk level their impact on financial stability is rather unfeasible.

Taking into account that starting from January 1st, 2011, the insurance companies will carry out motor-vehicle liability insurance, considerable growth of insurance premiums will be observed.

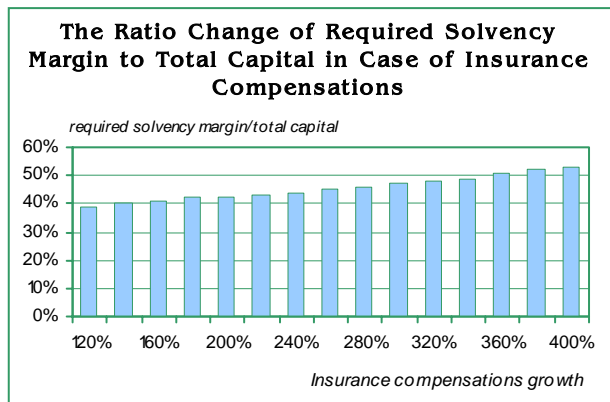
In case of stress-scenarios presented in the table below the solvency of insurance companies will not change notably and in terms of financial stability of insurance system the likelihood of risks is very low.

Solvency Stress-Scenario <sup>38</sup>			
31.12.2009	Accrued insurance premium growth-5 times and paid insurance claim growth-2 times	Accrued insurance premium growth-5 times and paid insurance claim growth-5 times	Accrued insurance premium growth-5 times and paid insurance claim growth-4 times
The ratio of required solvency margin <sup>39</sup> of insurance system to average daily value of total capital in case of stress-scenario	42.5 %	47.2 %	53.2 %

<sup>38</sup> For making the stress scenario stricter, it was assumed:  
a) Insurance companies reinsured the risks through reinsurance companies which are not compliant with CBA credibility requirement  
b) By the end of the year the insurance companies will earn only 30 percent of insurance premiums

<sup>39</sup> Solvency prudential requirement for the insurance companies is calculated according premiums methodology and should not exceed daily average capital.

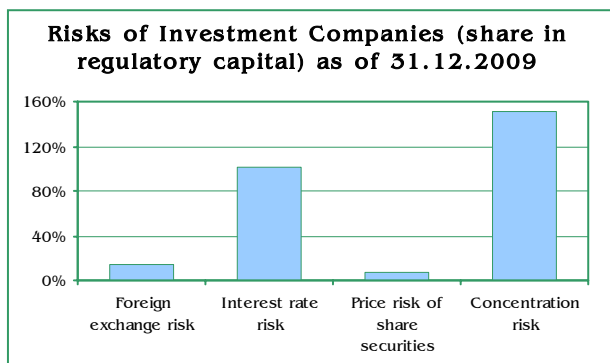
It should be mentioned, that only in case of the third scenario showed below (growth of accrued insurance premium 5 times and growth of compensations 4 times) only one insurance company will breach prudential solvency requirement.



#### 4.4. SECURITIES MARKET PARTICIPANTS

As of the end of 2009, 22 commercial banks and 8 investment companies operated in securities market of Armenia.

As of 31.12.2009, compared with 31.12.2008 the assets of investment companies grew by 102 percent totaling 15.6 billion drams and the total capital grew by 8 percent to make 2.9 percent. The total profit of investment companies constituted 202 million drams. Six investment companies reported profit; two of them finished the year with loss.



Source: CBA

As of 31.12.2009 the market risk of investment companies amounted to 123 percent of regulatory capital and the risk of major security transactions<sup>40</sup> amounted to 151

<sup>40</sup> As a major transaction with securities is considered transaction exceeding 5 percent of the regulatory capital

percent of regulatory capital. Remarkably, interest risk had major share in the market risk of investment companies totaling 102 percent of regulatory capital. Share price and foreign exchange risks of investment companies constituted 14 percent and 17 percent respectively of regulatory capital.

As of 31.12.2009 securities of sixteen reporting issuers were listed in regulated market and six of which were banks. Eleven of the issuers are stock issuers in the market and nine of bonds. One of the issuers is accountable both for stock and bonds. 34 percent of issued debt securities belong to the companies operating in financial sector.

#### 4.5. OTHER PARTICIPANTS OF FINANCIAL SYSTEM

The participants of the Armenian financial system, other than the aforementioned, include 103 pawnshops (without branches), 245 foreign exchange offices (without branches), and 4 foreign exchange dealers. All these organizations' potential impact on Armenia's financial stability is estimated to be very low as their share in the financial system assets is far too small.

Other participants representing Armenia's financial market are 9 money transfer companies and 7 organizations involved in processing and clearing of payment and settlement documents.

