

**THE MONETARY POLICY
PROGRAM
2004
OF THE REPUBLIC OF ARMENIA**

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THE STRUCTURE OF THE MONETARY POLICY PROGRAM

The Monetary Policy Program 2004 of the Republic of Armenia comprises the development of the economy in the medium term. This includes retaining sustainable economic development and low inflation, further improvement of balance of payments, and enlargement of the financial sector by ensuring stability in the sector.

The Program is built commensurate with the provisions of Armenian Law on Central Bank. It presents the directions of the 2004 policy implementation and forecasts the indicators in line with forecasts of all the sectors of the economy (Annex 2). The macroeconomic developments in all the sectors of the economy in 2003 are emphasized in the Program as a precondition for the forecast of the macroeconomic environment for 2004.

The section Introduction provides the basic principles of the macroeconomic model underlying the forecast of the macroeconomic indicators. It refers to the features of macroeconomic environment of 2004, which would be considered important in implementing the monetary policy.

The section Macroeconomic Developments in the Republic of Armenia contains the factors determining the developments of aggregate supply and aggregate demand. Indicators of economic growth, inflation and Gross Domestic Product (GDP) deflator are summed up by comparing the real growth and price changes. There is a detailed account of how the private sector and other branches of the economy develop combined with the behavior of the private consumption and capital investment in aggregate demand.

The section Fiscal Policy provides an analysis of the revenue and expenditure policy of the state budget and size of the deficit and structure of financing sources, based on the viewpoint of the impact of the fiscal policy on aggregate demand, and the coordination of the two policies with the monetary policy.

The section External Sector contains the development of current account components and capital and financial accounts from the viewpoint of the impact and dependence on aggregate demand. The section covers the issue of sustainability of external debt of Armenia while describing how certain debt sustainability indicators behave. The section refers also to Armenian dram's real effective exchange rate and the factors responsible for its changes.

The section Inflation surveys the impact of certain sectors of the economy on consumer price index for 2003 while commenting on the impact of wheat price growth in international markets on inflation (as high as 8.6 % in Armenia). The principles of monetary policy

implementation in this context are set forth. The reality of maintaining up to 3 % inflation in 2004 is also commented on in view of the impact of certain sectors of the economy and monetary aggregates.

The section Monetary Policy has two parts: i) Directions and Trends of the Monetary Policy in 2003 and ii) Issues and Directions of Monetary Policy in 2004.

The first part describes behavior of the programmed and actual levels of demand and supply for money in 2003. This will cover the impact of changes in economic activity throughout the year, as reflected in the development of demand for various monetary aggregates and their components. The process of money supply change is commented on in view of both commercial bank lending to the economy and accumulation of net foreign assets, and operations carried out by the Central Bank. The pace of monetary policy is provided here more circumstantially, depending on variable patterns of economic activity, inflation and the coordination of monetary and fiscal policies.

The second part provides forecasts for money demand for 2004 by individual aggregates, based on expected developments in overall macroeconomic environment and growing financial intermediation. Consistent with forecasted demand for money, the provision of money supply is also commented on in view of commercial bank lending to the economy and proportional accumulation of net foreign assets. The assets side of monetary policy is reviewed pointing out the use of various policy instruments with directions based on expected operations of commercial banks and fiscal policy indicators projected for 2004.

The next section deals with the risks in implementing the monetary policy program. It provides all potential divergences in all the sectors of the economy from what has been forecasted for 2004. Such divergences are treated as risks in retaining the defined levels of inflation and monetary aggregates. Revision of the program levels of monetary aggregates is another issue for review, which implies that such a need would arise if the economic growth indicator deviates considerably from the program.

The section Development of the Banking System covers the basic banking system indicators that help estimate the levels of development of the banking sector and maintenance of financial stability. This section presents those institutional measures of the Central Bank that will play an important role in developing the banking system.

The section Development of Payments and Settlements Relations provides an account of actions and identifies areas to further stimulate development of the sector.

Forecasts of basic macroeconomic indicators for all sectors of economy for 2004, and the methods of forecasting, are provided in the program as Annexes.

INTRODUCTION *

The Monetary Policy Program of the Republic of Armenia was prepared using a macroeconomic model, commonly accepted in transition-period economies and developing economies and designed increasingly to bolster macroeconomic stability. It, however, is affected by macroeconomic imbalance and certain vulnerability in balance of payments, still persisting in these countries.

Maintaining up to 3 % inflation is underlying the model as a precondition to foster macroeconomic stability and long-term economic growth. The economic growth indicator was forecasted based on expected developments in certain manufacturing branches and estimations of existing potential of GDP. Forecasts of inflation, economic growth and the balance of the economy provide a basis to evaluate changes in the economy's demand and money supply for monetary aggregates. Hence, the Central Bank has the capacities for changes in monetary base, in consideration of adjusting the balance of payments, so as to determine the upper limit of domestic lending and the lower limit of net foreign assets.

In implementing the monetary policy in 2004, the Central Bank will follow the monetary targeting strategy to ensure a floating exchange rate regime and stable prices.

