

THE 2002
MONETARY POLICY
P R O G R A M
OF THE REPUBLIC OF ARMENIA

YEREVAN 2002

*Approved by the
Central Bank Board resolution
no. 19, 18.01.2002*

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THE MACROECONOMIC ENVIRONMENT IN THE REPUBLIC OF ARMENIA

The year 2001 was distinctive for the economy of Armenia: first, the country celebrated the 10-th anniversary of Independence, and then the 1700-th anniversary of adoption of Christianity in Armenia as state religion (Christianity -1700). In the course of the last 10 years the economy was recovering from the crisis of the beginning of 1990s undergoing notable structural changes and providing sustainable economic growth rates in recent years. In the meantime, some disproportions and problems have emerged and rooted in the economy, and have adversely affected the economic processes. This can hamper the sustainability of high economic growth for both 2002 and the years to come.

The Christianity -1700 festivities placed an essential impact on the economic activity both in 2001 and the year before. Such an impact will unavoidably penetrate through 2002 as well by dint of an enlarged production potential and income growth. Overall, the 2001 economic trends can be a stimulus for rapid development of the economy and better prosperity of population.

The economic growth of 2001, as was expected by the previous year's Monetary Policy Program, was largely dependent on the trends of Aggregate Demand. On the other hand, the real growth of Aggregate Supply surpassed the expected level owing to an enlarged production potential in the period 2000-2001 and its more effective use. The external financial flows (external loans, public and private transfers and factor incomes) have been essential for the economic growth of the last years ensuring steady growth rates of the domestic demand.

Consistent developments in Aggregate Demand and Aggregate Supply have safeguarded the economy from pressures on prices. However, notwithstanding overall income growth, a relatively proportional distribution of the household expenditures was not possible without moderation of the unequal income distribution of the households. The high economic growth recorded did not therefore induce an extra pressure on consumer prices, persisting lower inflation rates. Fighting unequal income distribution will, in the long run, enable the economy to grow steadily and use the economy's increasing production potential more effectively. In this respect, improving of the income redistribution process, as one of the core functions of the fiscal policy, is important.

The economic growth recorded in 2001 was the highest in the last 10 years. It reached 9.6 % against a 5.4 % average annual growth in 1995-2000. All branches of the economy reported a real growth during the year. The spheres of Agriculture and Services were the principal sectors to contribute to real growth of the GDP bringing the economic growth up by 2.6 and 3.0 percentage points, accordingly. The Industry sphere remained buoyant: the real industry growth (excluding production of electric energy) was close to 8.5 % in 2001, according to the Central Bank estimations.

While real growth in 2001 was determined broadly by the Services and Agriculture, economic growth in 2002, which will reach 6.0 %, according to the Central Bank estimations, will continue owing not only to Services but also to expectedly much buoyant Industry (owing to increasing exports) and Construction (owing to external financing). An expected large capital inflow in 2002 could additionally stimulate the branches of the economy and lead even to much higher level of economic growth. Concurrently, an additional growth in incomes could exert a pressure on the consumer market inducing an higher than projected growth in consumer prices.

The real industrial output will grow by 7.5 % in 2002, according to the Central Bank estimations. This will ensure a real growth of the GDP by 1.5 percentage points. Arrangements concluded with Russia and other countries regarding reactivation of some major enterprises will notably affect the real growth in the Industrial Output. The processing spheres (chemistry, machinery, metallurgy) will contribute to a prevailing part of the real industrial growth. Reopening of enterprises would enable creation of new jobs and ensure a steady income growth, while improving the social problems of the population.

A 2.3 % growth is expected in the Agriculture in 2002 which would provide a 0.6 percentage points of the GDP growth. Considerable growth in farmers' incomes recorded in 2001 due largely to good weather and persistent demand for agricultural products would enable making more ploughland and raising effectiveness of use of the existing arable land. Also, developing of enterprises for processing agricultural products and an efficient application of insurance mechanisms for the agricultural production could largely contribute to further advance of the sector. A larger external demand could notably affect development of the agriculture sector.

In Construction area, the real growth will reach 16.5 % contributing to the real GDP growth by 1.9 percentage points. The growth in the Construction sector in the last two years has been attributable to construction and building activities needed to fulfill the events under Christianity-1700. In 2002, the structure of Construction by branches will somehow change: the volumes of capital investments in the Industry (broadly in chemistry and metallurgy) will increase. In addition, a considerable amount of capital construction is expected to carry out in the earthquake zone and to renovate the country's infrastructures.

The Real Growth in Services in 2002 will be 2.6 %, according to the Central Bank estimations, which will contribute to the economic growth by a 0.9 percentage points. The Transport and Communication sectors are expected to report certain activity in 2002, largely determined by a demand from the Industry, Construction and Households. The Services sphere has developed markedly in the recent years: grown capital investments in the sector provide evidence for it. The capital construction carried out in the Transport and Communication areas in 2001 has amounted close to 19 % of total volume.

Given the above trends in the branches of the economy and expected external flows, the Gross National Disposable Income is expected to report a real growth of 5.2 % in 2002 against 7.9 % in 2001. It is appropriate to mention that reduced net foreign transfers have adversely affected the growth of the Gross Disposable Income in 2001.

As the monetary policy of the Central Bank is set to regulate Aggregate Demand, the analysis of Demand for goods and services is important. The production potential enhanced in the last two years might be possible to utilize in 2002 and the years ahead only if the Aggregate Demand grows sustainably.

In 2002, the expenditures on final consumption of the private sector will grow, in real terms, by 3.3 %. This will be conditioned by the 2001 growth of the household incomes. Albeit an impressive increase in 2001 in the household expenditures on goods and services, the actual per capita expenditures are still lower than the minimum consumer basket. The arrangements concluded in relation to reopening of some major industrial plants breed a ground to expect that the volume of Gross Private Investments will, in real terms, grow by about 2.3 % in 2002. The most part of investments in 2002 will come from foreign sources as was in the previous years. The public sector will, along with the private

sector, have a substantial impact this year on Aggregate Demand, which was not the case the year before. In real terms, the government consumption expenditures will grow by 24.1 % and investments by 85.5 %. The government investments will be funded mainly to the expense of foreign sources.

According to the Central Bank estimations, Domestic Demand for goods and services will grow by about 6.8 % in real terms. The real final consumption will increase by 4.6 % and the gross investments by 19.0 % in the structure of Domestic Demand. The Final Consumption/GDP ratio, which is decreasing in the last years, will keep on falling further in 2002 down to 101.7 %. Given the increasing Gross National Disposable Income and Final Consumption Expenditures, the savings in the economy will grow by 10.3 % to amount close to Dram 105.2 billion. Despite an increase in the savings, an impressive part of the capital investments will remain to derive from foreign resources.

The exports of goods and services will, in real terms, outstrip the 2001 level by 4.4 %. An increase in foreign demand for exported goods is conditioned by an increasing competitiveness of locally produced goods and services.

The real growth in imports will reach 3.1 % in 2002, according to the Central Bank estimation, somehow exceeding the 2001 growth rate. The Fuel Resources and Equipment Imports will be an outstanding indicator in the Imports structure by volume and growth rates.

The Aggregate Demand and Aggregate Supply trends will impose changes also on prices of the goods and services. The GDP deflator will reach 3.3 % this year compared with 4.0 % in 2001, according to the Central Bank estimations. The Deflator will fall due to a relatively slower growth in agricultural product prices of 3.3 % versus an increase of 9.9 % in these prices reported in 2001. The real growth in the industrial output will concur with an increase in industrial output prices, which will rise by nearly 3.6 % in 2002.

As for Aggregate Demand, the Final Consumption Expenditures deflator will amount to 102.8 % in 2002. The level of the consumption deflator will surpass an expected CPI level which will be attributable to a relatively bigger increase in prices on agricultural products in comparison with other consumables. The Capital Investments deflator will reach 103.1 %. The export prices will go up by 5.4 % incurring an influence of a certain exchange rate depreciation and a greater foreign demand for the goods of local production. A 3.5 % growth in the import prices will depend on both depreciation of the exchange rate and an expected inflation in the partner countries.

THE FISCAL POLICY¹

The course of implementation of the country's economic policy of the recent years indicates that the conducted fiscal policy has a dominant influence on macroeconomic indicators set by the economic programs. The process of the budget performance has identified issues as follows:

- A lower than programmed performance on the tax revenues. The problem revealed distinguished patterns during performance of the 2001 budget when, despite the deficiencies (a high level of overtax payments), performance of the projected proportions of the first six months enabled the Central Bank to manage the money aggregates within the program framework, and contributed to maintaining the projected level of inflation and other macroeconomic indicators for the period reviewed. However the situation changed in the second half of the year when tax collections was accompanied by a marked tension causing the nine-month budget indicators to differ from the projected levels.
- More explicit patterns of seasonality of the budget. The solution to this problem will require paying proper attention to setting quarterly proportions of the budget indicators trying to smooth the seasonal fluctuations that have intensified at the latest months of the quarters, the latest week and the latest days of a month. The main issue to deal with is disproportional collection of the taxes. To settle the problem, a set of administrative measures will be required while demonstrating consistency in tackling the issues existing in this field. In the outcome, a tempered performance of the budget expenditures during the year would ensure a smooth pattern of the Aggregate Demand and a smooth path of monetary policy.
- Shortfalls and delays in receiving foreign disbursements complicate the effective coordination of the fiscal and monetary policies, and bring in deviations in the macroeconomic indicators of the monetary policy program.
- Divergence of the expenditure commitments from the program due to shortfalls in the tax revenue and foreign financing. The non-committed budget expenditures throughout 2001 were 1.23 %² of the GDP. The non-committed expenditures rise the level of the arrears, hamper the businesses, deepen unequal income distribution leading to exacerbation of social problems.
- Insufficient pace of implementation of structural and institutional reforms, enforcement of laws and administrative measures, which in turn, impeded the solution of the above problems.

In addition to external financial flows laid down in Armenian Law on "State Budget 2002", the Monetary Policy program has also included the flows as follows: an extra inflow of foreign grants of USD 55.6 million is expected from the Lincy Foundation; the World Bank SAC disbursement of USD 54.5 million instead of USD 20 million laid down in the above law; and additional expenditures due to restructuring of the debt to Russia instead of paying the amount of USD 17 million, as was projected by the same law. The 2002

¹ The 2001 budget performance indicators are preliminary.

² Where non-committed expenditures of Dram 14.5 billion are considered (the 2001 budget performance indicators are preliminary).

budget revenues and grants will increase by 29.0 %³ against the previous year totaling 19.4 % of the GDP. The tax revenues will rise by 15.3 % to reach 15.1 % of the GDP against 16.5 % and 14.3 % the year before, respectively. The budget deficit is projected to be 5.2 % in the GDP this year 93.5 % of which is going to be financed from foreign sources. A heavy reliance upon external funding projected for 2001 and the actual entries of 74.9 % against the annual program delivered difficulties to a process of the budget performance. For 2002, provision of Dram 3.5 billion net proceedings expected from domestic financing sources, i.e. allocation of the treasury bills, is realistic. Given the T-bills demand behavior during the last two years, the Central Bank suggests delineating a relatively higher level of Supply during the first quarter of the year, conditioned by an excessive on-hand liquidity owing to seasonal economic decline.

In view of the projected budget revenues and deficit indicators, the 2002 budget expenditures will go up by 38.6 % to reach 24.7 % of the GDP compared with 19.5 % in 2001.

Implementation of the 2002 fiscal program will depend mostly on a level of tax collection and a receipt of foreign funds in agreed amounts and date-schedules. As the Tax/ GDP ratio is decreasing lately (from 16.1 % in 1999 to 14.3 % in 2001) and there are difficulties in tax collections, a forecast of the Tax/GDP ratio to be 0.8 % higher in 2002 against the previous year is quite risky.

The fiscal impulses calculated using projected figures of the 2002 budget indicate that the fiscal policy would place an expanding impact (2.8 %) on the Aggregate Demand. This would be determined by an expanding nature of the expenditures on the Aggregate Demand owing to expected large financial inflows. On the other hand, the Primary Deficit/GDP ratio of 4.2 %⁴ and the Revenue/GDP ratio of 15.8 % of the 2002 budget indicators are not sufficient to meet a prerequisite for a stable Debt/GDP ratio of the previous year. To achieve this target there is a need to assure the levels of the Debt/GDP ratio of 2.1 % and the Revenue/GDP ratio of 21.5 %, according to a Central Bank debt sustainability calculation methodology.

The coordination of the fiscal and monetary policies of the last two years improved impressively. Implementation of the institutional reforms, the *Account Servicing Agreement* signed between the Central Bank and the Ministry of Finance and Economy (July 24, 2001) and an approved Regulation on "Relationship between the Central Bank and Ministry of Finance and Economy" have also contributed to such improvement. As a result of improved coordination of liquidity management and T-bills allocation policies, the inflow from T-bills totaled Dram 5.9 billion instead of projected Dram 4.5 billion. This was associated with a decline in interest rates and an increase in the average maturity on domestic debt. This provided some cushion during the quarters to solve the problem of expenditure commitments given the shortfalls in the revenue.

Although there are positively marked trends in the coordination area, problems of institutional nature stand as follows:

- A practice to adjust the projected budget indicators to the actual budget outcome during the year by the Government is not in place. The Central Bank has unilaterally

³ When non-committed tax revenues of Dram 4.5 billion for 2001 are considered.

⁴ In addition to the law on the budget, the budget deficit calculations include restructured debt of USD 17 million to Russia, two SAC IV credit tranches with a total amount of USD 34.5 million.

revised its programs twice in 2001 and conducted a more expansionary monetary policy to offset the restrictive influence from the fiscal policy on the aggregate demand and inflation.

- Lack of the consolidated budget statistics particularly on actual financial flows of the local budgets and the State Social Insurance Fund.
- Lack of reporting on and predictability of financial flows in the quasi-fiscal area.

In summary, though the annual proportions of the Budget provided for in the 2002 Monetary Policy Program will put an expanding impact on the overall demand, a slightly conservative approach has been used in preparing the monetary program in view of the process of previous years' budget performance (less disbursed funds and less collected taxes).

THE EXTERNAL SECTOR¹

It is expected that in 2002 the balance of payments behavior will significantly differ from the previous years' pattern, main reasons being the anticipated bulky inflows from the Lincy Foundation (around USD 55.6 million²), and decrease in exports of services. As a result, imports will grow owing to a higher demand for investment goods driven primarily by the projects implemented by the Lincy Foundation. On the other side, as exports of services drop, the deficit of goods and services balance will increase by USD 4.5 million, notwithstanding the continued strong growth in exports of goods. The sum of other balances of current account will decrease by USD 2.3 million which is due to contraction of "Income" by USD 11.8 million and increase of current transfers by USD 9.5 million. As a result, USD 6.8 million expansion of current account deficit will be registered in 2002, which, however, being a result of a short-term shock, will decrease over the medium-term, reversing to its previous trend of gradual contraction.