#### SUMMARY

Despite a number of challenges in 2009, financial system of Armenia restored growth trends and demonstrated significantly high flexibility. Banking system of Armenia having high level of liquidity and capital adequacy covered the losses at its own resources and remained solvent and liquid. In the first half of the year the banking system incurred losses due to dram depreciation and some deterioration of loan portfolio. Banking system carried out conservative lending policy during the first half of the year based on uncertainties of future economic

developments. In the second half of the year along with positive expectations on economic development banking system restored loan processing. As the foreign exchange and credit risks grew, the level of profitability declined over 2009.

According the forecasts concerning banking system developments, there is a possibility that in case of economic recovery banking system will improve profitability indicator owing to lending growth and decline in foreign exchange and credit risks.

## 5. FINANCIAL STABILITY IN ARMENIA'S FINANCIAL INFRASTRUCTURES

Given the importance and impact the payment and settlement system has on Armenia's monetary policy and financial stability, the Central Bank of Armenia puts high emphasis on the country's systemically important payment and securities settlement systems and the telecommunication network supporting their activities.

### 5.1. RA INTERBANK PAYMENTS

Interbank settlement within Armenia is executed primarily through Central Bank systems<sup>41</sup>. 99.2 percent of total interbank payments performed within Armenia are executed through Central Bank system which increased by 0.1<sup>42</sup> percent compared with the previous year. In 2009 gross payments executed through the Central Bank systems exceeded GDP 3.7 times.

Importance of the CBA's systems is further enhanced by the fact that these serve a ground for final settlement of card transactions by ArCa unified card payment system, and foreign exchange trades at the Armenian Stock Exchange as well as final settlement of government and commercial securities trade transactions.

#### The Central Bank Electronic Payments System

In 2009 51.4 percent of payment through CBA payment systems were carried out via Central Bank electronic payment system (hereinafter EPS) and the payment share increased by 5.0 percent<sup>43</sup> compared with the previous year.

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<sup>41</sup> Payments through CBA systems include payments through Electronic payment system (EPS), which include net amount of stock exchange operations, payments through Paper based gross settlement system (PGSS) and payments related to settlements in Government securities accounting and settlement system (GSASS). Details on payment and settlement field and particularly on payment systems are presented in "Payment and securities systems in RA" (2007).

<sup>42</sup> In 2008 calculations, some foreign exchange operations were not included in the calculation of net stock exchange payments; as a result the indicator is 0.4 percent higher, than if the net stock exchange payments would be refined.

<sup>43</sup> In 2008 calculations, some foreign exchange operations are not included in the calculation of net stock exchange payments; as a result the indicator is 20.5 percent higher, than if the net stock exchange payments would be refined.

#### Credit Risk

This system is free of credit risk of settlement bank (Central Bank) owing to absence of intraday credit mechanism for participants in case of insufficient funds. Meanwhile there is no credit risk of the beneficiary bank as latter is informed about incoming payment after it becomes final and irrevocable<sup>44</sup>.

#### Liquidity Risk

The only source of liquidity for the Armenian commercial banks for making payments through the Central Bank's payment systems are the funds on their correspondent accounts with CBA.

When assessing liquidity risks of EPS, it is important to consider that though payment messages are designed in EPS, the real final settlement is executed using participants' correspondent/settlement accounts with the CBA, that are used not only for EPS payments but also for all operations carried out between the Central Bank and participants. Thus, while assessing the EPS liquidity risk, all operations by correspondent accounts with the Central Bank are considered.

In previous years opening average balances of dram correspondent accounts exceeded the same-day-payments by 30 percent with no account of incoming payments. In 2009 decline<sup>45</sup> in ratio correspondent account's opening balance to the same-day-payments reached 1.04 (2008 1.3) for all banks and 0.98 for 5 largest banks<sup>46</sup> (2008 1.3) which signifies that we observe high dependence of banks on incoming payments and on adequate payment and liquidity management. In general, the fact, that the indicator is bigger than 1, shows that the banks did not have serious liquidity problems for their payments.

Analysis shows that the decrease of average daily ratio of opening balance of dram

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<sup>44</sup> For details see 2007 "Financial stability report" and "Payment and securities system in Armenia".

<sup>45</sup> During the calculation of the indicator the frozen amounts for ArCa settlements are not considered, as the latter had minor impact on opening liquidity level (in case of including frozen amounts the liquidity for banking system drops by 6 percent, and 3 percent for 5 largest banks; as a result the indicator for all banks totaled 0.97 and 0.95 for 5 largest banks).