On November 7, 2003, Armenia joined the Special Data Dissemination Standard of the International Monetary Fund (IMF). The membership will facilitate clarification of Armenia's statistical methodology while boosting transparency in publication of indicators. This will in addition provide a wider access to more inclusive and methodically reasoned data in analytical and research work.

Macroeconomic environment in 2004 for monetary policy implementation will change versus 2003 due to notable decrease in external financial flows provided for the state budget. Deficit financing will result since no Lincy Foundation grant and World Bank (WB) structural adjustments facilities will be available. The shortage will essentially lessen the state budget's influence over money supply, which will allow the Central Bank to manage it more effectively.

Another change is the slowing rate of growth (which was 41.3 % in 2003) in capital investment in the private sector, which will make the share of private sector capital investment in GDP to remain at 2003 levels.

With these two characteristics, growth rate of aggregate demand in 2004 will be somewhat slower compared with the rate in 2003, and the developments of macroeconomic environment will be much closer to

* See Annex 1 for the basic macroeconomic indicators.

the provisions provided for in the medium-term economic program. There will be less pressures on prices while maintaining inflation at a 3 % level. The economic growth indicator is expected to be within 7 %, while current account deficit of balance of payments, which has grown over 2003 under the external financial flows, will continue trending downward.

Financial stability and financial intermediation, enhanced since 2003, will continue to grow in the financial sector in 2004. There are preconditions for these processes among which the Central Bank's undertakings may be highlighted as follows:

- Creation of a deposit guarantee scheme for physical entities;
- Measures to develop the mortgage market;
- Creation of a credit registry; and
- Other actions of an institutional nature.

Designed to stimulate further financial intermediation, deposit growth and economy lending, these undertakings will considerably promote the implementation of monetary policy. It will be reflected through the Central Bank operations, along with liquidity management, by enhancing the role of the money market interest rate. Money market interest rates will become an instrument for the Central Bank to adjust aggregate demand and to support more effective management of inflation.

MACROECONOMIC DEVELOPMENTS IN THE REPUBLIC OF ARMENIA

Economic growth and inflation

The macroeconomic environment in 2003 seemed to be conducive for medium-term economic developments. External financial inflow and domestic economic activity determined much higher-than-expected economic growth; the economic growth was 14.6 %¹ against the projected 6 %. It is worth noting that with such high economic growth, the end of period inflation was 2.9 %, without regard to bread and cereals price change. The actual indicator was 8.6 %, due to wheat price growth in international markets.

Aggregate supply attributable to external financial inflow responded adequately to the growth of aggregate demand. Otherwise the year 2003 would have ended with a slower growth rate and higher price level. These circumstances allowed a presumption that some unused manufacturing capacities were activated and, to some extent, augmented in 2003, which may imply that the GDP gap² markedly reduced in 2003.

In this situation, the Central Bank pursued the main strategic direction of its monetary policy. Management of broad money was basically within the program notwithstanding the economic growth, which was higher than projected, and the exogenous factors affecting prices.

According to the Central Bank estimations, the macroeconomic environment will remain stable in 2004. The main economic developments will be determined by high economic growth of previous two years and reduced external financial inflows as the program of the Lincy Foundation should be completed. As a result, the year 2004 will be marked with relatively slower economic growth. Aggregate demand is expected to outpace aggregate supply in the program period due mostly to increased household income, which will be predominantly reflected in the first half of the year. The monetary policy program 2004 provides for 7 % economic growth and 3 % inflation (as of the end of the year), whereby the average annual inflation in 2004 will outstrip the end-year program inflation to reach 7.7 %, determined by 7.4 % inflation recorded for the last two months of 2003.

Aggregate supply

¹ The January-December economic growth indicator is provided according to the Central Bank estimations made based on actual 15.1 % growth in January-November (see also Annex 1).

² The difference between real potential GDP and actual GDP.

Certain changes are anticipated in sectoral developments (Annex 3), not seen in prior periods. In 2004, industry will contribute considerably to economic growth, whereas the growth of construction will reduce and the share of agriculture in the economy will continue decreasing. Growth rates of services will remain proportionate to economic growth in previous years.

Real industrial output in 2004 is expected to grow by 14.2 % compared with unprecedented 18.0 % growth in 2003. Such record growth of the previous year outpaced the overall economic growth, which resulted in the sector's share in GDP increasing by 2 percentage points. In this framework, industry growth in 2004 will contribute to economic growth by 3.1 percentage points.

In 2003, the biggest part of new industrial output was manufactured in the processing industry boosting growth indicator by 16.5 percentage points. The trends in sectoral structure of the industry are expected to persist during 2004, with the processing industry to be dominant in real industrial growth. Broad explanation is that the volumes of food industry, making up 56 % in the processing sector, directly depend on private consumption volumes, which in turn is determined by increased household incomes in the recent two years. On the other hand, most of sub-sectoral output of the balance of processing industry is exported which means that the developments in this sphere in the program period will be determined by external demand and competitiveness. The Central Bank estimates that both shall shape a positive environment to maintain the development trends in respective spheres of the industry.