According to the CBA forecasts, during 2002 exports (credit) will total USD 404.4 million, growing by USD 49.2 million (a 13.9 percent increase) compared to the previous year. Exports projections were based on the trends of previous years, and forecasts of the behavior of export producing industries during 2002. The growth of exports by around USD 21.0 million (see Appendix 5.2) will be conditioned by the growth of "Foodstuffs" exports. Such notable growth in exports of food (around USD 20.6 million) was already observed in 2001, signifying the growth of output in this sector. The USD 7.1 million growth of exports will be conditioned by the increase in the article of "Precious and semi-precious stones, metals, and articles thereof". Although during 2001 imports under this article have declined (by USD 7.4 million) and exports have increased by mere USD 1.4 million, however it was due only to the drop in international prices on processed diamonds. The respective growth in 2002 is expected due to the expected change of international prices starting from the second half of the year, and processing of new quantities of diamonds imported from Russia during QIV, 2001, and 2002. Exports of goods under "Ores and minerals" article will grow by USD 5.1 million against USD 1.2 million in 2001. Such increase is owing to higher exports of copper and molybdenum in 2001 and which will carry on in 2002 as well. Growth of exports in these articles means that the growth is stipulated by foreign direct investments provided by the strategic partners of the enterprises. Analysis of the structure of exports by countries shows that within the CIS exports the share of Russia has grown, mainly due to increase in exports of Armenian brandy, as well as to around 15 percent depreciation in real terms of Armenian dram against the Russian ruble, and the substantial economic progress and growth of real income in Russia. Current trends in bilateral real exchange rate behavior will continue in 2002, too, contributing to the growth of exports to Russia. Exports to the USA and Israel have also grown remarkably, mainly due to higher exports of precious metals and stones at a low aggregate transportation cost. This is a positive trend, because low transportation costs are a major prerequisite for the further development of export-producing industries and improved competitiveness of the domestic commodities.

¹ The 2001 BoP data are the Central Bank estimations based on the actual data for the first 3 quarters.

² These inflows will be registered as capital transfers in capital and financial account.

According to the CBA estimates, imports (debit) in 2002 will total USD 811.9 million, growing by USD 43.7 million (by 5.7 %). Growth of imports by around USD 16.4 million (see Appendix 5.2) will be conditioned by the growth of imports under the article of "Precious and semi-precious stones, metals, and articles thereof", owing to large quantities of unprocessed diamond imports from Russia. Imports of "Ores and minerals" will grow by USD 20.7 million, due to imports of inputs for construction projects implemented by Lincy Foundation, and higher demand for mineral fuels and oils thanks to the gradual increase of business activities. Growth of imports of machinery and equipment by USD 21.6 million will be conditioned by higher foreign investments, and despite USD 29.0 million decline in 2001, imports will grow due to the carry-over of some investment projects to 2002, and new investments. Imports of foodstuffs will decrease somewhat due to the gradual growth of import substitutes, evidenced by an apparent drop of the share of consumables in total imports. This trend was observed even during the period of celebrating the 1700th anniversary of Christianity, although it was expected that big influx of tourists would be accompanied by the growth of consumables' imports. Growth of imports will be also fostered by the growth of aggregate demand in the economy observed during the second half of 2001, and according to estimates this trend will continue to a certain extent in 2002.

Exports of services will decrease by USD 2.5 million, totaling USD 188.2 million. However, within its structure the share of rapidly developing information technologies will grow. Imports of services will grow by USD 7.5 million, mainly due to the growth of transportation associated with imports of goods and tourism associated with an increase in income. Noteworthy is that tourism carried out by Armenian residents will grow, while its decline elsewhere in the world is expected. Imports of services will make up USD 206.3 million. Subsequently, deficit of services balance will grow by USD 10.0 million compared to 2001, totaling USD 18.1 million.

The deficit of the income balance of the current account is projected to total USD 49.6 million, decreasing by USD 11.8 million compared to the previous year, determined mainly by the growth of non-residents' earnings on their investments and part of these earnings being re-invested in the economy.

The surplus of the current transfers balance will total USD 177 million, growing by USD 9.5 million compared to the previous year. The growth will be observed both in public (by USD 5 million), and private sector (by USD 4.5 million).

As a result of the trends outlined above the external current account deficit is expected to grow totaling USD 199.0 million, which is by USD 6.8 million (by 3.5 percent) more than in the previous year. However its share in GDP will narrow to 8.7 percent of GDP, as compared to 9.1 percent in the preceding year. Excluding official transfers, the current account deficit is expected to account for 12.2 percent of GDP, as compared to 12.6 percent in the preceding year.

Current account deficit will be lower than capital and financial account (without change in reserve asset), resulting to a USD 14.5 million growth of the CBA's foreign reserves (excluding privatization proceeds), bringing the stock of gross official reserves equivalent to 4.1 months of imports of goods and services. Retention of the same level as

in 2001³ is conditioned by the fact that the growth of gross international reserves was accompanied by a simultaneous growth of imports. The dram broad money/reserve ratio,⁴ which is used for assessing the level of foreign reserves adequacy, will total around 0.47, preserving the same level of the previous year. Although measured by this indicator the level of international reserves remains sufficient, still there is a danger of its further drop, which can take place in case of delays with disbursement of USD 54.3 million SAC IV and SAC V loans, and USD 26 million of the PRGF credit.

Foreign direct investments, public external loans, and capital transfers (determined by the launch of Lincy Foundation projects which are expected for 2001-2003) will constitute a great portion in capital and financial account (without change in net international reserves of the Central Bank).

Foreign direct investments will total around USD 100 million up by USD 17.6 million compared with the year before. During 2001 FDI dropped by USD 21.8 million, owing to the decline of profit in enterprises with FDI, and lay-downs in the state enterprise privatization program. Another reason for the drop in FDI is the completion of foreign direct investments at some large enterprises. The flow of FDI in the private sector have grown slightly, and the growth is expected to accelerate in 2002.

Net foreign assets of commercial banks are expected to increase by USD 30 million. This growth is in part induced by new investments in the capital from non-residents, due to raising the minimum capital requirement, and anticipations for new banks opening in Armenia. Settling foreign liabilities of the economy through banking system can lead to a further growth of NFA of commercial banks. During 2002, the growth of foreign currency deposits of residents will continue.

External public loans continue to represent significant source of financing of the current account deficit - the 2001 end-of-the-year public and publicly guaranteed external debt stock is expected to amount to USD 967.6 million⁵, and the disbursements of loans are expected to account for USD 166.2⁶ million. The disbursements of around USD 54.3 million from the WB from its SAC IV and SAC V program, and the expected US dollar 26.1 million from the IMF related to the PRGF program account for most of the financing. Since these funds, which account for around 48.4 % of total loans, are provided within the framework of programs envisaged for countries with low level of income and therefore have low interest, the share of loans on concessional⁷ terms will remain high (around 91 %). In 2001 external public debt totaled USD 837.3 million, of which 89.5 % on concessional terms.

In spite of rescheduling the USD 95 million total outstanding debt to Russia in 2001, external debt is still at a high level mainly due to expected accumulation of new debts

³ In 2001 this indicator was equal to 4.1 months

⁴ This ratio indicates the level of foreign exchange reserve adequacy given the level of capital outflows. Hence, in case of external shocks the owners of dram liquidity seek to exchange their money assets into foreign currency assets and transfer them abroad. Consequently, this indicator serves as a good criterion for measuring country's vulnerability to financial shocks.

⁵ Excluding the total stock of indebtedness to Russia

⁶ Source for external public debt data is the joint IMF and MOFE table on external debt

⁷ Includes the long-term debt in which the share of grant element is above 35 percent, corresponding roughly to loans with interest rate lower than 3.5 percent.

during 2002. Further deterioration of the country's creditworthiness, which is an indicator describing the external debt burden is conditioned by the high rates of debt accumulation. The external debt/GDP ratio, which describes the capacity to repay external debt, and the external debt at NPV/GDP ratio, will amount to 42.4 % and 27.1 %, respectively, compared to 39.5 % and 25.0 % in 2001. Another indication of increasing burden of the external debt is the worsening of external debt liquidity. Thus, the indicator of unsustainable borrowings⁸ will amount to -2.7 %, while in 2000, and 2001 this indicator was positive amounting to 18.0 %, and 24.3 %, respectively. The drop in the rate of exports of goods and services has predetermined this trend in 2002. Subsequently, any further decrease in export growth rates would substantially endanger the debt liquidity in Armenia.

Since the bulk of the Russian debt was provided on non-concessional terms, its rescheduling will significantly alleviate debt servicing in 2002. External debt service will total USD 56.9 million, compared to the programmed USD 90.5 million. Subsequently, the debt describing indicators - the external debt service/exports ratio will make up 9.6 % compared to 9.5 % in 2001, while the external debt service/GDP will amount to 2.5 % compared to 2.4 % of the previous year.

Hence the problem of external debt solvency, which has existed since 2000 due to arrears to Russia, has further deteriorated during 2001. And this in case of disagreement with creditor on a rescheduling of the debt would have created essential difficulties for external debt service. Subsequently, starting from 2002 the strategy of attracting concessional loans, and developing a clear-cut program for public debt management and control is of crucial importance. As a result, the accumulation of arrears, complex negotiations on debt rescheduling and debt burden carry-overs may be avoided.

During 2002 the dram real effective exchange rate will stay in line with the last year's behavior - depreciating against currencies of major trading partners⁹. According to the CBA estimates the dram real exchange rate will depreciate around 5.0 %¹⁰ (see the graph in Appendix 5.3). Such depreciation of the real exchange rate will be determined by the programmed inflation level, which is lower than in countries of trading partners (2.7 % compared to a weighted average 10 % in countries of trading partners), and which will be restrained by depreciation of the dram nominal effective exchange rate (1.9 %) because depreciation rate against US dollar will be lower than in countries of trading partners¹¹.

In general, the real rate of depreciation will be slightly lower than in 2001, however it is still high compared to the average 1996-2000 depreciation rate, which was only 0.6 percent. Such behavior of the real exchange rate creates favorable conditions for strengthening the country's external competitiveness, and improving the trade balance. However the elasticity of external trade flows (exports and imports) to real exchange rate

⁸ Calculated as difference between the total growth rates of gross international reserves and exports of goods and services, and the growth rate of public external debt.

⁹ Calculated at average weighted external trade shares during 1995-1999, excluding trade turnover with Belgium, humanitarian aid, and imports of natural gas, and fuel.

¹⁰ Source for inflation and exchange rate forecasts is the October issue of 2001 IMF's "World Economic Outlook"

¹¹ Inconsistencies in figures are due to using the methodology of geometrical average for calculation of the real exchange rate, and export/import prices

changes is quite low due to peculiarities of the external trade structure. However, during years this correlation is becoming stronger. In the long-run depreciation of the real exchange rate can foster growth of exports and drop of imports, and improve current account.

Partner countries of Armenia are conventionally divided into two groups - countries with high and low levels of inflation. Countries with a high level of inflation include Russia, Iran, Turkey, while those with a low level of inflation include the USA, and European Union countries. Since the share of the EU countries in Armenia's external trade is high, this could have a negative impact over the dynamics of the real exchange rate. This impact can be offset by the Central Bank through maintaining low level of prices, and pursuing the policy of gradual depreciation of the nominal exchange rate.

The impact of inflation and exchange rate changes in trade partner countries on the Armenian economy can be traced through changes in Armenia's terms of trade. Thus, during 2002 terms of trade will improve by 2.2 %; of which export prices in USD terms will grow by 4.3 %, while import prices will grow by 2.1 %^{12,13}.

The growth of export prices in US dollar terms is in turn conditioned by 5.6 % inflation in partner countries, and -1.3 % change of exchange rate. As for import prices in US dollar terms, inflation in partner countries contributed to the increase of 5 %, while the change of the exchange rate to -2.7 % (detailed data by major trading partners is presented in Appendix 5.1). This means that countries with a high level of inflation have a higher share in exports than in imports (about 64 % and 41 %, respectively). In addition, imports include oil products, the world prices of which, according to the IMF estimates⁹, will drop by about 8.6 % on average. As for the higher contribution of partner countries exchange rate changes to import unit value, with 24.6 % Lira exchange rate depreciation Turkey's share in exports of about 2 % is considerably lower than in imports where its share is below 11 %.

¹² The methodology of export and import unit values forecast is presented in the 2001 monetary program

¹³ Difference from the table on financial programming is due to exclusion of trade with Belgium, which, however, does not have a significant influence over general price trends.

THE INFLATION

The annual opted target of inflation for 2001 again was to meet the medium term program set to prefigure a 3-4 % level.

The Monetary Policy Program had clearly delineated the risks which could have exerted pressures on the prices and pushed them to vary somehow from the medium term program levels. By way of minimizing the expected variances, it was planned to switch quickly to the medium term program. The Central Bank would attempt to handle the inflation up to and within the range of 3.5 % and the average annual inflation - of 3.4 %.

A low inflation target the Central Bank has opted in the recent years was such as to justify certain positive aspects. The country's competitiveness in external trade (in the region, first of all) increases, a lower inflation provides for lower interest rates contributing to enhanced confidence in the dram and a wider area to circulate.

On the other hand, given an existing severe unequal income distribution, a substantial price rise worsens the social problems of the vulnerable population affecting the real incomes of the such.

A 2.9 % inflation was reported in 2001, with an average annual inflation of 3.1 % for that period, according official data from the National Statistics Service of Armenia. In the first six months, the actual inflation indicator of 3.8 % has coincided with the program level. In the second half, significant deviations have occurred in different sectors of the economy thus reflecting in price fluctuations. To respond, the Central Bank directed its monetary policy to align the variances while altering the program indicators in the monetary area.

A highlight of the second half of the year was that the conduct of the fiscal policy has restricted a growth of Aggregate Demand and, accordingly, the price rise. Therefore, the monetary policy implemented by the Central Bank in that period was more expansionary than programmed. This period of time was featured also by a stimulated Aggregate Demand and a considerable inflow of the foreign currency owing to Christianity-1700 events. Stimulation of Aggregate Demand was expressed mostly in the indicator of the economic growth other than the inflation resulting in much bigger deflation of 4.5 % in the third quarter 2001 (3.0 % in 2000, 3.8 % in 1999). Such an unexpected move in the structure of the GDP seemed to be explained by the extension of potential of economic activity more than expected. An increase in the capital investments yet in early 2000 promoted to a ground for the businesses to prepare a wider supply for the goods and services. This was another support to enlarge the economic growth potential. Under the above pressures, the programmed price rise did not occur on a full scale and the actual inflation indicator varied at the end-year from the program by 0.6 percentage points.

In 2001, the Central Bank continued estimating and commenting on the inflation by the supply factors¹ to provide a rationale of the annual inflation behavior from the viewpoint of the microeconomic criteria, with the key pressures of all the sectors of the economy on prices.

The factor analysis shows that the factor of difference between Wages and Productivity has had the biggest share of influence on the inflation in 2001. The real wages, the real GDP growth and creation of new jobs, determined by Christianity-1700

¹ Comments on the method and the moves of indicators are presented in appendix 6.

festivities and other related events, all have led to a real wage growth rate to have outstripped those of the productivity contributing to a 2.1 percentage points increase in the Inflation. The slowing economy in 2002 will result in a loosening influence of this factor on the Inflation when compared with the previous year. However, the restrictive influence of this factor on the Inflation may be possible to ease to some extent (if the receipt and disbursement of the Lincy Foundation resources realize during the year).

In 2001, the share of the Net Indirect Taxes in the GDP was 9.8 %, up by a 0.6 percentage points compared with the previous year's indicator. Influence of the Net Indirect Taxes on the Inflation was therefore 0.6 percentage points. Such influence was restrictive enough in relation to the program as the Net Indirect Taxes/GDP ratio failed to reach the projected level of 10.8 % due to a shortage in collection of the indirect taxes. The share of the Net Indirect Taxes in the GDP will increase in 2002 by 0.3 percentage points contributing to the inflation to dilate that much.

The growth of the imports prices in dram terms had a 0.3 percentage points expansionary impact on the inflation throughout the year, according to the Central Bank estimations. The imports prices in dollar terms had around 1.7 % decreasing impact on the inflation. This has been concurrent with a 2.9 % depreciation of the nominal dram exchange rate. The impact of the external sector factors on prices is expected to be expansionary in 2002 due to both a 1.4 % depreciation of the nominal dram exchange rate and a nearly 2.5 % growth in the imports prices in dollar terms. This would happen mostly because of an expected higher inflation and appreciation of the nominal exchange rate of the euro in the partner countries.

Impact of the administered prices on inflation was neutral. The administered prices are not projected to change throughout 2002.