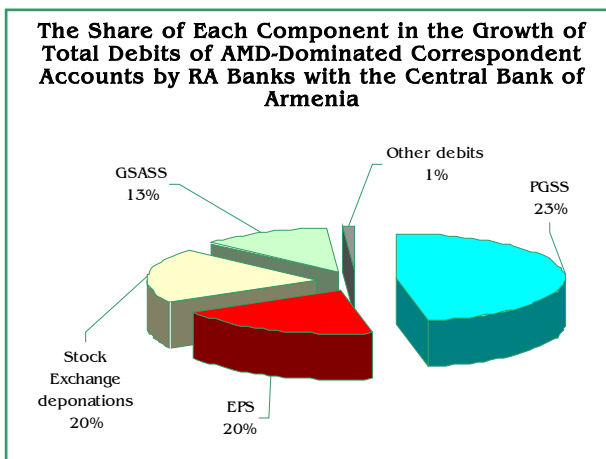
<sup>46</sup> The banks having largest share in EPS payments.



correspondent accounts to debits from the account with the Central Bank is not that related to the reduction of opening balance (4 percent reduction compared with 2008) but to the increase in debits (payments) from the account (22 percent growth compared with 2008).

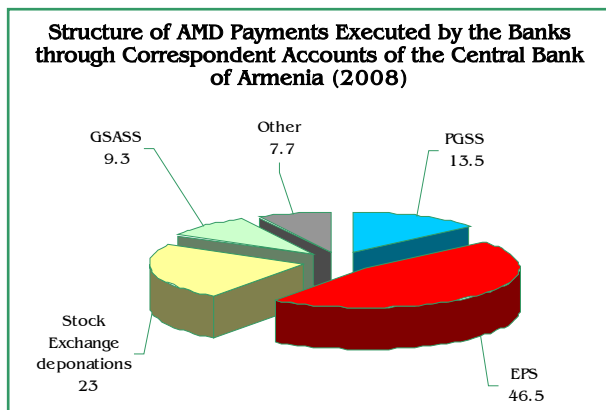
Compared with 2008, slight decrease in opening balance of banks' correspondent accounts indicates that the liquidity management policy of the banks does not depend on reserve ratio and the banks keep as much funds on their accounts as needed for payments/transactions.

The analysis of debits from correspondent accounts of Armenian commercial banks showed that the considerable growth of the abovementioned indicator was not a result of the growth EPS payments, but those of CBA Paper based gross settlement system (hereinafter PGSS).

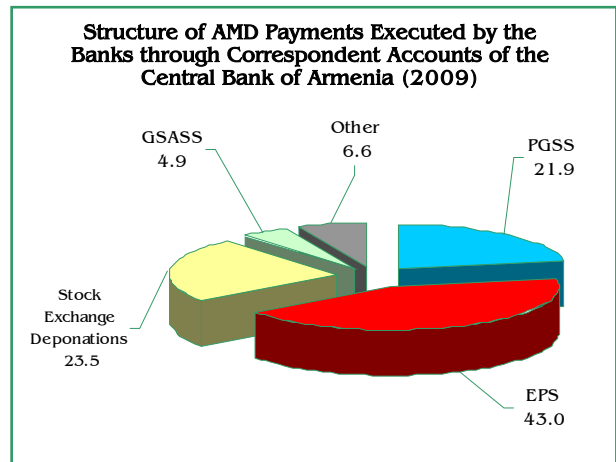


Source: CBA

The chart below shows the structure of AMD payments executed by Armenian banks through correspondent accounts of the CBA in 2008 and 2009.

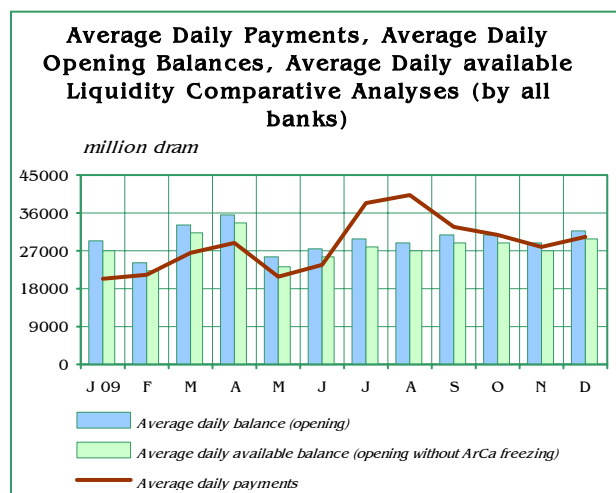


Source: CBA



Source: CBA

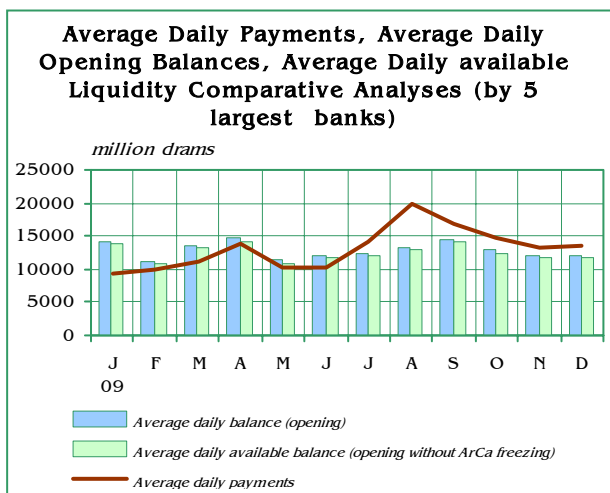
The monthly analysis of average daily payments (debits) and opening average daily liquidity showed that even though the annual indicator was sufficient (close to 1) there were reported months (third quarter) when the payments of all banks during the day were more than the opening balances of their correspondent accounts. This indicates that if during the day their accounts were not credited by additional funds (at the resources of own or incoming payments), the banks would have liquidity problems. It should be also mentioned that quantitative concentration of rejections due to the insufficient liquidity was observed in the third quarter (See "Rejection" section).



Source: CBA

The result of the analysis for the average daily payments and average daily opening balances is the same for 5 largest banks with the difference that the mentioned trend continued up to the yearend. It should be mentioned that the rejections related to insufficient liquidity had rapid decrease in the

fourth quarter to make only 7.2 percent of volume and 18.4 percent of the value of the mentioned rejections during the year. Considering the fact that the share of such rejections made only 0.01 percent of the volume and 0.24 percent of the value by EPS payments (net positions of stock exchange transactions) in the period, the issues related to liquidity in the system did not have any critical effect on the system operation.



Source: CBA

Thus, though the analyzed indicators are close to the minimum margin, the liquidity risk in the system is estimated very low which could not result in systemic problems taking into account that incoming payments from other participants and/or from other liquidity sources were not considered during the analysis. However, if the trend will be continuous the banks will be required to perform more effective monitoring of their payments and liquidity and not allow growth of rejections and non-payments due to their liquidity insufficiency.

### Rejections

According to analyses, rejections of payment executed through EPS during 2009 increased by 2.5-fold to make 1636 (compared with 664 of the previous year). 1451 of the rejected were exclusively due to liquidity insufficiency (compared with 464 of the previous year). Remarkably, majority of liquidity insufficiency rejections (43 percent of volume, 21 percent of value)<sup>47</sup> were recorded in the third quarter when there was large

<sup>47</sup> In IIIQ 2008 the ratio of rejections due to liquidity insufficiency to the number of corresponding rejections within the year was 20%, to the volume - 27%, and the concentration in IVQ was 35% and 53%, accordingly.

number of transactions in Stock Exchange connected with the fluctuations in foreign exchange market. Nonetheless, the share of the mentioned rejections totaled 0.09 percent of the volume and 0.21 percent of the value in the payments made by EPS (net position of Stock Exchange transactions) which is the evidence of the fact that banks effectively monitored EPS.

In 2009, liquidity insufficiency rejections totaled 88.7 percent of total rejections which increased by 20 percent compared with the previous year (2008 70 percent). Nevertheless, in spite of observable qualitative increase in rejections they still make a small part in the payments made in EPS; total rejections (related with liquidity insufficiency and errors) constituted 0.06 percent of the total EPS payments and 0.37 percent of the value. Meanwhile, though the rejections due to liquidity insufficiency tripled they made 0.05 percent of EPS payments and 0.35 percent of the value. These analyses let us conclude that there were no serious liquidity problems in the system and the registered rejections in EPS are insignificant for the hindering system operations.

### System Capacity

Based on the expert estimation starting from 2008 EPS is capable to provide more than 4300 payments per hour (average 30000 payment/per day). For payments the most dynamic period of the year is the fourth quarter. In fourth quarter of 2009, the maximum volume of payments per hour by EPS topped 4177 being close but not exceeding the possible capacity indicator (average rate is 4300 payments/per hour) and providing 26 percent of the volume and 47 percent of the value of payments executed during that day. Considering that the concentration of such payments was registered between 15.00-16.00 which is almost the end of working day, any slight malfunctioning in the system during that time could be the reason of expanding the system closing time and cause certain problems for the participants. However, there were no malfunctioning of the system during that day and the system operation ran smoothly without any incidents. This was an exclusive case<sup>48</sup> and was determined by the raise in

<sup>48</sup> The case was registered on December 29, 2009.

Dynamics of the Indicators for 2008/2009					
N	Statistics data/Indicators	2007	2008	2009	Change (%)
1	Number of payments (minimum per day capacity)	20,000	30,000	30,000	0
2	Number of payments (minimum per hour capacity)	2,857	4,286	4,300	0
3	Average daily payments (per year), Stock Exchange- gross	5,356	8,407	10,134	20
4	Number of transactions on peak day in the 4 <sup>th</sup> quarter	10,863	17,480	20,436	17
5	Number of transactions in peak hour of the peak day in the 4 <sup>th</sup> quarter	1,491	2,536	3,371	33
6	Number of transactions in peak hour	2,270	3,740	4,177	12
7	Share (%) of maximum volume of payments per hour in the total payments executed at the same day in the 4 <sup>th</sup> quarter	26	31	26	-5
8	Share (%) of maximum per hour payments value in total value of payments executed at the same day, in case of maximum volume of actual payments per hour in the 4 <sup>th</sup> quarter	44	8	47	39

payments along with payment for closing the year (including budget payments) and can be concluded that it was not regular phenomenon and dangerous impulse for the system operation. The total number of payments during that day amounted to 16290 which again did not exceed the daily 30000 capacity of the system.