As a result, the 2001 average annual inflation of 3.15 % will decrease by 0.45 percentage points to amount to 2.7 % in 2002.

The low inflation phase Armenia entered recently will remain to prevail throughout 2002. Considering the potential risks hampering accomplishment of the key objective, the Central Bank will attempt to ensure up to 3 % inflation throughout the year.

THE MONETARY ENVIRONMENT DEVELOPMENTS OF 2001

The monetary policy implemented in 2001 adhered to the monetary strategy principles adopted in the previous years. In particular, Money Supply has been opted as a “Nominal Anchor” of the monetary policy to ensure the price stability. Money Supply has been managed with the help of handling Base Money emphasizing the interest rate behavior.

The 2001 monetary policy has featured certain peculiarities. These included a more consistent policy of the Central Bank in handling the money aggregates, namely to ensure an harmonized growth rates of Aggregate Demand and a marked influx of the foreign currency (Commemoration of 1700 years of adoption of Christianity as a state religion in Armenia). Uncertainty of the risks in the external sector remained to draw a significant impact on the developments of the monetary environment in 2001. Particularly, the import prices deviated from that of forecasted thus creating serious difficulties in maintaining the projected inflation figure. The year 2001 was outstanding also with deeper uncertainties in disbursement of external financing of public budget and the issues existing in the quasi-fiscal area, which have negatively affected the pattern of implementation of the monetary policy.

Growth rates of the money demand have significantly accelerated due to the high growth of economic activity during the year. This mainly concerns to Dram Broad Money the average annual growth rate of which has amounted 24.9% against 11.2% in the year before. The growth rate of Broad Money was higher too - 28.0 % against 24.1 % in the year before.

Compared to the previous years In 2001, the structure of Money Demand and Money Supply has displayed certain peculiarities as follows:

- The growth rates of the Foreign Currency Deposits slowed down notably. The average annual foreign currency deposit indicator grew by 29.7 % against the previous year whereas it was fluctuating within the range of 38 % in 2000 and reached more than a record 52 % by average in the period 1998-2000. This is mainly reasoned by narrowing dollarization which is mostly due to the decline of foreign currency interest rates and exchange rate depreciation. The fact that considerable foreign inflows and high GDP growth rates (9.6 %) did not cause the banking deposits to grow noticeably brings to the conclusion that these resources were partly directed towards more profitable areas of economy where cash foreign exchange was used. Another important factor contributing to this was that some banks were in the bankruptcy process during the year. Nevertheless, the Foreign Currency Deposits are still prevailing (more than 50 %) in Broad Money. In 2001, the growth of the Foreign Currency Demand Deposits has outstripped those of the Time Deposits whereas the demand deposits had had lower growth in comparison with the time deposits in the past. This can be attributed to the impact not only from falling interest rates but also from the acceleration of the growth rates of economic activity and continuing increase of export volumes in 2001.
- The growth rates of lending to the economy slowed down in 2001. The dropping indicator of lending was broadly determined by the banks being in the bankruptcy

process and initiating huge losses of the bad loans. Excluding the role of these banks in the lending process, the growth rate of the lending indicator amounted to 11.4 %². This indicator was close to 22 %³ in 2000 and annual average nearly 16 % in the period 1998-2000.

With such risks in lending of the economy, part of the foreign currency deposits was used by the banks to invest in correspondent accounts with the foreign banks. This has resulted in an increase of Net Foreign Assets of the banks by more than Dram 5.840 billion, given that some foreign liabilities were repaid. Albeit the slowing rates of the dollarization the businesses are yet increasingly inclined to keeping foreign currency assets. This is why an 82 % of the lending to the economy is still in foreign currency.

- The declining dollarization trends have induced the dram denominated deposits to grow fast, with an average annual rate of 16 %, whereas the same indicator of the previous year has not exceeded 1 %. Incidentally, The sector has reported high growth rates for both the dram denominated time and demand deposits, up by 21.2 % and around 14 %, respectively. The amount of the dram deposits increased as the industry has reported high growth rates in the last two years. Even with such growth of dram deposits, the share in the total deposits of residents remains quite low at about 19 %.
- The average annual cash growth rate in 2001 was close to 27 % surpassing the trends of the past years (with a growth rate of 8.4 % in the period 1997-2000), owing to an unprecedented growth in the cash to amount to 51.4 % in the second half of 2000 (a growth rate of the second half). Since the mid-1998 through the end-1999, the Central Bank seems to have conducted a tight monetary policy resulting in the demand for transaction money to outstrip the supply of money. In this situation, the declining rates of money velocity have slowed down. They have even increased in 1998. The need to implement such a policy was partially stipulated by the impact of the Russian crisis. On the other hand, the liquidity has been dramatically reduced as a result of repaid external debt by the quasi-fiscal sector, which was mostly reflected in form of the cash. Accordingly, the transaction demand for the cash grew dramatically since the second half 2000. This necessitated the Central Bank to inject considerable liquidity into the economy. A smooth exchange rate pattern and the low inflation level in these years have contributed to such growth. Starting the end-2000 throughout 2001, the money supply has been most consistent with the level of economic activity and the money velocity returned to its natural decreasing trajectory⁴. The calculation of Monetary Impulses (a grand total of Monetary Base and a smoothed money velocity changes) also proves the expansionary nature of the monetary policy conducted throughout 2001 (see appendix 9, table 9.2). The results show that Monetary Impulse indicator was 15.8 % in 2001, whereas the nominal GDP growth amounted to 13.9 %, according to the Central Bank estimations.

² The figure indicates the change in the lending indicator as of the end-year, excluding the banks in bankruptcy.

³ The figure indicates the change in the indicator of the economy lending by all banks as of the end-year (no bank has been in the bankruptcy process in that period of time).

⁴ The estimations of Monetary Base made by means of the McCallum's Monetary Rule also confirm this. From 1999 through the first six months of 2000, the Monetary Base indicator has been lower the level estimated through the above Rule. Starting end-2000 throughout 2001, developments of these two indicators have almost coincided (see appendix 7).

- The year 2001 was outstanding also with more converged growth rates and considerably smoothed pattern of the Money Demand components

The trend of the money and dram velocities downward since 1995 kept on declining in 2001 too, however with lower rates. The money velocity has decreased by 11 % and the dram velocity by 8.8 %. Though the degree of monetization rose to 13 % and 6.2 % for Broad Money and Dram Broad Money respectively, these indicators fall behind those of recorded in many transition economies (the degree of monetization in 2000 was 11.9 % in Armenia; 18.2 % in Russia; 18.7 % in Moldova; 14.9 % in Ukraine; 12.4 % in Kazakhstan). A low degree of monetization normally concurs with a low level of seigniorage as well. The indicator of seigniorage in the GDP was close to 1 % in Armenia in 2001, of which 0.9 % accounted for the pure seigniorage and 0.1 % for the inflation tax. High share of the pure seigniorage in the Seigniorage Indicator proves that the growth of Money Supply in 2001 was mostly consistent with the growth rates of economic activity and therefore with the real Money Demand. This explains a tiny share of the inflation tax in the Seigniorage Indicator. It considerably yields to the same indicator in developing countries of Eastern Europe (see appendix 8).

The annual Money Multiplier indicator was 2.24 and the Dram Multiplier 1.06 in 2001. The Dram Multiplier, though trended upward compared with the previous year's decline, still remains low. The two main factors affecting Dram Multiplier are: an increase of the currency in circulation that forced the Dram Multiplier to reduce; and declining deposits of the non-residents, which has inversely affected the Money Multiplier. In the outcome, these factors and some others have led the Dram Multiplier to grow by 1.3 %. The growth rate of the Money Multiplier was notably lower the indicator of the past years incurring the impact from slowing rates of the foreign currency deposits growth. In such conditions, the growth rate of the Money Multiplier was 3.8 % against 7.6 % in the year before. A key factor affecting the Money Multiplier is the behavior of the excess reserves of the banks. This factor, however, did not affect much changes in the Money Multiplier as the excess reserves remained generally in the range of the previous year's indicator (the average excess reserves were close to Dram 1.200 billion in 2001 and Dram 1 billion in 2000). With certain fluctuations though by months, the excess reserves developed throughout the year smoother compared with the previous year. Despite an increase in volumes of the interbank market transactions, that seemed to have led to reduction of the excess reserves, the dropping interest rates are thought to be the vehicle with which such reserves were held unchanged.

The Central Bank has been consistent in following the principles of an expansionary monetary program and aimed for ensuring the program indicators of Monetary Base. Monetary policy has mainly been influenced by the fiscal policy. To offset the impact of fiscal policy the Central Bank has considerably tightened or eased monetary conditions. In the first semester, the monetary policy recorded a smooth pattern as the projected budget indicators were almost provided. In the second half, the monetary indicators have often outpaced the annual program figures due to the shortfall in budget expenditures, pursuing to moderate the contractionary impact of the fiscal policy. The uncertainty of sources to recover the proceeds of Privatization Foreign Currency Account, amounts and dates of the external debt to be disbursed and paid and sharp fluctuations of Unified Treasury Account balances have also placed a considerable impact on the course of the monetary policy.

In June 2001, the Central Bank has already managed handling of Monetary Base within the upper limit of the Band based on own risk estimations for the monetary policy implementation. Starting August, the Central Bank has made one-sided revisions of the monetary policy for which the Bank has appeared with announcements. The August announcement stated that the Central Bank had planned handling the Monetary Base within the upper Band in the range of Dram 71.9 billion for the third quarter as the risks were persisting in the fiscal and external sectors. The Central Bank again revised the monetary policy program to gradually enlarge the Monetary Base up to Dram 75 billion in October - November as those risks remained to persist. In the same time, the Central Bank would attempt to maintain the end-year indicator of Dram 73.8 billion set by the annual monetary policy program.

The Central Bank NFAs growth was the key factor to contribute to an increase in Monetary Base in 2001. The NFAs were Dram 85.323 billion later the year growing by more than Dram 8.960 billion compared with the previous year. The volumes of the foreign currency purchase this year were bigger for the first time than the sale. Previously, foreign currency operations of the Central Bank were reporting net sale. For comparison, the net foreign currency purchase in 2001 reached close to Dram 719 million while the previous year's net foreign currency sale was about Dram 5.468 billion.

Another outstanding feature of the year was that the Central Bank has purchased foreign currency mostly from a foreign currency inflow into the economy. In the past, the Central Bank replenished the NFAs generally through conversion of the external financing sources of the budget. To avoid abrupt fluctuations of Monetary Base in a situation like this, the Central Bank was intervening immediately through its foreign currency operations in the financial market resulting in an exchange rate appreciation. Such developments were not reported in 2001, and the Central Bank intervention in the foreign exchange market was concurrent with a smoothly depreciating exchange rate pattern.

The average annual growth of Monetary Base in 2001 was around 23.3 % and rising by 11 % against the previous end-year indicator to reach close to Dram 80.4 billion as of December 31, 2001. The growth of the cash outside the Central Bank has averaged 24.7 % and the correspondent accounts - 14.2 % throughout the year.

Particular months reported a vacillating Monetary Base which incurred accumulations of the Unified Treasury Account funds due to the tax revenue large enough especially in the latest days of the months.

The financial market interest rates remained to trend downward in 2001 as were in early 2000. The average annual interest rate on 6-9 month Treasury Bills declined from 27.7 % in the last December to about 17 % in 2001. Net primary allocation of the Treasury Bills of approximately Dram 6.600 billion in 2001 has outpaced the previous year's same indicator that was Dram 4.480 billion. The securities with longer maturity have prevailed in the allocation structure: the share of the medium term Coupon Bonds in the allocation volume in 2001 was about 27.5 % against 18.9 % the year before and the share of the 9-12 month Bills was 29.2 % against 15.1 % the year before. These seem to be affecting factors to boost the interest rate. Overall, a relatively stable and sufficient banking liquidity during the year has contributed to a dropping interest rate of government bonds. This may be explained by the fact that the volumes of lending to the economy reduce in concurrence with a growth of the bank deposits. In consequence, the banking liquidity has

generally steered to the government treasury bills and bond market, as there is no investment alternatives, contributing to a fall in the interest rates. The exchange rate stability and a low level and more predictability of the inflation have also affected this fall.

The banking interest rates have also incurred the impact from dropping interest rates on the government treasury bills and bonds. The average annual interest rate on dram deposits with up to one year of maturity has reduced to 17 % at the end of the year compared with 20 % in the previous year. In parallel to the decline of deposit interest rate, the interest rate on dram loans has also dropped to 29 % at the end of the year against the previous year's indicator of around 34 %. These developments of the dram market found reflection in the foreign exchange market. Determined by an expected exchange rate depreciation, the FX deposit rates still fall before those of the dram deposits. The interest rates on the FX deposits with up to one year of maturity have averaged within 11 % at the end of the year. Although the existence of the spread between the dram and FX deposits rates, these interest rates almost converge. This partially may be that the low interest-bearing loans disbursed by international projects prevail in the foreign currency loans.

As the financial market rates trended downward, the Central Bank has gradually lowered the interest rate of the monetary policy instruments setting the repurchase operations rate at 15 % later the year against 25 % at the beginning of the year, and the outright operations at 16 % at the end of the year against 27 % at the beginning of the year. As regards the Standing Facilities rate, the interest rate on the Lombard Credit has reduced dramatically from 45 % at the beginning of the year to 30 %, while the deposits rate remained the same throughout the year.

The interest rates set by Central Bank are influenced by the liquidity and interest rate behavior of financial market. From the other side they steered the interest rates of financial market to the falling tendency.

THE MAIN ISSUES AND DIRECTIONS OF THE MONETARY POLICY 2002

A large-scale foreign currency inflow to the Republic of Armenia and its absorption by the economy will be the key issue in implementing the economic program and the monetary policy in 2002. This financial inflow stimulating Aggregate Demand dramatically will meantime create a shock of money supply.

Under these conditions, the Central Bank is likely to allow in the short run higher than projected levels of Monetary Base giving preference to maintaining a financial stability of the last years. The Central Bank will conduct the strategy of quantitative management, and the program revisions are desirable only after adjustment of the financial inflows and presentation of a unified program by the Government.

In 2002, the Central Bank will aim its monetary policy for ensuring a maximum 3 % inflation, with a 6 % economic growth.

In preparing the Monetary Policy Program, the Money Demand has been projected through estimating the money demand function and forecasting the foreign currency deposits (see appendix 9). The money demand function incurs the considerable impact of the lagged values of the GDP and Dram Broad Money (see appendix 9). In evaluating the Money Demand, the interest rate has not been considered as its impact on the Money Demand has been seen in the last two years only. The growth of the Dram Broad Money at the end of 2002 will be 9.6 % with an average growth of 17.0 %, outpacing the nominal GDP growth rate by 7.6 percentage points, according to forecasts conducted through the money demand function. The end-year growth rates of the cash and dram deposits in the Dram Broad Money structure will be 4.5 % and 26.0 %, respectively, based especially on the 2001 trends. The growth of the Monetary Impulses in 2002 will almost coincide with the nominal GDP growth due to the recovery of money velocity long-run downward trends.

Continuous decline in the interest rates, which are expected to slow down this year will place a certain restrictive impact on the growth rate of the foreign currency deposits. Bankruptcy of some banks and establishment of some new will oppositely affect the volume of deposits. With these factors in view, the foreign currency deposits is expected to grow by 24.1 % at the end of 2002. It is anticipated faster growth rates for the demand foreign currency deposits, stipulated by the decline of interest rates and continuous increase of export.

As the weight of the foreign currency deposits is considerable, the growth of the Broad Money will outstrip those of Dram Broad Money to reach 16.9 % (with an average annual growth of 18.3 %).

Based on the above mentioned developments and according to the long run trend of Broad Money velocity, the latter are expected to decline slower in the programmed period. These will decline this year by 7.5 % (the same indicator of the last four years was close to 12 %). The M2 Dram Broad Money velocity will remain to trend as it did in the past years. It will decrease this year by 6.5 % exceeding the average indicator of the last four years by 3.2 percentage points. The sluggish Broad Money velocity rates (unlike those of the M2 Dram Broad Money velocity) depend largely on the growth rates of the foreign currency deposits expected to decline this year.

The Dram Multiplier and Money Multiplier are expected to grow in 2002 by 0.8 % and 1.9 %, respectively, as the growth of both the dram and foreign currency deposits will surpass the cash growth. The level of the Excess Reserves being a factor affecting the multiplier will not change notably, according to the Central Bank estimations. Dropping interest rates will, in turn, reduce the opportunity costs for the Excess Reserves. Despite the increasing interbank operations that will help curtail the Excess Reserves, these reserves is not likely to change a lot because of reduced opportunity costs. Such developments in Broad Money and Multiplier will cause the Monetary Base to increase by Dram 7.1 billion or 8.9 % at the end of 2002, with an indicator growth rate to average 16.0 %. A monetary impulses indicator of 9.2 % is consistent with an expected 9.4 % growth of the nominal GDP (see appendix 9). The scenario designed for both the Monetary Base and Broad Money for 2002 is relatively smoother than the previous ones aiming to level the price seasonality due to the fluctuations of Aggregate Demand. In this regard, the Central Bank prefers shaping a short term demand for liquidity through a primary allocation of the government bonds, consistent with the core scenario of the Money Supply management (especially in the first quarter). The above measures will enable to smooth the public expenditures seasonality as well if coordinated action is taken together with the fiscal authorities. Particularly, a wider allocation of securities in the first quarter will allow to somehow avoid a seasonal decline in the aggregate demand through the public expenditures, while avoiding a decline in Money Demand, too.

The Program anticipates a decrease in Monetary Base by nearly Dram 5.2 billion in the first quarter (it has decreased by nearly Dram 11 billion in 2001), while its growth rates during the next three quarters will not fluctuate much either reaching 4.3 %, 4.9 % and 6.5 %, respectively.

The Band of the Monetary Base will again be ± 2 % this year as it is calculated based on standard deviation of the Excess Reserves, and that indicator is not likely to change abruptly in 2002.

As in the previous years, the Money Supply will enlarge this year again mostly to the expense of the Net Foreign Assets growth. A large-scale financial inflow¹ the economy expects will become a source of the excess liquidity, and the Central Bank will use absorbing instruments to offset that. In 2002, the financial resources of the banks will be built mostly through deposits and the financial inflow. Part of these funds will be directed to the lending to the private sector, which will increase by 14.5 %. Another part will be used to repay a portion of foreign liabilities of the enterprises serviced by the banks. In view of the increase of minimum capital requirement and entry of new banks into the sector, the NFAs of the banks will augment by Dram 16.9 billion (supposedly, the principal part of the capital requirement will be replenished by foreign currency).

The rest of the funds will be used by the banks to reinvest for financing the domestic public debt which will increase in 2002 by Dram 2.2 billion.

To sum up the 2002 monetary policy directions, there is a need to address the issues as follows:

- In view of expectations for a large-scale financial inflow throughout the year and uncertainties in the time schedules, the Central Bank plans to comment quarterly on the course of the monetary policy and announce on the program of the next quarter.

¹ In addition to the Budget law, it is also expected restructuring of the external debt to Russia of nearly USD 17 million, two SAC IV tranches of approximately USD 35 million and the Lincy foundation grants of USD 55.6 million, with a total of USD 107.6 million.

- To enhance the stability in financial market and to develop it is important to strengthen the coordination between monetary and fiscal policies. This will contribute to the enlargement and development of securities market providing the possibility to resolve some issues in the area of a short term budget deficit financing.
- In coordinating the monetary and fiscal policies, it is crucial that the Government coordinates the disbursement and spending program of the expected financial inflow with the Central Bank. Further, the Central Bank plans a smoother spending scenario of the mentioned financial inflows.

THE RISKS IN IMPLEMENTING THE MONETARY POLICY PROGRAM

The risks associated with the economic environment and the rest of the world is likely to exert influence on inflation to deviate from the program level. These risks will display by the sectors of the economy as follows:

The Fiscal Sector

In 2002, the risks of the fiscal sector can display both restrictively and expansively. A more expansionary course of the fiscal policy is much likely, since the approach to evaluate the inflation and other indicators of the economic growth was slightly conservative in preparing the Monetary Policy Program 2002. Such an approach was exercised because of a poor budget execution in the past (particularly, under-disbursements of external loans and under-collections of tax revenues). However, an excess of the program proportions of these indicators may be possible if the financial flows come forth in their full.

Besides, the fiscal policy may have a restrictive impact under the conservative approach too, for reasons as follows:

- The projected growth of tax revenues for 2002, unlike for 2001, is risky enough, considering that this year's economic growth would be lesser than in the previous year. In all probability, the under-collections of tax revenues would remain a drawback this year, too.
- Changes in schedules for and volumes of the disbursements from the World Bank and other financial institutions, and the grants from the Lincy Foundation, are likely to occur. This would entail considerable under-execution of budget expenditures.
- Under-collections of indirect tax revenues would result in a lower Indirect Tax Revenues/GDP ratio.

The shortages in the budget expenditures would consequently entail an ineffective income redistribution function by the budget, with accumulated budget arrears on wages and transfers thus leading to more unequal income distribution.

The External Sector

In general, there may be two risks deriving from the external sector, as follows:

- The euro exchange rate may deviate. The international experts estimate that appreciation of the euro exchange rate would average 3.6 % in 2002. But a risk factor works here that the 2001 scenario might recur when the exchange rate had depreciated by 2.9 % in lieu of an estimated 5.6 % appreciation. If this recurs, which is probable amid an increasingly recovering US economy, it may exert a downward pressure on the import prices.
- The international energy prices may deviate from the forecasts as these are prone to fluctuate dramatically mostly because of political situation.

The Financial Sector

The risks in the financial sector have not notably affected the macroenvironment in the last two years as the Central Bank of Armenia has been successful in tempering the

influence of these risks and those of deriving from the other sectors as well. The possible deviations in the financial sector in 2002 would affect the other sectors of the economy weakly:

- There may be more expectations in 2002 for surpassing growth of deposits in relation to cash connected with newly establishing banks. In this circumstance, the banks may face a challenge as to meet the reserve requirement, and the Central Bank would meet the banks' greater demand for money by handling the Monetary Base within the upper limit of the Band.
- The trend of declining growth rates of bank lending to the economy is likely to remain in 2002 due to certain risk exposures in lending to the real sector and a loosened link between banks and economy. This would lead to a reduction in the total investments, and Aggregate Demand would be restricted as a result.

The Process of Structural Reforms

A sluggish implementation of structural reforms in certain sectors of the economy and the energy and irrigation sectors in particular, the drawbacks, a lack of accurate information on their financial flows and non-transparent scope of activities would impair the consistent implementation of the economic program.

Experience shows that the risks, envisaged in the monetary policy programs of the past years, have sometimes necessitated a revision of the projected directions of the monetary policy. Such revisions have been made in respect of the expansionary policies to level the impact of a restrictive fiscal policy on Aggregate Demand.

The risks in implementing the Monetary Policy Program 2002 would be possible to evaluate once the actual amounts and schedules of disbursements are clarified. Inversely, it may be impossible to make even an approximate forecast of the risks and revise the policy directions accordingly, not least because part of an expected financial influx is not laid down in the Armenian Law on the Budget 2002. It is easily seen however that the supply shock would be of a short nature, and the interpretation of real economic developments and their trends would need to be viewed for the two-year period under a medium term program.

Revision of a joint economic policy directions is advisable to discuss when all financial flows and terms of disbursements are made certain.

THE BANKING SYSTEM DEVELOPMENT

The support to stability and reliability of the banking system in 2001 had a purpose to improve the competition environment of the banking business in the country. This has been realized through minimization of the risks emerging in the sector, creation of the most efficient environment for the business and rehabilitation programs for the problem banks.

The sector was added by a bank with a 100 % foreign capital. "Unibank" launched its business starting the second half of 2001. By an entry of this bank, the foreign equity participation increased dramatically representing almost half of the paid-in capital of the banking system.

In 2001, a focused supervision was exercised over the banks which were facing a number of problems. As the financial condition deteriorated, the Central Bank has liquidated "Econominvestbank" and "Shirakinvestbank" and initiated a conservatorship for 4 more banks.

The process of privatization of the banking system came to the end in 2001. "ArmSavingsBank", the last state-owned bank, was privatized. As a result, the government participation in the statutory funds of the banks has decreased to nearly 3 %.

Accumulated bad assets, a poor collection of loans have adversely affected financial performance of the banks. The growth of key economic indicators of the banks fell behind the growth trends of the previous years.

The sector has reported a negligible growth of the total assets, including credit investments. The growth trend of assets and credit investments is expected to persist throughout 2002. A decrease in total assets of the banking system is likely to happen as some banks, which are under a special supervisory focus, may be liquidated.¹ This, however, will concur with the growth trends of the healthy banks' assets.

The deteriorated quality of assets has adversely affected profitability and capitalization of the banks. Banks had performed with a loss throughout 2001, and the sector reported abruptly declined profits.

Presumably, the banking industry will report this year growing profits of the healthy banks owing to a more explicit regulatory field for the asset classification and reasonable and prudent bank policies for the asset allocation. But it will still take time for many banks to rescue from the consequences of their loss-making performance in the past.

The banking capital has decreased in the current year by nearly 35 % although the growth of statutory fund of the banks was almost that much.

Considering the loss-making performance and the decreasing capital in 2001 it is appropriate to constantly monitor the bank capitalization since the beginning 2002. Also, considering the declining profits of the banks in the recent years, it is presumed that starting July 1, 2002, the minimum requirement of USD 1.650 million of the Total Capital will be replenished mostly through a statutory capital paid-in. To this effect, bank restructuring and mergers in the sector are likely to happen. The new banking legislation has explicated and regulated this process. The Central Bank's objective in this regard is to help the banks to provide a sufficient level of capitalization more smoothly.

¹ The decrease occurred because of these banks' indicators not included in the calculation.

Though the growth of the Total Liabilities of the sector has outpaced those of the Total Assets during 2001, it however fell behind the growth trends in the past. This is attributable to falling growth rates of the time (interest-bearing) deposits, resulting from a decline in the interest rates throughout 2001. Drop in the interest rates has made the country's banking sector less attractive for the non-resident investors, and the industry has reported a reduction in the volume of non-resident time deposits of the legal entities and households. Since the second half of 2001, the households' deposits were to be taxed. This could be one of the reasons that these deposits had a negligible growth, almost 10 times less the previous year's level. Overall, the bank liabilities structure of 2001 was such that the growth trend of time deposits from the legal and natural persons has lost almost 5-fold to the previous year's growth rates.

The growth trend of the liabilities could be expected to persist throughout 2002 as the figures of the Total Liabilities indicate. The volume of the sector's Total Liabilities is likely to shrink due to liquidation of certain banks which are placed under a special supervisory focus.

The growth in the Demand Liabilities by 20 % may be explained by high economic growth in 2001. The growth trend of the Demand Liabilities is likely to persist in 2002 too, if this year's economic growth target is met.

The current phase of development is characterized by an intensifying trend of integrating with the international economic systems. Despite the serious problems, the banking system of Armenia can not stay away of this process. In the last few years, the banks of the country have taken weighty steps towards this scrutinizing the international practice and cooperating with the international financial institutions.

The international supervisory authorities are involved in efforts of introducing a risk-based supervision practice which implies exercising an individual approach to each bank's sufficient capitalization to evaluate and cover the risks banks incurred.

Wide-ranging efforts to revise and improve the legislative framework for the banking have been made in 2001 to further highlight the role and importance of the supervision. The legislative amendments pursue a more flexible supervisory conduct. In other words, there is a need to bring the bank quantitative indicators system in an appropriate compliance with a sophisticated system of the qualitative indicators to evaluate the bank's financial performance. This will allow to intensify the efforts in introducing a risk-based supervision practice.

Activities of the banking supervision include i) evaluation of a bank's investments in the statutory fund of other organizations and the degree of financial impact of such organizations on financial condition of the bank involved, to determine overall financial performance of the banks; and ii) introduction of a consolidated supervision during 2002.

It is important to revise rules and regulations to adapt to a new legislative framework. The Central Bank has started revising the regulatory norms for the bank licensing after adoption of the Law on Licensing by the National Assembly. The revision will be accomplished in 2002.

The new bank legislation is aimed at improving quality of the banking and supervision in Armenia. The legislation has created prerequisites to institutionalize the deposit insurance and credit registry. A mandatory insurance of deposits will enhance the public confidence in the banking sector, stimulating the banks to more effectively exercise their function to attract savings. In 2002, the authorities will address and regulate

establishment and activities of a Special Deposit Insurance Fund. The banks will commence paying insurance-subject fees since the second half of the next year. This highly important establishment will be operative in 2005 once the above objectives are successfully met.

Information exchanged through the credit registry would enable the banks to conduct a more prudent policy of assets allocation. The concept of organizing a credit registry is already developed, with the course of procedure designed to finalize in 2002.

The current phase of development also necessitates establishing non-bank financial institutions to stimulate the small business, more effectively suffice the supply and demand for small credit and deposit resources and improve the financial intermediation. Such non-banks would contribute to a further increase in the household savings in the banking system, a broader spectrum of financial operations by the banks and an increased culture of using bank services.

The Central Bank's plans for 2002 also include creating non-bank financial institutions limited to specialized banking operations, and providing an appropriate legal framework and terms for their business.

THE DEVELOPMENT IN THE PAYMENTS AND SETTLEMENTS RELATIONS

The Central Bank's policy in the payments and settlements area for 2002 will be aimed for:

- Installment of the systems being under development;
- Improvement of the systems in operation and their compliance with the international standards;
- Development of the payment mechanisms for individual sectors of the economy;
- Improvement of the legal framework for the payments and settlements system.

The payments and settlements systems and the payment mechanisms

In the government securities registration and settlements system, the development and installment of a DVP principle-based module in the Secondary Market Operations for short and medium term Treasury Bills is planned to accomplish.

In the electronic payments area, there are plans to i) develop measures promoting to an higher efficiency in managing the liquidity in the Central Bank payment system; and ii) commence these measures.

Work will carry on to develop the user requirement and functional specification and the programming for establishment of the Credit Register, a unified system for collection and supply of information on creditworthiness of the borrowers, in Armenia in 2002. The test option of the system is planned to introduce by the end of the year.

Considering the strategic application of control over electric energy, gas, heating and water supply in the country, and collection and processing of data on the related financial flows, the Central Bank plans to develop and install this year a unified registration system of payments for consumption of electric energy, gas, heating and water supply in Armenia, in cooperation with the authorities and organizations concerned.

Efforts will carry on to improve the local automated systems of the Central Bank and increase their efficiencies.

Work will be conducted to raise reliability of the SWIFT system of the Central Bank, and launch a study to employ the IP technologies in future.

Developing regulatory norms and other documents of the payments and settlements area

In view of the role of the payments and settlements area in the economy, and fast developing trends in the last years, there are plans to develop a regulatory norm for the activities of the payments and settlements system of Armenia. The norm will be expected to determine the organizations rendering payments and settlements services, their licensing and supervision, the requirements and criteria.

Plans include also a study of circulation of the plastic cards and electronic monies in Armenia and development of regulations involving these, if appropriate.

The paper “The Payments and Settlements System of Armenia” is planned to amend based on the methodology and guidelines recommended by the Bank for International Settlements (BIS), and submit it to BIS for publication.

As the payments and settlements systems of the country need to comply with the international standards, there are plans to develop measures to evaluate such systems and rectify existing inconsistencies in these systems, if needed.