Studies showed that though the share of payments exceeding the 2500/per hour rate increased by 50 percent in total payments executed in fourth quarter of 2009 compared with 2008 (from 6.5 percent<sup>49</sup> became 10.0 percent), it is very low. Meanwhile the share of 3500/per hour rate almost did not change compared with 2008 and amounted only 0.8 percent (5 cases during the quarter). This means that the likelihood of reaching the per hour capacity of 4300 payments rate is also very low. Part of this cases were observed in 10:00-11:00 time period and the rest in 15:00-16:00 period (mainly in December).

Dynamics of the Indicators for 2008/2009					
N	Statistics data/Indicators	2008		2009	
		Volume	%	Volume	%
1	Cases registered in the 4 <sup>th</sup> quarter when the transfers exceeded 2500/per hour	42	6.5	63	10.0
2	Cases registered in the 4 <sup>th</sup> quarter when the transfers were close to the minimum capacity (exceeded 3500 and was less than 4300)	4	0.6	5	0.8

According to the analyses it may be concluded that generally even if there is a rapid increase in payments/per hour the system capacity is more than sufficient to provide the system's regular operation, based

<sup>49</sup> The figure was recalculated; instead of 5.8 percent it was 6.5 percent.

on the fact that 90 percent of the payments does not exceed 2500/per hour. In this situation periodical monitoring is very important which will enable to disclose the risky tendencies of capacity breach.

In 2009 average daily flow of EPS messages amounted to 10134 (not exceeding minimum capacity of 30000) which increased by 20 percent compared with the previous year. In fourth quarter number of transactions on peak day was 20436 (increased by 17 percent compared with 2008) not exceeding 30000/per day capacity. On the same day the maximum volume/per hour was 3371 payment/per hour (increased by 33 percent compared with 2008) not exceeding the 4300 payment/per hour capacity.

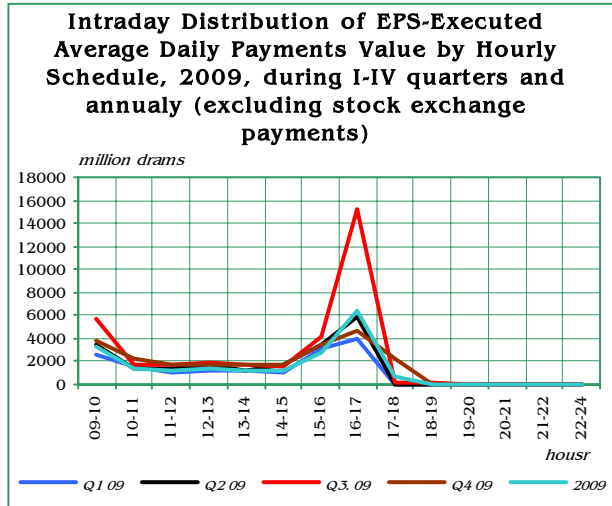
Notwithstanding the increases recorded in 2009 in all capacity indicators, the capacity rate of the system was assessed to be more than sufficient for processing the received messages<sup>50</sup>. Considering that the maximum volume of both daily and hourly payments increased and at the same time the operational availability of the system still meets international standards (See "Operational availability of the system" sector), the reliability of the system is assessed to be at high level.

#### *Intraday distribution of payments*

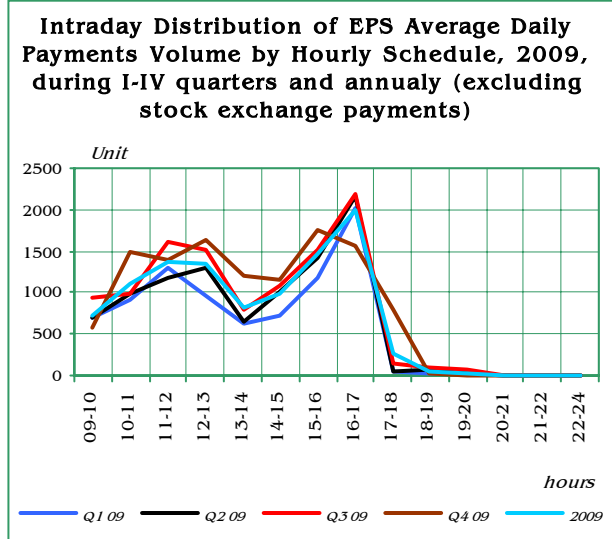
An hourly analysis of the value and volume of average quarterly payments in 2009 showed that the intraday distribution of payments by hours is not proportional. The main portion of payments, as in 2008, was processed between 3-5 pm of the day, constituting 34 percent of the total volume

<sup>50</sup> It is sufficient, as while assessing the potential capacity of the system the minimum number of payments was used and not maximum number, which according to experts is more than the capacity considered during assessment.

and 47 percent of the total value of all payments, excluding stock exchange payments. In terms of value the period between 9-10 am is also dynamic, when 17 percent of payments value was executed. Compared to 2008, between 3-5pm the value share of payments increased by 3 percent but there was a decrease by 4 percent in the volume. This is not a problem as banks have enough liquidity and the system's carrying capacity is adequate for payments.