A P P E N D I C E S

Explanation of the main indicators

1. There are numerical discrepancies in the actual data between the monetary policy programs for 2002 and 2001 and other publications of the Central Bank, relating to the nominal GDP and its expenditures components, the real growth rates and deflators. In 2001, these indicators were revised by the National Statistics Service and published in the report Socio-economic situation of Armenia, January-May and January-June, 2001 Issues. The Central Bank has used the revised data in preparing the 2002 Program.
2. The above mentioned indicators for 2000 are subject to revision; the indicators for 2001 are the Central Bank estimations.
3. Changes in the 2000 indicators for wages, real productivity and import prices in tables Estimation of the 2001 and 2002 inflation by supply factors of the 2002 and 2001 Programs occurred as the National Statistics Service has revised the same indicators of 1999, and the Central Bank estimations have been used in the 2001 Program.
4. The 2001 and 2000 external and fiscal sectors data used in the 2002 and 2001 Programs, respectively, are the preliminary figures of the National Statistics Service and the Ministry of Finance and Economy of Armenia, and the Central Bank estimations.
5. The aggregate and private sector disposable income data have been calculated by the Central Bank.
6. The 1999 data in table 2.1 External sector of the 2002 Program vary to some extent from those provided in the 2001 Program. First, the exports to imports ratio in GDP changed by 0.1 percentage point due to a revised GDP indicator in point 1 above. Second, the 1999 imports coverage has changed as different methods were used in calculation. The privatization funds have been included in the gross international reserves for calculation of this indicator in the 2001 Program, while these funds were excluded in calculating same indicator for the 2002 Program. From now on, the Central Bank will calculate this indicator as a ratio of gross international reserves (less privatization funds) to average monthly imports of goods and services for the year.
7. Some actual data on the 1999 capital and financial account in table 2.5 of the 2002 program vary from those provided in the 2001 Program as the National Statistics Service and Ministry of Finance and Economy have revised these data.
8. The difference between the lines "Changes in the 1999 gross international reserves and liabilities in 1999" in table 2.6 of the 2002 Program and the 2001 Program is due to use of different program exchange rates.
9. The 2001 end-year banking system and monetary indicators are preliminary and still subject to revision. The figures used in section Development of the banking system are not comparable with those provided in other sections and appendices of the Program because of different principles of classification and grouping.

10. The Net Foreign Assets of the Central Bank in tables 2.8 and 2.9 in the 2002 Program, compared to tables 2.7 and 2.8 in the 2001 Program, are presented in two different ways - by classifying the KfW disbursed loans as foreign liability and as other liability. Besides, the 2000 CBA Net Foreign Assets differ due to use of different program exchange rates. Thus the 2000 CBA Other Assets Net differ accordingly.
11. In section The fiscal policy of the 2002 Program, the 2002 budget deficit calculation includes the rescheduled debt to Russia of USD 17 million, two SAC IV tranches of USD 35 million, Budget revenue and grants includes an additional inflow of the foreign grants of USD 55.6 million from the Lincy Foundation.

Cash Flows of Gross International Reserves (mln USD)

	1999	2000	2001	2002
Interest on Government loans	-14.0	-9.6	-9.9	-9.8
Interest on Russian loans		-6.1	-7.3	0.0
Interest on CBA loans	-3.2	-3.0	-2.2	-2.0
IMF	-3.2	-3.0	-2.2	-1.9
KfW	0.0	0.0	0.0	-0.1
Income on foreign reserves management	10.3	19.0	17.7	10.0
Interest on Georgian loans	0.8	0.8	0.4	0.8
Repayment of Georgian loans	0.0	0.0	0.0	0.0
Loans to the Government	3.2	20.6	-6.4	32.2
Multilateral (excluding IMF loan, net)	16.1	17.8	6.4	45.9
Disbursement	23.4	25.3	14.4	54.5
SAC	23.4	25.3	14.4	54.5
Amortization	-7.3	-7.6	-7.9	-8.6
Bilateral	-12.9	2.8	-12.8	-13.7
Disbursement	3.1	7.4	6.8	4.5
Lincy-Hantsman Fund	3.1	7.4	6.8	4.5
Amortization	-16.0	-4.5	-1.8	-18.2
Repayment of Russian loans		-12.7	-17.8	0.0
Loans to CBA	15.3	-14.8	7.3	12.5
IMF loans	16.1	-16.2	3.5	7.7
Disbursement	29.2	0.0	13.0	26.1
Amortization	-13.1	-16.2	-9.5	-18.3
KfW	-1.0	1.5	3.8	4.8
Disbursement	1.5	1.5	3.8	4.8
Amortization	-2.5	0.0	0.0	0.0
Other	0.1	-0.2	0.0	0.0
Grants	16.9	18.3	23.3	83.0
Conversion from privatization funds		41.4	12.8	0.0
Other conversions*	-8.5	-5.9	-15.9	-112.2
Change in gross foreign reserves	20.7	19.2	19.7	14.5
Change in foreign liabilities	15.3	-14.8	7.3	12.5
Change in net foreign assets	5.5	34.0	12.4	2.0
Memorandum items				
Privatization funds	27.7	16.4	3.6	3.6
Gross foreign reserves	303.0	313.7	333.5	348.0
Gross foreign liabilities	202.8	178.3	185.6	198.1
Net foreign assets (including KfW)	100.2	135.4	147.9	149.9

* The CBA interventions to the interbank market and conversions for Government (membership fees, etc.) are included.

Financial Flows in 1996 - 2002

	Year	Domestic economy			External sector	Statistical deviations	Horizontal review
		Private	Government	Banking			
		1	2	3	4	5	6
Gross disposable income							
	1996	690276	66008				
	1997	871308	89059				
	1998	951912	123521				
	1999	993005	116868				
	2000	1037698	126095				
	2001	1147287	142902				
	2002	1249599	154050				
Consumption							
	1996	-664002	-74265				
	1997	-832638	-90220				
	1998	-956322	-105590				
	1999	-951565	-117591				
	2000	-985821	-123512				
	2001	-1086876	-122225				
	2002	-1152103	-156109				
Capital investments							
	1996	-105489	-26794				
	1997	-125411	-27940				
	1998	-136400	-46424				
	1999	-136207	-45011				
	2000	-156958	-40874				
	2001	-173829	-44251				
	2002	-183046	-84442				
Export of goods and non-factor services							
	1996				-152525		
	1997				-162196		
	1998				-181457		
	1999				-204848		
	2000				-241479		
	2001				-294558		
	2002				-320487		
Import of goods and non-factor services							
	1996				369068		
	1997				467852		
	1998				504900		
	1999				491641		
	2000				524555		
	2001				540263		
	2002				576908		
Net factor income							
	1996				-18594		
	1997				-48985		
	1998				-30486		
	1999				-29283		
	2000				-28757		
	2001				-33717		
	2002				-29272		

		1	2	3	4	5	6
Net transfers							
	1996				-76481		
	1997				-107047		
	1998				-89562		
	1999				-93146		
	2000				-101710		
	2001				-89848		
	2002				-99677		
1	Non-financial balance*						
	1996	-79215	-35050		121468	7202	0
	1997	-86741	-29101		149624	33782	0
	1998	-140809	-28493		203395	34092	0
	1999	-94768	-45734		164365	23863	0
	2000	-105081	-38291		152609	9237	0
	2001	-113418	-23575		122140	-14853	0
	2002	-85550	-86500		127473	-44578	0
2	Net lending by the Government						
	1996	21687	-21687				0
	1997	11782	-11782				0
	1998	21301	-21301				0
	1999	7547	-7547				0
	2000	13296	-13296				0
	2001	15524	-15524				0
	2002	12408	-12408				0
3	Internal non-bank funding of the Government						
	1996	-1985	1985				0
	1997	-4323	4323				0
	1998	-15268	15268				0
	1999	-24551	24551				0
	2000	-21419	21419				0
	2001	-6199	6199				0
	2002	-2550	2550				0
4	External funding of the Government**						
	1996		43103		-43103		0
	1997		50816		-50816		0
	1998		24571		-24571		0
	1999		42024		-42024		0
	2000		32299		-32299		0
	2001		37410		-37410		0
	2002		94539		-94539		0
5	External funding of the private sector						
	1996	68396			-68396		0
	1997	123184			-123184		0
	1998	165268			-165268		0
	1999	137149			-137149		0
	2000	151221			-151221		0
	2001	99488			-99488		0
	2002	53586			-53586		0

		1	2	3	4	5	6
6	Changes in net foreign assets of the banking system						
	1996			9969	-9969		0
	1997			-24376	24376		0
	1998			13556	-13556		0
	1999			-14808	14808		0
	2000			-30911	30911		0
	2001			-14759	14759		0
	2002			-20653	20653		0
7	Internal lending of the banking system						
	1996	-6387	20160	-13773			0
	1997	5631	-2626	-3005			0
	1998	17293	18161	-35454			0
	1999	10702	-9228	-1474			0
	2000	12719	149	-12868			0
	2001	-4084	48	4036			0
	2002	12454	2250	-14704			0
8	Changes in broad money						
	1996	-14118		14118			0
	1997	-15876		15876			0
	1998	-25265		25265			0
	1999	-13033		13033			0
	2000	-42054		42054			0
	2001	-18882		18882			0
	2002	-30358		30358			0
9	Change in other items net***						
	1996	12590	-2276	-10314			0
	1997	-12374	869	11505			0
	1998	8217	-4850	-3367			0
	1999	-577	-2672	3249			0
	2000	-6958	5234	1724			0
	2001	8159	0	-8159			0
	2002	-4998	0	4999			0
10	Vertical review****						
	1996	-6235	6235	0			
	1997	-12499	12499	0			
	1998	-3356	3356	0			
	1999	-1394	1394	0			
	2000	-7513	7513	0			
	2001	-4558	4558	0			
	2002	-430	430	0			

* The difference between savings and investments by individual sectors, grand total of which is the deficit of the current account of the balance of payments.

** Changes in net debt liabilities of the Government, changes in net other assets of the banking system.

*** Lincy Fund resources of 2002 are calculated as capital transfers and included in external financing of the state budget deficit.

**** Deviations from the vertical review are due to the difference in the figures indicating lending to Government by the banking system. The figures were taken from the balance sheets of the banks and provided by the state budget statistics.

Real Private Consumption Expenditures Forecasting Methodology

The private consumption was forecasted as a function of the GDP. The forecasts were conducted by the ADL (Autoregressive Distributed Lags) model (see table).

Results of Regression Analysis of Real GDP and Real Private Consumption Expenditures*

Table 3.1

dependent variable	independent variable	C intercept	First difference of real GDP	Real private consumption (-1)	Real GDP (-1)	Coefficient of determination (R^2)	Durbin-Watson statistics
<i>First difference of real private consumption expenditures</i>		1.474 (2.31) **	0.698 (12.55)	-0.788 (-3.811)	0.669 (3.84)	0.88	1.95

* All variables are expressed in logarithms.

** The figure in brackets is the value of *T* statistics.

Method of Forecast of Real Private Capital Investments

The ADL (Autoregressive Distributed Lags) model was used also to evaluate the regression dependence between the real private capital investments and the GDP (see table).

Results of Regression Analysis of Real GDP and Real Private Capital Investments*

Table 3.2

dependent variable	independent variable	C intercept	First difference of real GDP	Real capital investments (-1)	Real GDP (-1)	Coefficient of determination (R^2)	Durbin-Watson statistics
<i>First difference of real private capital investments</i>		-0.972 (-0.64) **	1.094 (7.44)	-0.470 (-2.64)	0.472 (2.788)	0.86	2.03

* All variables are expressed in logarithms.

** The figure in brackets is the value of *T* statistics.

Methodology of Programming the Fiscal Indicators in Financial Programming

As the official indicators of the 2001 consolidated budget lack, the Central Bank estimations of the consolidated budget were used based on the actual State Budget data provided by the MoFE, and information on the local and social security fund budgets. The first quarter indicators of the consolidated budget 2001 include the financial flows disbursed in 2001 (the Grant of Dram 2371 million and its flow in the budget). This explains a financial programming representing a table of the financial flows of the given year, while flows disbursed in 2001 and reflected in the 2000 budget indicators affect the 2001 financial flows.

The draft to law on "State Budget 2002" was the source for the 2002 consolidated budget indicators. Quarterly distribution of the budget figures are based on the quarterly proportions of the 2000 - 2001 budgets.

The fiscal impulse indicator

The fiscal impulses indicators were used to evaluate the fiscal policy impact on the Aggregate Demand and, therefore, the prices. The detailed description of the methodology for these impulses is provided in appendices of the 2000 Program. Below are the 2001 and 2002 results for the fiscal impulse indicators:

	Income impulse	Expenditures impulse	Fiscal impulse
2001			
Q I (assessed)	-3.151	3.006	-0.145
Q II (assessed)	-1.307	2.666	1.359
Q III (assessed)	3.852	-4.199	-0.347
Q IV (assessed)	0.580	-4.418	-3.838
Annual	0.177	-1.152	-0.975
2002			
Q I (projection)	2.895	1.170	4.065
Q II (projection)	1.249	-0.396	0.853
Q III (projection)	-4.023	9.234	5.211
Q IV (projection)	-1.916	1.403	-0.513
Annual	-0.57	2.96	2.384

Corrections were made in calculating the impulse indicators as follows:

- The 2001 budget revenue and official grants were revised by a shortfall of nearly Dram 3.4 billion.
- The 2001 budget expenditures were reduced by USD 14.6 and USD 20 million of the WB SAC and the amount mentioned above. Meantime, the expenditures increased by extra resources arisen from non-payment of the debt to Russia of USD 17 million.
- The 2002 budget expenditures were added by the WB SAC of USD 14.5 and USD 20 million not disbursed in 2001 and the resources of USD 55.6 million expected from the Lincy Foundation. Besides, in the impulse calculations, the expenditures were increased by the amount of the debt repayment to Russia, which was envisaged as a debt rescheduling to Russia.

The table indicators evidence that an anticipated 9 % growth of the Aggregate Demand would be stimulated by 2.4 % by the fiscal sector under such performance of the budget 2002*.

* The impulse indicators of the table are calculated as percentage in GDP.

	Import Unit Value				1998 - 1999
	2001		2002		
	Weighted	Non-weighted	Weighted	Non-weighted	
IUV	1.3		2.1		
Trade partners exchange rate*	-7.1		-2.7		
Russia	-0.6	-3.8	-1.1	-7.1	17%
Turkey	-5.5	-45.4	-2.6	-24.6	11%
Iran	0.0	0.3	0.0	-0.1	13%
European Union	-0.5	-2.9	0.6	3.6	19%
Trade partners CPI**	9.1		5.0		
Russia	2.9	21.3	1.8	12.9	17%
Turkey	4.0	51.9	2.7	32.7	11%
Iran	1.6	16.0	1.4	13.0	13%
Petrol, oil	-0.9	-5.0	-1.5	-8.6	20%
Memo: European Union		2.3		1.7	19%

	Export Unit Value				1998 - 1999
	2001		2002		
	Weighted	Non-weighted	Weighted	Non-weighted	
					Weights
EUV	5.8		4.3		
Trade partners exchange rate*	-3.0		-1.3		
Russia	-0.8	-3.8	-1.49	-7.10	33%
Turkey	-0.7	-45.4	-0.3	-24.6	2%
Iran	0.1	0.3	0.0	-0.1	29%
European Union	-0.3	-2.9	0.3	3.6	13%
Trade partners CPI**	9.1		5.6		
Russia	4.1	21.3	2.5	12.9	33%
Turkey	0.5	51.9	0.3	32.7	2%
Iran	2.7	16.0	2.3	13.0	29%
Memo: European Union		2.3		1.7	13%

* "-" indicates depreciation of national currency vis-a-vis US dollar.

** "-" indicates price decrease.

		1999	2000	2001	2002	2000 / 1999	2001 / 2000	2002 / 2001
<i>Exports, mln USD</i>								
1	Live animals and animal produce	0.6	0.7	1.8	2.2	21.5%	161.9%	21.9%
2	Vegetable produce	1.2	1.7	1.1	1.3	42.0%	-34.8%	16.9%
3	Animal and vegetable oils	0.0	0.1	0.1	0.1	231.8%	20.8%	64.4%
4	Foodstuffs	15.9	27.3	49.8	70.0	72.1%	82.1%	40.6%
5	Ores and minerals	38.0	37.2	43.3	45.7	-2.0%	16.5%	5.5%
6	Chemical products	1.9	3.4	2.5	3.0	79.9%	-25.2%	18.9%
7	Plastic and articles thereof	9.0	9.0	15.0	20.0	0.6%	65.7%	33.4%
8	Leather and fur products	1.0	1.4	2.0	2.5	46.2%	39.5%	26.1%
9	Wood and articles thereof	0.3	0.9	0.8	0.8	218.6%	-6.5%	-1.9%
10	Paper and articles thereof	1.0	0.4	1.4	1.5	-59.4%	227.4%	9.4%
11	Textiles	13.6	13.2	20.5	21.0	-2.4%	54.8%	2.5%
12	Footwear, headgear	1.1	1.0	0.6	1.0	-16.4%	-35.4%	62.7%
13	Products of stone, plaster and cement	0.7	2.0	2.1	2.3	182.0%	5.0%	7.8%
14	Precious and semi-precious stones, metals, and articles thereof	99.9	121.5	111.7	119.3	21.6%	-8.1%	6.9%
15	Non-precious metals and articles thereof	25.0	44.2	47.2	49.3	77.1%	6.8%	4.4%
16	Machinery and equipment	17.8	31.0	26.0	28.0	73.8%	-16.1%	7.5%
17	Transport	2.6	1.8	1.9	2.2	-30.2%	6.5%	13.7%
18	Instruments and devices	1.6	2.3	4.4	4.5	42.9%	95.1%	2.3%
19	Different industrial products	0.3	1.2	0.7	1.0	301.4%	-40.4%	40.9%
20	Works of art	0.3	0.3	0.3	0.4	-12.3%	9.7%	33.2%
	Total (FOB)	231.7	300.5	333.3	376.1	29.7%	10.9%	12.9%
	Total (credit)	247.3	309.9	345.0	388.0			

		1999	2000	2001	2002	2000 / 1999	2001 / 2000	2002 / 2001
<i>Imports, mln USD</i>								
1	Live animals and animal produce	42.3	33.9	33.9	32.5	-19.9%	0.0%	-4.0%
2	Vegetable produce	75.1	99.3	86.7	87.0	32.3%	-12.7%	0.4%
3	Animal and vegetable oils	17.9	17.4	19.2	18.0	-3.1%	10.6%	-6.4%
4	Foodstuffs	76.9	69.5	77.1	75.0	-9.6%	10.8%	-2.7%
5	Ores and minerals	175.9	178.0	190.8	209.5	1.2%	7.2%	9.8%
6	Chemical products	71.5	82.4	64.8	72.0	15.2%	-21.4%	11.1%
7	Plastic and articles thereof	23.4	24.1	25.9	25.5	3.0%	7.6%	-1.6%
8	Leather and fur products	1.2	1.6	5.8	4.0	31.6%	265.6%	-31.2%
9	Wood and articles thereof	4.1	4.8	6.2	6.0	18.4%	27.5%	-2.9%
10	Paper and articles thereof	18.3	23.1	25.2	22.0	26.3%	9.3%	-12.7%
11	Textiles	28.7	32.5	38.4	40.2	13.0%	18.4%	4.6%
12	Footwear, headgear	5.1	5.4	6.3	7.5	5.9%	17.3%	18.4%
13	Products of stone, plaster, cement	12.4	11.3	16.3	16.5	-8.7%	43.8%	1.5%
14	Precious and semi-precious stones, metals, and articles thereof	86.7	113.2	105.9	119.2	30.6%	-6.5%	12.6%
15	Non-precious metals and articles thereof	23.8	24.3	35.0	37.0	2.3%	43.8%	5.7%
16	Machinery and equipment	86.5	117.4	88.7	110.0	35.7%	-24.5%	24.1%
17	Transport	35.9	22.5	26.2	27.0	-37.2%	16.1%	3.2%
18	Instrument and devices	13.0	12.3	29.6	25.0	-5.1%	140.2%	-15.7%
19	Different industrial products	12.4	11.6	12.0	13.0	-6.4%	3.2%	8.7%
20	Works of art	0.0	0.0	0.0	0.0	28.7%	-71.8%	55.8%
	Total (CIF)	811.2	884.7	893.9	946.9	9.1%	1.0%	5.9%
	Total (debit)	721.3	773.4	778.0	821.0			

2001 Inflation Deviations from the Program; 2002 Forecast Methodology
(by supply side factors)

This appendix describes the supply side factors contributing to formation of inflation. Table 1 provides the actual deviations from the 2001 inflation program. Table 2 provides the 2002 inflation forecasts by supply factors.

Estimation of the 2001 Inflation by Supply Factors

Table 6.1

Indicators		Projected	Actual	Deviations
	2000	2001	2001	2001
a. Percentage change of average real wages compared to the previous year	6.4	8.6	13.1	-4.5
b. Percentage change of real value added per employee compared to the previous year	7.3	5.3	7.9	-2.6
c. Labor cost (adjusted for productivity) = a-b	-0.9	3.3	5.2	-1.9
d. Growth surplus of c = c(t)-c(t-1)	-2.1	5.7	6.1	-0.4
e. Share of wages in total production costs	0.4	0.4	0.3	0.1
f. Impact on inflation =d x e	-0.9	2.5	2.1	0.4
g. Indirect taxes less subsidies in GDP	9.1	10.8	9.8	1.1
h. Impact on inflation g(t)-g(t-1)	0.7	1.6	0.6	1.0
i. Percentage change in import prices	0.3	4.4	1.1	3.3
j. Growth surplus of percentage change in import prices i(t)-i(t-1)	0.7	-0.1	0.8	0.9
k. Share of import of goods and services in GDP	0.4	0.4	0.4	0.0
l. Impact on inflation =j x k	0.3	0.0	0.3	-0.4
m. Growth of average annual index of administered prices	2.1	2.1	2.1	0.0
n. Impact on inflation, or growth of m, =m(t) - m(t-1)	-0.9	0.0	0.0	0.0
o. Average annual inflation	-0.8	3.4	3.1	0.3
Impact of costs				
Impact of wages, f	-0.9	2.5	2.1	0.4
Impact of indirect taxes, h	0.7	1.6	0.6	1.0
Impact of import prices, l	0.3	0.0	0.3	-0.4
Impact of administered prices, =n	-0.9	0.0	0.0	0.0
q. Total, including impact of administered prices = f + h + l + n	-0.8	4.1	3.1	1.0
Estimated inflation				
= o(t-1)+f(t)+h(t)+l(t)+n(t), or =o(t-1)+q	-0.2	3.4	2.3	1.1

The national accounts published by the National Statistics Service, the MoFE reports on budget execution and the Central Bank estimations were used (if some actual data were missing) to calculate the 2000 - 2001 actual indicators.

The 2002 program data were based on Armenian Law on the Budget 2002, estimates of national accounts of the National Statistics Service and the Central Bank forecasts of the 2002 monetary policy and financial program.

The 2002 Forecast of Inflation by Supply Factors

Table 6.2

	2000	2001	2002
a. Percentage change of average real wages compared to the previous year	6.4	13.1	5.8
b. Percentage change of real value added per employee compared to the previous year	7.3	7.9	5.7
c. Labor cost (adjusted for productivity) = a - b	-0.9	5.2	0.1
d. Growth surplus of c = c(t) - c(t - 1)	-2.1	6.1	-5.1
e. Share of wages in total production costs	0.4	0.3	0.3
f. Impact on inflation = d x e	-0.9	2.1	-1.7
g. Net indirect taxes in GDP	9.1	9.8	10.1
h. Impact on inflation, g(t) - g(t - 1)	0.7	0.6	0.3
i. Percentage change in import prices	0.3	1.1	3.5
j. Growth surplus of percentage change of import prices i(t) - i(t - 1)	0.7	0.8	2.4
k. Share of import of goods in GDP	0.4	0.4	0.4
l. Impact on inflation = j x k	0.3	0.3	1.0
m. Growth of average annual index of administered prices	2.1	2.1	2.1
n. Impact on inflation, or growth of m, = m(t) - m(t - 1)	-0.9	0.0	0.0
o. Average annual inflation	-0.8	3.1	2.3
Impact of costs			
Impact of wages, f	-0.9	2.1	-1.7
Impact of indirect taxes, h	0.7	0.6	0.7
Impact of import prices, l	0.3	0.3	1.0
Impact of administered prices = n	-0.9	0.0	0.0
q. Total, including impact of administered prices = f + h + l + n	-0.8	3.1	-0.4
Estimated inflation = o(t - 1) + f(t) + h(t) + l(t) + n(t), or = o(t - 1) + q	-0.2	2.3	2.7

The 2002 program indicators were based on Armenian Law on the Budget 2002, estimates of national accounts published by the National Statistics Service.

Application of the McCallum's Base Money Rule to the Economy of Armenia

The disputes on whether a monetary policy is to be conducted on a discretionary basis or through the Rule, have invited broad discussions in the literature on economics since the second half of the 20-th century. The monetary policy conducted through the Rule has some advantages over the discretion monetary policy. These include: the lagged impact of the monetary policy on the macroeconomic indicators, the Central Bank Monetary Policy transparency and resultant long term expectations for price stability. Lots of monetary policy rules in respect of interest rate management, exchange rate and money were formulated historically depending on the monetary policy strategies. The McCallum's Rule is well-known one offered in respect of the monetary base management.

The McCallum's Rule is expressed in a formula as follows: *

$$b_t - b_{t-1} = \alpha - \frac{1}{16} * (Y_{t-1} - b_{t-1} - Y_{t-17} + b_{t-17}) + \lambda * (Y^* - Y)_{t-1}$$

where b is the logarithm of the monetary base level, Y and Y^* are the logarithms of the actual and potential GDP levels, respectively. All indicators are quarterly.

As seen from the Rule, the growth of the monetary base is in dependence on the three variables as follows:

1. α is constant which is equal to the potential nominal GDP growth. For England, it makes up 0.01 (or 1 % for a quarter) corresponding to a 4 % growth of the annual nominal GDP, of which 2.25 - 2.5 % represents on average the real GDP growth, and 1.75 -1.5 % - inflation.
2. The second component will adjust the monetary base growth by the change of the money velocity. McCallum offers calculating the monetary base for each quarter using an average change of velocity throughout the last 4 years. Such a long term of averaging determines that the smoothing shall reflect the impact of institutional changes on velocity of money in the financial system other than cyclical system.
3. The third factor (λ coefficient) will ensure a feedback between the GDP's cyclical fluctuations and the monetary policy. It lays in the range (0;1) and ensures the dynamic stability and equilibrium of the Rule. How fast the monetary policy will

* The Rule is advocated in the following set of papers:

- 1) McCallum, B. T. (1988), "Robustness Properties of a Rule for Monetary Policy", *Carnegie-Rochester Conference Series on Public Policy*, Vol. 29, pages 53-84.
- 2) McCallum, B. T. (1990), "Targets, Indicators and Instruments of Monetary Policy", in Haraf, W.S. and Cagan, P. (eds.), *Monetary Policy for a Changing Financial Environment*, Washington; American Enterprise Institute.
- 3) McCallum, B. T. (1993), "Specification and Analysis of a Monetary Rule for Japan", *Bank of Japan Monetary and Economic Studies*, Vol. 11, pages 1-45.

respond to the GDP's cyclical fluctuations depends on the size of the coefficient of such a feedback. The closer the value λ is to 1, the faster the monetary policy will respond to the GDP's cyclical fluctuations, and vice versa.

Considering that the Central Bank now follows a monetary strategy for the maintenance of macroeconomic stability, the McCallum Base Money Rule is fully applicable to the country's economy.

The potential nominal GDP growth (α), which was calculated as semielasticity coefficient of nominal GDP with respect to time trend (it makes up 2.84 % quarterly) and the optimal level of λ coefficient proposed by McCallum (0.25) was used for Base Money Rule calculations. The potential GDP (Y^*) was calculated as follows:

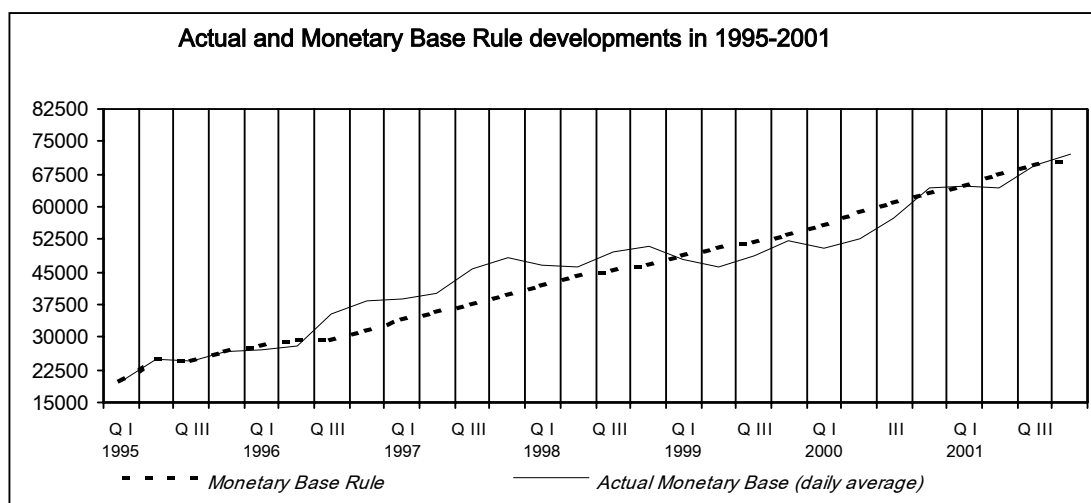
$$Y^* = 0.2 \cdot Y_{t-1}^* + 0.8 \cdot Y_{t-1} + 0.0284$$

where Y and Y^* are the logarithms of the actual and trend GDP levels.

Base Money Velocity was smoothed by the following way. At first average quarterly growth of velocity was calculated, which then was smoothed for the previous sixteen quarters. As the time series were short, the 1997 calculations included the 1996 and 1997 data, the 1998 calculations included the 1996, 1997 and 1998 data, while the 1999-2001 calculations included the data of the year involved and of the previous three years.

The above option of calculating the potential GDP determines the fact that the GDP in Armenia, as a transition country, is affected by both temporary and constant shocks. On the other hand, there are difficulties in assessing the GDP potential such as short statistical data series and a lack of a long history, a volatile macroeconomy in the early stage of structural reforms, a sluggish pace of those reforms, etc.

Below is the graph of the Monetary Base and Actual Monetary Base calculated using the above Rule:



In conducting a graphic analysis there is a need to consider that the monetary base rule reflects a desired trajectory of the Monetary Base consistent with the macroeconomic equilibrium, and does not imply that the Central Bank should adhere to this Rule

unconditionally. Also, the Rule does not reflect the quarterly seasonality peculiar to the Armenian economy. This is why the comparative analysis on a rule-calculated and the actual monetary base needs to be conducted annually.

The graph shows that the actual Monetary Base has always been higher than the rule-calculated one in the period 1996-1998. The Monetary Base has markedly outstripped the rule-calculated indicator owing to the Central Bank expansionary policy in 1996 and 1997. Even the restrictive policy in 1998 could not halt the Monetary Base to outpace the rule-calculated indicator.