Source: CBA



Source: CBA

Moreover, while observing payment volume distribution during the day based on quarters, it can be mentioned that the concentration had rapid decrease between that hour, in the fourth quarter making only 28 percent of the daily payment volume (compared to previous quarters 38 percent, 37 percent, and 34 percent respectively) and 34 percent of the value (compared to previous quarters 44 percent, 46 percent and 57 percent

respectively). This is a positive impulse that during the day distribution of payments according to hours has smoothing tendency. Meanwhile, the analysis of system capacity and system operational availability enables to estimate that in case of short-term malfunctioning the above-mentioned concentration will not incur serious problems for the system operation and will not delay the settlement.

It should be summarized that unlike the international practice, when as a result of crisis there was a growth tendency<sup>51</sup> of payment concentration at the end of the day, EPS does not show such a tendency which is a positive indication.

Operational availability of the system

In 2009, six incidents (altogether 2 hours 40 min) occurred in "Operational Day" software system which affected sound operation of EPS. The analysis shows that the number and duration of incidents in the system were too small for disrupting sound operation of the system. Moreover, during the mentioned incidents the operational availability of the system was interrupted maximum for 50 minutes which is a sufficient indicator in accordance with international standards<sup>52</sup>.

In 2009 EPS operational availability was estimated 99.91 percent which is also considered to be a high indicator by international standards<sup>53</sup>.

Thus, the EPS risk assessment allows assuming that the structure and reserve facilities of the system are sufficient to prevent possible systemic risks.

CBANet<sup>54</sup> Availability

In 2009 the disruptions of the CBANet nodes were minor and as a result operational availability of all nodes of the network was 99.9 percent and on the part of the nodes installed in Yerevan-99.9 percent.

<sup>51</sup> Beyond the Turmoil: Rules, Supervision and Infrastructures", Gerrude Tumpel-Gugerell, member of the Executive Board of the ECB, June 2009, page 2.  
<sup>52</sup> In 2008 financial stability report of National bank of Denmark it is stated, that maximum down time indicator for systemically important RTGS system, which is compliant to ESCB system requirements, is 2 hours.  
<sup>53</sup> In 2008 financial stability report of National bank of Denmark it is stated, that operational availability for systemically important RTGS system which is compliant to ESCB requirements, should be very high: e.g. operational availability of TARGET was 99.65 percent, which is considered a good indicator.  
<sup>54</sup> For details on CBANet network risk assessment see 5.1.1 part of 2007 "Financial stability report".

In the regions of Armenia the longest disorder of the network was registered in Gegharkunik, Syuniq and Lori where the operational availability of regional nodes totaled 99.3 percent, 99.7 percent and 99.8 percent respectively. Nonetheless, considering that in aforementioned regions the EPS payments constituted 30.0 percent of the EPS payments initiated in the regions of Armenia and only 0.03 percent of the total EPS payment, we can conclude that due to the disorders of CBANet regional nodes, the interbank payments' delay had a minor effect on the total interbank payments and in terms of financial stability did not have any negative influence.

Four disorder cases of CBANet Yerevan nodes were registered but they did not have any influence on bank head offices and on the settlement of ArCa card system as the disorders were conditioned by the bad quality of connection and it was possible to send electronic payment messages during that period.

During 2009 nine incidents were registered at the subscribers of the head office<sup>55</sup>, and in case of three incidents it lasted from 1 to 3 days. As the disorders were not connected with the failure of the nodes but with the bad quality of the connection, however during those days the subscribers sent and received electronic payment messages and participated in interbank payments.

In general, it can be estimated that the hardware, software environment and reserve capacities of CBANet ensures the stable operation of EPS.

## 5.2. SECURITIES SETTLEMENT SYSTEMS

In Armenia, settlement of securities is executed based on two systems: 1/ the Central Depository of Armenia (CDA) for corporate securities, and 2/ the Government Securities Accounting and Settlement System of the Central Bank (GSASS) for government (treasury) securities and the Central Bank-issued securities.

During 2009 in secondary market by GSASS more than AMD 986777 billion transactions were executed to reach 90

percent of the operations in secondary market and which decreased by 3 percent compared to 2008, however preserving significant share. In this respect in terms of financial stability GSASS is classified as systemically important securities settlements system.