The Monetary Base indicator fell abruptly due to a restrictive monetary policy of the Central Bank after the Russian financial crisis in second half 1998 and the problems in the quasi-fiscal area (energy) in the early 1999. Consequently, the money velocity (calculated for the Broad Money) stopped to decline and, rather, grew in 1998. Recovery from such a variance of the money velocity from the long term equilibrium took some time during which the demand for money grew. It intensified especially at the end of 2000 when the currency in circulation grew sharply. As a result, the stock of money regained the long term equilibrium in 2001 reaching the rule-calculated indicator at the end of the year. To this effect, the excess liquidity of the banking system developed relatively smoothly throughout 2001 which was not the case in the past years.

Actual and rule-calculated Monetary Bases and some macroeconomic indicators in 1996 - 2001

Table 7.1

Year	Nominal GDP growth	Real GDP growth	GDP deflator	Growth of the monetary base (actual)	Growth of the monetary base (Rule)	GDP deflator (Rule)	Nominal GDP (Rule)
1996	26.6	5.8	19.6	34.8	23.1	20.4	26.2
1997	21.6	3.3	17.8	33.9	24.6	12.5	15.7
1998	18.8	7.3	10.7	11.4	20.8	9.8	17.0
1999	3.3	3.3	0.1	1.1	15.1	11.4	14.7
2000	4.7	6.0	-1.4	15.2	16.4	4.7	10.7
2001	11.0	7.5	3.3	20.3	14.4	4.8	12.3

The table shows that the average annual growth rates of the rule-calculated Monetary Base are relatively steady vis-a-vis those of the actual Monetary Base. The growth of the Monetary Base by such steady rates could smooth the nominal GDP fluctuations and the fluctuations of the inflation and deflation, in particular.

Obviously, the nominal GDP would develop otherwise if managed by the Rule. To estimate such development, a regression equation has been built reflecting the nominal GDP's dependence on the nominal Monetary Base (a monetary policy factor) and the budget expenditures less interest payments on foreign debt (a fiscal policy factor), as follows:

$$D(LNGDP) = 0.001 + 0.337 * D(LNMB(-3)) + 0.285 * D(LNMB(-4)) + 0.0567 * D(LNGOV)$$

s.e	(0.022)	(0.118)	(0.112)	(0.022)
t-stat	(0.098)	(2.85)	(2.54)	(2.546)

R-squared = 0.67

DW = 2.63

S.E. of regression = 0.023

where:

D(LNGDP) is the first difference between logarithmic levels of the seasonally adjusted nominal GDP;

D(LNGOV) - the first difference between logarithmic levels of the budget expenditures (less interest pays on foreign debt);

D(LNMB) are logarithmic levels of the actual Monetary Base.

The level of the nominal GDP, which would shape up in implementing a rule-based monetary policy, has been estimated placing the rule-calculated Monetary Base indicators into the equation.

Actual and rule-calculated Monetary Bases and nominal GDP developments in 1996 - 2001

Table 7.2

Year	Nominal GDP (actual)	Monetary base (actual)	Nominal GDP (Rule)	Monetary base (Rule)
1995	522256	23982	522256	23982
1996	661209	32335	657239	29523
1997	804335	43285	759902	36785
1998	955385	48230	889289	44449
1999	987117	48783	1019878	51160
2000	1033325	56194	1129320	59533
2001	1146949	68093	1270180	68208

Seigniorage Calculation and Indicators used

This appendix describes the Seigniorage calculated for the Armenian economy and the indicators used in the calculation.

The Seigniorage represents the grand total of change in the real money stock (Pure Seigniorage indicator) and the inflation tax and real money stock product (inflation tax indicator), as follows:

$$S = \Delta m + \pi * m,$$

where:

S is the indicator of Seigniorage;

Δm - the pure Seigniorage indicator ($\Delta (M_t / P_t)$)

M - the Monetary Base indicator;

P - the price index.

$\pi * m$ - the inflation tax indicator ($M_{t-1} * \pi_t / P_t$)

π - the inflation indicator.

- The pure seigniorage reflects the real value of the new monetary issue during the specified period.
- The inflation tax reflects the reduction on the real value of the stock of Base Money due to inflation.

Seigniorage Calculation for Armenian Economy

	Average CPI (previous year – 100)	M average	ΔM	Seigniorage	Pure t seigniorage	Inflationary tax	Nominal GDP	Seigniorage / nominal GDP	Pure seigniorage / nominal GDP	Inflation tax/nominal GDP
1994	100	15002								
1995	275.5	24385	9383	3405	-6152.4	9557.5	522256	0.65	-1.18	1.83
1996	118.7	32436	8051	6784	2947.9	3836.4	661209	1.03	0.45	0.58
1997	113.8	43950	11515	10120	6192.2	3927.9	804335	1.26	0.77	0.49
1998	108.7	48279	4329	3984	484	3500	955385	0.42	0.05	0.37
1999	100.6	48684	405	402	125.4	277	987444	0.04	0.01	0.03
2000	99.2	55948	7265	7325	7726.8	-402	1033325	0.71	0.75	-0.04
2001	103.1	68423	12475	12094	10388	1706.4	1177235	1.0	0.88	0.14

**The indicator of inflation tax for some European, Baltic and CIS Countries from
1996 to 2000**
(share in GDP)

Countries	1995	1996	1997	1998	1999	2000
Armenia	1.83	0.58	0.49	0.37	0.03	-0.04
Bulgaria	2.7	21.8	7.5	0.5	0.8	0.8
Czech Republic	0.9	1.3	1.4	0.3	0.4	0.4
Hungary	2.9	1.8	1.3	0.9	0.9	0.9
Poland	1.2	1.3	0.9	0.8	0.6	0.6
Romania	0.9	2.0	3.5	1.3	0.9	1.0
Slovakia	0.8	0.6	0.7	1.6	0.9	0.9
Slovenia	0.3	0.3	0.3	0.3	0.4	0.4
Estonia	2.9	1.4	1.1	0.4	0.6	0.6
Latvia	2.3	1.1	0.6	0.4	0.2	0.2
Lithuania	2.4	0.9	0.5	-	0.1	0.1
Azerbaijan	2.4	0.4	-	-	-	0.1
Belarus	3.0	1.3	1.8	3.5	1.6	2.2
Georgia	-	0.5	0.3	0.4	0.2	0.2
Kazakhstan	1.6	1.2	0.5	0.7	0.5	0.5
Moldova	1.9	1.4	1.0	3.5	1.6	1.7
Russia	3.8	1.0	0.5	1.6	0.9	1.0
Ukraine	-	1.6	0.5	1.2	1.6	1.7

Source: UN manual "Economic Survey of Europe", 2001 N1.

Main Monetary Indicators Forecasting Methodology

a. Dram Broad Money

The 2002 Dram Broad Money forecasts have been conducted using the ADL (Autoregressive Distributed Lags) model. A regressive equation underlies the analysis, as follows:

$$M2 = c + \alpha_1 M2_{t-1} + \beta_0 GDP + \beta_1 GDP_{t-1} + \gamma_0 DEF + \gamma_1 DEF_{t-1} + D1 \quad (1)$$

where: M2 is the real dram Broad Money;

GDP - the real GDP;

DEF - the GDP deflator

D1 - a random variable (Q III, 1996)

Some simple mathematic modifications were used to change the equation as follows:

$$\Delta M2 = c + \beta_0 \Delta GDP + \gamma_0 \Delta DEF - (1-\alpha_1) M2_{t-1} + (\beta_0 + \beta_1) GDP_{t-1} + (\gamma_0 + \gamma_1) DEF_{t-1} + D1 \quad (2)$$

Before the modification, the review of the time series stationarity has revealed that each of these represented a 1-st order integrating time series I(1). In other words, the time series $\Delta M2$, ΔGDP , ΔDEF resulted from the first difference, which have been included in the above equation, are stationary. The stationarity has been reviewed by the Dickey-Fuller test. Below are the results of the test for the time series $\Delta M2$, ΔGDP , ΔDEF as follows:

<u>$\Delta M2$</u>			
ADF Test Statistic	-7.639591	1% Critical Value*	-3.7204
		5% Critical Value	-2.9850
		10% Critical Value	-2.6318
<u>ΔGDP</u>			
ADF Test Statistic	-11.21206	1% Critical Value*	-3.6752
		5% Critical Value	-2.9665
		10% Critical Value	-2.6220
<u>ΔDEF</u>			
ADF Test Statistic	-5.781616	1% Critical Value*	-3.6752
		5% Critical Value	-2.9665
		10% Critical Value	-2.6220

The model's advantage is that in addition to variables ΔGDP and ΔDEF , which describe the short term dynamics of the Dram Broad Money, the equation has considered the components describing the long term correlation as well. Before estimation of the model, existence of cointegration between the variables has been examined. For more simplicity, the equation (2) may be arranged into another one which is known in the econometrics as Error Correction Model, as follows:

$$\Delta M2 = \beta_0 \Delta GDP + \gamma_0 \Delta DEF - (1-\alpha_1) [M2_{t-1} - \frac{c}{(1-\alpha_1)} - \frac{(\beta_0 + \beta_1) GDP_{t-1}}{(1-\alpha_1)} + \frac{(\gamma_0 + \gamma_1) DEF_{t-1}}{(1-\alpha_1)}] + D1$$

The model shows that the change in the Dram Broad Money depends on a current change in the real GDP and the GDP deflator, and by an error correction component reflected in the brackets. This component equals zero in case of a long term equilibrium. This component represents a non-zero magnitude if disequilibrium exists, and the coefficient $(1 - \alpha_1)$ shows the speed of adjustment.

Results of Regression Analysis*

Table 9.1

Dependent variable	Independent variable							
	First difference of real GDP (ΔGDP)	First difference of GDP deflator (ΔDEF)	Real Dram Broad Money ($M2_{t-1}$)	Real GDP (GDP_{t-1})	GDP deflator (DEF_{t-1})	D1 dummy variable (Q III 1996)	C intercept	Coefficient of determination R^2
First difference of real Dram Broad Money ($\Delta M2$)	0.709 (6.13)**	-0.428 (-1.62)	-0.393 (-4.97)	0.826 (6.87)	-0.217 (-2.71)	0.116 (3.17)	-4.610 (-4.92)	0.90

* All variables are expressed in logarithms.

** The figure in brackets is the value of T statistics.

b. The 2001 Monetary Policy Analysis; Estimating the 2002 Monetary Policy Direction by the Monetary Impulse Indicator

The monetary impulse indicator has been calculated to describe the 2002 monetary policy direction and its impact on the Aggregate Demand. The comparative analysis on the monetary impulses (a sum of the Monetary Base and a smoothed Money Velocity*) and the nominal GDP growth rates is provided in the table below.

Comparative Analysis of Monetary Impulse and Nominal GDP Growth

Table 9.2

	Monetary impulse	Nominal GDP growth
Q I	20.80	16.0
Q I-II	18.14	10.8
Q I-III	17.80	14.0
2001	15.77	12.9
Q I	11.62	13.6
Q I-II	12.16	14.4
Q I-III	10.37	9.6
2002	9.23	9.5

* The monetary impulse calculation methodology is presented in the CBA Bulletin No. 3, 1998, pages 76-79.

The table shows that the monetary impulse indicator has always been higher than the nominal GDP growth rates during 2001, which explains an expansionary nature of the monetary policy throughout the year. This was partially determined by the Central Bank's intentions to offset the restrictive impact of the fiscal policy on Aggregate Demand.

The Monetary Policy 2002 will be consistent with the developments in the real sector. The monetary impulse indicator is anticipated to reach 9.23 % in 2002, which conforms to a 9.5 % projected growth of the nominal GDP.

Main Macroeconomic Indicators

	1999	2000	2001	2002
National Income and Prices				
Real GDP growth %	3.3	6.0	9.0	6.0
GDP deflator %	0.1	-1.3	3.5	3.1
Consumer Price Index % (end of period)	2.0	0.4	2.9	3.0
Consumer Price Index % (period average)	0.6	-0.8	3.2	2.7
External Sector				
Export of goods and services (share in GDP)	20.7	23.4	25.2	25.1
Import of goods and services (share in GDP)	49.8	50.8	46.3	45.3
Current account (excluding official transfers' share in GDP)	-21.7	-19.9	-13.8	-13.5
Current account (including official transfers' share in GDP)	-16.6	-14.5	-10.4	-10.0
Import coverage (by months)	4.0	3.9	4.1	4.1
Monetary Sector				
Broad Money % (GDP/M2X average)	21.4	24.1	27.9	20.1
Velocity of Broad Money turnover (M2X average)	10.2	8.6	7.6	6.9
Money multiplier (M2X)	2.0	2.2	2.2	2.3
Dram Broad Money % (GDP/M2 average)	5.8	11.2	24.7	17.1
Velocity of Dram Broad Money turnover (M2 average)	18.9	17.8	16.1	15.0
Dram multiplier (M2)	1.08	1.05	1.06	1.07
Monetary Base % (average)	-0.4	15.4	23.1	16.2
Monetary Sector				
State budget revenue (share in GDP)	21.9	19.8	20.1	22.6
State budget expenditure (share in GDP)	27.9	24.9	23.4	27.9
Tate budget deficit (share in GDP)	-6.0	-5.1	-4.0	-5.3
Capital investment and net crediting (share in GDP)	5.8	5.4	5.0	7.6

Economic Indicators

	1999	2000	2001	2002
(percentage changes compared to the previous year)				
Real GDP growth	3.3	6.0	9.0	6.0
CPI (average, 1995 Q I =100)	163.6	162.2	167.4	172.0
Inflation	2.0	0.4	2.9	3.0
Inflation (average)	0.6	-0.8	3.2	2.7
GDP deflator	0.1	-1.3	3.5	3.1
Consumption deflator	-0.7	-2.3	3.2	2.9
Public consumption deflator	10.0	5.4	10.1	2.2
Private consumption deflator	-2.0	-2.9	3.2	2.9
Capital investments deflator	3.6	0.5	2.8	2.8
Export Deflator	4.7	5.3	3.9	4.4
Import deflator	-0.4	0.3	1.0	3.3
Net export	-2.7	-3.3	-2.3	2.0
(AMD / USD)				
Exchange rate				
Period average	534.9	539.5	555.1	563.0
Percentage changes	6.0	0.9	2.9	1.4

Gross Domestic Product by Expenditure Components

	1999	2000	2001	2002
Current prices				
Nominal GDP	987444	1033325	1166623	1274700
Consumption	1069156	1109333	1209102	1308212
public	117591	123512	122225	156109
private	951565	985821	1086876	1152103
Capital investments	181219	197832	218080	267487
public	45011	40874	44251	84442
private	136207	156958	173829	183046
Export of goods and services	204848	241479	294558	320487
Import of goods and services	491641	524555	540263	576908
Statistical deviation	23862	9236	-14853	-44578
Net factor income	29283	28757	33717	29272
Net transfers	93146	101710	89848	99677
Private	42942	46261	50832	54617
Official	50204	55449	39017	45060
Gross disposable domestic income	1109873	1163793	1290189	1403649
Disposable private sector income	993005	1037698	1147287	1249599
(percentage changes)				
Note:				
Nominal GDP	3.36	4.65	12.90	9.26
Consumption	0.68	3.76	8.99	8.20
public	11.37	5.04	-1.04	27.72
private	-0.50	3.60	10.25	6.00
Capital investments	-0.88	9.17	10.24	22.66
public	-3.04	-9.19	8.26	90.82
private	-0.14	15.23	10.75	5.30
Export of goods and services	12.89	17.88	21.98	8.80
Import of goods and services	-2.63	6.69	2.99	6.78
Statistical deviation	-30	-61	-261	200