Securities Transfers Executed By the CB Government Bond Settlement And Connected with The Securities Operations In Secondary Market <sup>56</sup>		
	2008	2009
Transactions related with securities market (sales and Repo) (nominal value AMD)	1290180896000	984374736000
Transactions related with Stock Exchange (sales and Repo) (nominal value AMD)	943401000	2403029000
<b>Total</b>	<b>1291124297000</b>	<b>986777765000</b>

Source: CBA

In GSASS DVP (delivery versus payment) principle is applied for settlement of the market transactions. Initial deponation of monetary funds and securities is used for stock exchange operations, which enable to reduce the counterparty's risk. The gross settlement mechanism and irrevocability principle applied in the system rule out emergence of credit risk.

15 incidents were recorded in GSASS, of which 5 incidents were result of primary placement auctions of government bonds, 4-Repo operations of the CBA and 6-Stock Exchange operations of governmental bonds. Due to software errors 3 incidents were recorded, which were eliminated by updating the software and 1 incident was eliminated by server synchronization. Such operational failures in the system had no adverse effects on the extension of operational days of the system, on primary placement auctions, on the specified hours of the CBA Repo operations and on the settlements of Stock Exchange operations. The incidents of Stock Exchange operations related to individual participants which generally were detected and eliminated in the period specified for those operations and due to which the extension of operation execution and the need for settlement extension were excluded.

<sup>55</sup> Incidents were registered at banks, which didn't have reserve connection to central unit.

<sup>56</sup> The data presents calculations carried out by GSASS and don't include sub-depositors internal client transactions.

Taking into consideration aforementioned we can record that GSASS operational availability is high and the system is estimated to be reliable and secure. The Central Bank and "NASDAQ-OMX Armenia" OJSC implement works for the development of securities market infrastructure, effective use of liquidity and for the improvement of settlement mechanism.

Because of need in increasing effective and flexible use of CBA indirect monetary tools and risk mitigation, in 2009 the Central Bank worked on establishing the automated "Repo-reverse repo agreement signing and execution" system<sup>57</sup>. The main principles for the system operation were developed, based on which design and installment works will be implemented in 2010.

For the purpose of increasing the fund management effectiveness for the participants for the provision of the operations signed in Stock Exchange as well as for promptly respond to the developments in the market "NASDAQ-OMX Armenia" OJSC is expected to make changes in the regulations<sup>58</sup> of clearing and settlement carried out by initial deponation. "NASDAQ-OMX Armenia" OJSC also intends to implement T+3<sup>59</sup> principle instead of initial deponation principle for the settlement of operations in the market of corporate bonds.

"NASDAQ-OMX Armenia" OJSC developed relevant projects and software which will be introduced after being registered by the Central Bank.

### 5.3. DEPOSIT INSURANCE

The aim of the Deposit Guarantee Fund is to contribute to the reliability of Armenian banking system, enhancement of public confidence in the banking system and protection of depositor rights. The Fund guarantees remuneration of individuals'

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<sup>57</sup> The system will ensure

-Automated signing, execution and clearing off CBA repo transactions (including intraday) by automatically connecting to GSASS, CDA and "Operational Day" systems.

-"securities pooling" management for each bank  
-Automated re-signing of not cleared intraday repos into one-day repo agreements.

-Monitoring of signing, execution and clearing of repo agreements by participants.

<sup>58</sup> The changes will allow participants to have 3 additional fund depositing possibilities, instead of current 1.

<sup>59</sup> For ensuring settlements through "T+3" principle guarantee fund is intended to be established, which will be managed by CDA.

deposits in the operating banks in the territory of Armenia with the amount specified by the Law; in case of insolvency or bankruptcy of one or several banks operating in Armenia.

In the last two years during the global financial crisis in the list of many anti-crisis measures of many countries steps were included to review the guarantee system of operating deposits. In Armenia as well, during the present financial crisis given the importance of financial stability a number of legislative amendments addressing the extension of the deposit guarantee system are submitted to the approval of the National Assembly. Particularly, the proposed amendments were concerning the increase of the deposit guarantee amount (twice than the current value), obligatory regular revision of the amounts specified by the law (at least once in five years), the possibility for the Fund to attract budget backed credits in case the funds of Fund are insufficient.

Compared to 2008, in 2009 the amounts of the deposits subject to remuneration (hereinafter deposits) of the physical entities, sole entrepreneurs included, increased by 43.2 percent and as of the end of 2009 constituted AMD 343.5 billion. The number of individual depositors (hereinafter depositor) having guaranteed deposits increased by 136829 in 2008 and by 107577 in 2009. As end of 2009 the number of depositors in the banks of Armenia reached 4 394 900 (770841 without depositors in "VTB-Bank Armenia" CJSC, Soviet Union "Khnyaybank"). In Armenian banking system the average deposit amount of a depositor had a stable growth trend from 58.7 thousand drams in the first quarter to 73.8 thousand drams in the end of 2009. In accordance with the Fund estimates, as of the end of 2009, 98 percent deposits of depositors are guaranteed by the full amount by the Fund.

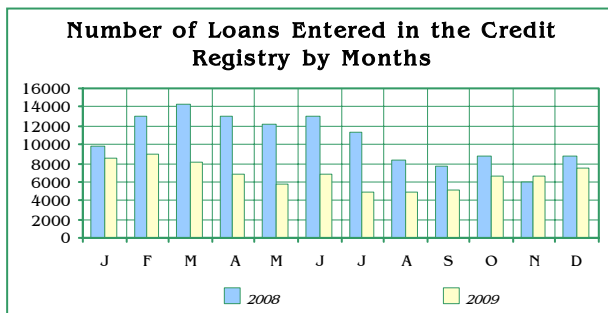
### 5.4. CREDIT REGISTRY AND ACRA CREDIT BUREAU

#### *Credit Registry of the Central Bank of Armenia*

At year-end 2009, the number of loans recorded in the Credit Registry of the Central Bank totaled 740.1 thousand from which 684.5 thousand were loans to natural persons and 55.6 thousand were loans to legal entities. Compared with last year growth of

loans reached 16.3 percent or 212.1 thousand which, nonetheless, lags behind 40.2 percent growth of 2008 which is related to loan market activity reduction. As of the year end of 2009, the Credit Registry reported 146.1 thousand loans in performance and 473.0 repaid.

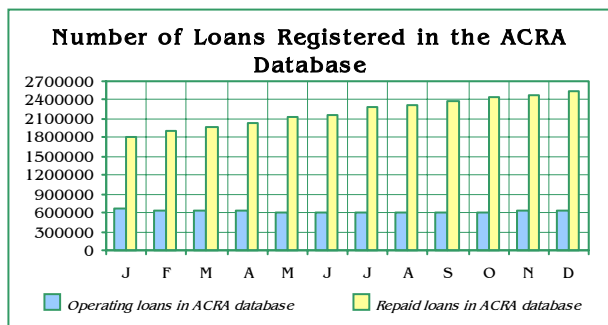
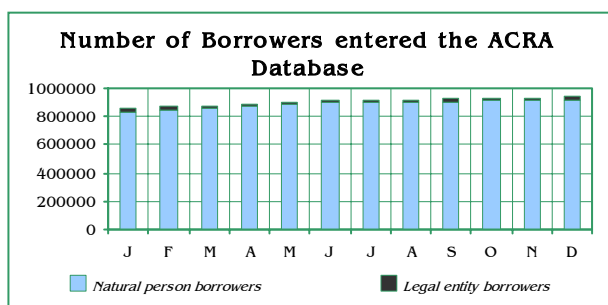
The volume of information entered to Credit Registry had continued to decrease in the first half of 2009, and had slowing growth in the second half parallel to lending restoration.



Source: CBA

#### ACRA Credit Bureau

The ACRA Credit Reporting CJSC is the first private credit bureau in Armenia where information from financial and non-financial institutions pertaining to individual and legal entity risk exposures is collected. During 2009 the number of customers recorded into the database of the ACRA increased by 10 percent to reach 939.3 thousand customers in the yearend of which 98.1 percent were individuals.



Source: ACRA credit bureau

The number of loans available in the database increased by 1.4 fold during the year to top 3.2 million at the end of the year. Compared to 2008, in 2009 the number of provided loan reports increased by 2.5 fold.

#### 5.5. ANTI-MONEY LAUNDERING AND TERRORISM FINIANCING

Based on the RA law "On Combating Money Laundering and Terrorism Financing" adopted in and operating since 2008, in 2009 the drafting of legal system providing the operation of law was completed. During the year Financial Monitoring Center (FMC) of the Central Bank drafted and the CBA Board endorsed reporting rules of non-financial institutions and persons (lawyers, accountants, auditors, realtors, etc.) and the submitting order of statistical data to FMC by the state authorized institutions. Renewed list of offshore territories was approved for the purpose of executions of risk-based analysis. Due to review of typology published by FATF (Financial Action Task Force on Money Laundering) and Eurasian group in 2009, FMC developed and published 3 typologies through which more extended schemes of money laundering were presented.

As a result of measures in the field of combating money laundering, in 2009 the number of accusatory sentences of criminal cases abruptly increased. Eight sentences were passed, when only 1 sentence was passed in 2008.

In terms of international cooperation development the geography of the agreement of mutual understanding signed between FMC and foreign financial intelligence services in 2009 significantly expanded, agreements were signed with the financial intelligence services of Romania, Poland, South African Republic, United Arab Emirates, Bermuda Islands, Australia and Canada.