Gross Domestic Product by Expenditure Components

	1999	2000	2001	2002
(Percentage changes) Fixed prices (1995 Q 1 = 100)				
Real GDP	568376	602447	656964	696549
Consumption	657765	698242	737677	769469
public	49229	49047	44087	55075
private	608536	649196	693590	714394
Capital investments	95262	103508	111034	132431
public	23701	21323	22557	41810
private	71561	82185	88477	90622
Export of goods and services	155869	174486	204853	213518
Import of goods and services	356917	379678	387097	399967
Statistical deviation	16397	5889	-9502	-18902
(percentage changes)				
Real GDP	3.3	6.0	9.0	6.0
Consumption	1.4	6.2	5.6	4.3
public	1.3	-0.3	-10.1	24.9
private	1.5	6.7	6.8	3.0
Capital investments	-4.4	8.7	7.3	19.3
public	-5.5	-10.0	5.8	85.4
private	-3.9	14.8	7.7	2.4
Export of goods and services	7.8	11.9	17.4	4.2
Import of goods and services	-2.3	6.4	2.0	3.3

Contribution of Expenditure Components to Real GDP Growth

	1999	2000	2001	2002
Real GDP	3.3	6.0	9.0	6.0
Consumption	1.8	7.1	6.5	4.8
public	0.1	0.0	-0.8	1.7
private	1.7	7.2	7.4	3.2
Capital investments	-0.8	1.5	1.2	3.3
public	-0.3	-0.4	0.2	2.9
private	-0.5	1.9	1.0	0.3
Export of goods and services	2.1	3.3	5.0	1.3
Import of goods and services	-1.5	4.0	1.2	2.0
Statistical deviation	-1.3	-1.8	-2.6	-1.4

Balance of Payments

	1999	2000	2001	2002
Current account (including official transfers)	-306.9	-278.4	-219.6	-226.6
Current account (excluding official transfers)	-400.7	-380.9	-289.6	-306.6
Trade balance	-474.0	-463.5	-433.0	-433.0
Exports	247.3	309.9	345.0	388.0
Imports	-721.3	-773.4	-778.0	-821.0
Services (net)	-62.0	-55.8	-8.8	-22.6
Credit	135.8	136.9	185.4	181.2
Debit	-197.8	-192.7	-194.2	-203.8
Income	55.0	52.9	60.7	52.0
Private transfers	80.3	85.6	91.5	97.0
Official transfers	93.8	102.5	70.0	80.0
Capital and financial account	299.9	295.4	225.9	228.6
Capital transfers	12.6	28.3	39.8	64.1
Direct investments	122.0	104.2	100.0	100.0
Portfolio investments	1.6	-18.9	0.3	0.0
Public sector	80.2	63.0	51.9	115.3
Disbursements	102.3	87.8	84.0	135.6
Amortization	-22.1	-24.8	-32.1	-20.2
Other capital	83.5	118.7	33.8	-50.8
Privatization	15.6	11.3	12.8	0.0
Net foreign assets of banks	-23.2	-21.4	-28.4	-30.0
Other capital (private sector)	91.1	128.8	49.4	-20.8

Appendix 2.6 (continuation)

	1999	2000	2001	2002
Overall balance	-7.1	17.1	6.3	2.0
Changes in gross foreign reserves	-20.6	-19.2	-19.7	-14.5
Changes in gross foreign liabilities	15.2	-14.9	7.3	12.5
International Monetary Fund (net)	16.1	-16.4	3.5	7.7
Purchases/disbursements	29.2	0.0	13.0	26.1
Repurchases/repayments	-13.1	-16.4	-9.5	-18.3
Other (net)	-0.9	1.5	3.8	4.8
Financing gap	-12.5	-17.0	-6.1	0.0
Errors and omissions	12.5	17.0	6.1	0.0
Vertical check	0.0	0.0	0.0	0.0
Exchange rate (AMD/USD)				
Period average	534.9	539.5	555.1	563.0

Monetary Indicators

	1995	1996	1997	1998	1999	2000	2001					2002				
							Q I	Q II	Q III	Q IV	Annual	Q I	Q II	Q III	Q IV	Annual
Net Foreign Assets (NFA)	15538	5569	29945	16389	31197	62108	57563	60123	66017	76866	76866	77667	82107	89722	97519	97519
Central Bank	15658	19748	47451	49807	53424	76360	68280	70013	75083	85323	85323	79344	80693	84108	89080	89080
Commercial banks	-120	-14179	-17506	-33418	-22227	-14253	-10717	-9890	-9066	-8457	-8457	-1677	1414	5614	8439	8439
Net Domestic Assets (NDA)	24715	48802	40302	79123	77348	88491	86268	94219	92711	92614	92614	91768	95521	98633	102319	102319
Domestic credits	46766	60539	63544	98998	100472	113340	108107	107197	107864	109304	109304	108356	112770	118167	124008	124008
Public sector	11970	32130	30257	47669	38420	31149	26493	21092	22252	31197	31197	31697	32197	32797	33447	33447
Government	8819	23354	15055	20006	15368	9301	5556	4808	5675	7771	7771	8271	8771	9371	10021	10021
Public organizations	3151	8776	15202	27663	23052	21848	20937	16284	16577	23426	23426	23426	23426	23426	23426	23426
Private sector	34796	28409	33287	51329	62052	82191	81614	86105	85612	78107	78107	76659	80573	85370	90561	90561
Other assets, net	-22051	-11737	-23242	-19875	-23124	-24849	-21839	-12978	-15153	-16690	-16690	-16587	-17250	-19534	-21689	-21689
Broad money (M2X end of period)	40253	54371	70247	95512	108545	150599	143831	154342	158728	169480	169480	169435	177628	188355	199838	199838
Currency in circulation	24601	34784	37596	41370	42610	59486	46905	52246	54305	64489	64489	58505	60515	62881	67630	67630
Dram deposits	7431	8158	9084	16167	13678	16347	16976	18464	20930	19026	19026	22043	22714	25317	25541	25541
FX deposits	8219	11429	23567	37975	52257	73877	78775	82922	83493	85965	85965	88888	94399	100157	106667	106667
Dram broad money (M2 end of period)	32033	42941	46680	57537	56288	76662	65057	71420	75235	83515	83515	80548	83229	88198	93170	93170
Note:																
Broad money (M2X average)	33548	44901	62414	79576	96612	119926	144134	147758	157425	164422	153435	170770	176516	190207	199352	184211
Dram broad money (M2 average)	22519	34374	43674	49346	52191	58022	68649	68291	73357	79201	72374	80831	81888	85714	90684	84779
Velocity of broad money turnover (GDP/M2X average)	15.57	14.73	12.89	12.01	10.22	8.62	1.83	1.86	2.03	1.88	7.60	1.76	1.79	1.70	1.68	6.92
Velocity of Dram broad money turnover (GDP/M2 average)	23.19	19.24	18.42	19.36	18.92	17.81	3.84	4.02	4.36	3.90	16.12	3.71	3.86	3.77	3.70	15.04
Money multiplier (M2X)	1.40	1.40	1.43	1.65	2.01	2.16	2.23	2.30	2.27	2.19	2.24	2.25	2.30	2.37	2.35	2.32
Dram multiplier (M2)	0.94	1.07	1.00	1.02	1.08	1.05	1.060	1.065	1.06	1.05	1.06	1.07	1.07	1.07	1.07	1.07

Appendix 2.8 (continuation)

	1995	1996	1997	1998	1999	2000	2001					2002				
							Q I	Q II	Q III	Q IV	Annual	Q I	Q II	Q III	Q IV	Annual
Net Foreign Assets (NFA)		-64.2	437.7	-45.3	90.4	99.1	-7.3	4.4	9.8	16.4	23.8	1.0	5.7	9.3	8.7	26.9
Central Bank		26.1	140.3	5.0	7.3	42.9	-10.6	2.5	7.2	13.6	11.7	-7.0	1.7	4.2	5.9	4.4
Commercial banks		11715.8	23.5	90.9	-33.5	-35.9	-24.8	-7.7	-8.3	-6.7	-40.7	-80.2	-184.3	297.0	50.3	-199.8
Net Domestic Assets (NDA)		97.5	-17.4	96.3	-2.2	14.4	-2.5	9.2	-1.6	-0.1	4.7	-0.9	4.1	3.3	3.7	10.5
Domestic credits		29.5	5.0	55.8	1.5	12.8	-4.6	-0.8	0.6	1.3	-3.6	-0.9	4.1	4.8	4.9	13.5
Public sector		168.4	-5.8	57.5	-19.4	-18.9	-14.9	-20.4	5.5	40.2	0.2	1.6	1.6	1.9	2.0	7.2
Government		164.8	-35.5	32.9	-23.2	-39.5	-40.3	-13.5	18.0	36.9	-16.4	6.4	6.0	6.8	6.9	29.0
Public organizations		178.5	73.2	82.0	-16.7	-5.2	-4.2	-22.2	1.8	41.3	7.2	0.0	0.0	0.0	0.0	0.0
Private sector		-18.4	17.2	54.2	20.9	32.5	-0.7	5.5	-0.6	-8.8	-5.0	-1.9	5.1	6.0	6.1	15.9
Other assets, net		-46.8	98.0	-14.5	16.3	7.5	-12.1	-40.6	16.8	10.1	-32.8	-0.6	4.0	13.2	11.0	29.9
Broad money (M2X end of period)		35.1	29.2	36.0	13.6	38.7	-4.5	7.3	2.8	6.8	12.5	0.0	4.8	6.0	6.1	17.9
Currency in circulation		41.4	8.1	10.0	3.0	39.6	-21.1	11.4	3.9	18.8	8.4	-9.3	3.4	3.9	7.6	4.9
Dram deposits		9.8	11.4	78.0	-15.4	19.5	3.8	8.8	13.4	-9.1	16.4	15.9	3.0	11.5	0.9	34.2
FX deposits		39.1	106.2	61.1	37.6	41.4	6.6	5.3	0.7	3.0	16.4	3.4	6.2	6.1	6.5	24.1
Dram broad money (M2 end of period)		34.1	8.7	23.3	-2.2	36.2	-15.1	9.8	5.3	11.0	8.9	-3.6	3.3	6.0	5.6	11.6
Note:																
Broad money (M2X average)		33.8	39.0	27.5	21.4	24.1	4.1	2.5	6.5	4.4	27.9	3.9	3.4	7.8	4.8	20.1
Dram broad money (M2 average)		52.6	27.1	13.0	5.8	11.2	1.5	-0.5	7.4	8.0	24.7	2.1	1.3	4.7	5.8	17.1
Velocity of broad money turnover (GDP/M2X average)		-5.4	-12.5	-6.8	-14.9	-15.7	-10.2	1.6	9.4	-7.4	-11.8	-6.5	1.8	-5.2	-0.8	-9.0
Velocity of dram broad money turnover (GDP/M2 average)		-17.1	-4.3	5.1	-2.3	-5.9	-7.8	4.7	8.5	-10.4	-9.5	-4.9	3.9	-2.4	-1.7	-6.7
Money multiplier (M2X)		0.5	2.1	15.2	21.9	7.6	2.3	3.5	-1.5	-3.6	3.9	2.8	2.2	3.0	-0.8	3.3
Dram multiplier(M2)		14.6	-6.7	2.0	6.2	-3.7	-0.3	0.4	-0.6	-0.3	1.3	1.0	0.2	0.1	0.1	0.8

Monetary Base

	1995	1996	1997	1998	1999	2000	2001					2002				
							Q I	Q II	Q III	Q IV	Annual	Q I	Q II	Q III	Q IV	Annual
Net Foreign Assets	15658	19748	47451	49807	53424	76360	68280	70013	75083	85323	85323	79344	80693	84108	89080	89080
Net Domestic Assets	13705	21508	3099	4032	429	-3970	-6850	-3309	-3519	-4954	-4954	-4201	-2344	-1945	-1581	-1581
Net lending	13982	22584	10701	10970	9658	11624	7655	9550	11949	12123	12123	12523	13107	13859	14434	14434
Net liabilities of the banking system	3781	3346	2375	2738	1352	3332	2454	3794	4639	3855	3855	4255	4839	5591	6166	6166
Including KfW							2275	3238	3238	3678	3678	4333	4990	5646	6303	6303
Net liabilities of Government	10201	19238	8326	8232	8306	8292	5201	5756	7310	8268	8268	8268	8268	8268	8268	8268
Other assets, net	-277	-1076	-7602	-6938	-9229	-15594	-14505	-12859	-15468	-17077	-17077	-16724	-15451	-15805	-16015	-16015
Monetary base (end of period)	29363	41256	50550	53839	53853	72390	61430	66704	71564	80369	80369	75143	78349	82163	87499	87499
Currency outside CBA	25743	37144	42215	45345	45482	61873	49020	53918	56759	66692	66692	61005	63015	65381	70130	70130
Correspondent accounts with CBA	3620	4112	8335	8494	8371	10517	12410	12786	14805	13677	13677	14138	15334	16781	17369	17369
Note:																
Monetary base (period average)	24042	32020	43606	48280	48105	55512	64747	64126	69330	75088	68363	75898	76746	80256	84831	79433
Velocity of broad money turnover (GDP / M2X)	15.57	14.73	12.89	12.01	10.22	8.62	1.83	1.86	2.03	1.88	7.60	1.76	1.79	1.70	1.68	6.92
Velocity of Dram broad money turnover (GDP / M2)	23.19	19.24	18.42	19.36	18.92	17.81	3.84	4.02	4.36	3.90	16.12	3.71	3.86	3.77	3.70	15.04
Money multiplier (M2X)	1.40	1.40	1.43	1.65	2.01	2.16	2.23	2.30	2.27	2.19	2.24	2.25	2.30	2.37	2.35	2.32
Dram multiplier (M2)	0.94	1.07	1.00	1.02	1.08	1.05	1.060	1.065	1.058	1.055	1.06	1.07	1.07	1.07	1.07	1.07

Appendix 2.9 (continuation)

	1995	1996	1997	1998	1999	2000	2001					2002				
							Q I	Q II	Q III	Q IV	Annual	Q I	Q II	Q III	Q IV	Annual
Net Foreign Assets		26.1	140.3	5.0	7.3	42.9	-10.6	2.5	7.2	13.6	11.7	-7.0	1.7	4.2	5.9	4.4
Net Domestic Assets		56.9	-85.6	30.1	-89.4	-1 025	72.5	-52	6.3	40.8	24.8	-15	-44	-17.0	-18.7	-68.1
Net lending																
Net liabilities of the banking system		61.5	-52.6	2.5	-12.0	20.4	-34.1	24.8	25.1	1.5	4.3	3.3	4.7	5.7	4.1	19.1
including KfW		-11.5	-29.0	15.3	-50.6	146.4	-26.4	54.6	22.3	-16.9	15.7	10.4	13.7	15.5	10.3	59.9
Net liabilities of Government		88.6	-56.7	-1.1	0.9	-0.2	-37.3	10.7	27.0	13.1	-0.3	0.0	0.0	0.0	0.0	0.0
Other assets, net		288.4	-606.5	8.7	-33.0	-69.0	7.0	11.3	-20.3	-10.4	-9.5	2.1	7.6	-2.3	-1.3	6.2
Monetary Base (end of period)		40.5	22.5	6.5	0.0	34.4	-15.1	8.6	7.3	12.3	11.0	-6.5	4.3	4.9	6.5	8.9
Currency outside CBA		44.3	13.7	7.4	0.3	36.0	-20.8	10.0	5.3	17.5	7.8	-8.5	3.3	3.8	7.3	5.2
Correspondent accounts with CBA		13.6	102.7	1.9	-1.4	25.6	18.0	3.0	15.8	-7.6	30.0	3.4	8.5	9.4	3.5	27.0
Note:																
Monetary base (period average)		33.2	36.2	10.7	-0.4	15.4	1.8	-1.0	8.1	8.3	23.1	1.1	1.1	4.6	5.7	16.2

Dram Real Effective Exchange Rate
(growth indicates appreciation)