Due to adverse weather, the agricultural product sector grew in 2003 by 1.5 % which resulted in price rise in agricultural products in line with growing household income.

In the event of good weather the agricultural sector is expected to grow by 2.5 % which would contribute to GDP growth by 0.5 percentage point. The fact that growth rate in agriculture is not keeping pace with the overall economic growth rates is because there is relatively stable demand for agricultural products while the investments in the sector are modest. Although exports of agricultural product grew in 2003 by almost 35 %, these do not however provide sufficient information to determine further developments in agriculture by the factor of external demand. At least for now, the probable driver for further growth in the sector is the food and processing industry's demand for agricultural product. Given the present level of investments in the sector, no adequate growth in agricultural product can be expected even if there is an increase in demand by the processing industry for agricultural product.

In 2004, growth rates in capital construction are expected to be notably sluggish. Economic growth in this sector will be 6 %, according to the Central Bank estimations, compared with unprecedented growth of 49 % in the previous year. The repeatedly

unprecedented high growth rates in the last two years have broadened the share of capital construction in GDP to 17 % in 2003 from 9.7 % in 2001. For this year, notwithstanding mainly sluggish growth rates in the sector, it will contribute to GDP growth by 1.0 percentage point.

One of the reasons for slower growth is the lack of external financial flow (the Lincy Foundation's resources) for capital construction during 2004. This missing financial inflow will considerably curtail the public sector's participation in capital constructions in respect to previous year. The private sector, instead, is expected to carry on financing and implementing capital construction, providing some growth compared with the level of the previous year.

While certain branches of the economy reported different development patterns in the recent two years, no essential changes were observed in the services sector. Growth trends in this sector are consistent with the economic growth but at a slower pace. Presumably, the same trends will persist in this program period. The Central Bank estimates that a 7 % economic growth in the volume of services (in 2004) will grow by 5 %, contributing to economic growth by 1.6 percentage points.

Aggregate demand

The results of 2003 underscore that the share of private consumption in GDP shrank to 83.9 % from previous year's 89.6 %. Further shrinkage is anticipated in 2004, at a much slower pace. In real terms, private consumption will increase by 3.9 % (see Annex 4 for a forecasting method), whereby its share in GDP will, in nominal terms, be 83.3 %.

With the growth in aggregate demand, the decrease in the share of consumption will imply an increase of savings, hence investments. Important contributors to growth of private investments in 2003 were the private external financial inflow, by way of housing construction, and the construction carried out by means of the Lincy Foundation, having indirectly stimulated growth of private investments. These factors were responsible for growth of 41.3 % in private investments in 2003.

The share of consumption will trend downward over 2004 but, with the Lincy Foundation-supported works coming to completion, no such high growth rates will be recorded in the event the levels of private investments in 2003 would have been retained. Private investment is expected to grow in 2004 by 5.5 % (see Annex 4 for a forecasting method). Expectations on growing exports, i.e. external demand, are also important in view of increasing private investments. Growing external demand may suggest shaping more stable, long-term economic relations and a larger external marketplace for domestic producers, which is a key stimulator for enlargement of private investments.

Unlike private sector, public sector will create different influences on aggregate demand, from a consumption and investment point of view. While public consumption will increase by 7.1 % in real terms, according to Armenian Law on State Budget 2004, public investments will decline by 36.5 %. Such decline will be determined by reduced external financing sources.

Public sector's influence will cause the end-consumption indicator to increase by 4.2 % and gross investments indicator to decline by 4.7 %.

As was noted, growth of aggregate demand will be somewhat determined by external demand. According to the Central Bank estimations, exports of goods and services in 2004 will grow in real terms by around 14.4 % which is attributable to increased external competitiveness of exportable goods.

With positive shifts in 2003, the trade balance of payments deteriorated. Real growth of imports of goods and services was 29.5 %, and exports, 34.1 %. Such growth of imports was due to increased incomes in the recent two years. In 2004 however, imports growth rates are expected to decline in line with somewhat reduced consumption growth rates. Real imports growth in 2004 will be 4.4 %, according to the Central Bank estimations.

As a result, external demand will contribute 2.0 percentage points to economic growth.

GDP deflator

As estimated by the Central Bank (Annex 3), price growth rate will fall as well in 2004 to converge the level stipulated in the medium-term program. While in 2003 GDP deflator was 104.7 %, it is programmed to be 104.0 % in 2004. The deflator will have its peak in industry, 105.5 %, deflators in agriculture and construction will denote the same indicator, 103.0 %, and in services, 102.6 %.

The consumption deflator in 2004 will be 106.3 %, which is mostly determined by high average annual inflation of 107.7 % for 2004. Consumption deflator's excess of GDP deflator will be entirely attributable to the share of bread in the consumption basket which is outstripping the shares of the two deflators in GDP.

The capital investments deflator this year will be low, at 103.0 %.

FISCAL POLICY

High economic growth rates in the recent three years in Armenia have created real prerequisites for implementation of long-term economic development programs. Poverty Reduction Strategic Program and Medium-Term Public Expenditure Program 2004-2006, as the main component of Armenia's fiscal policy, were important achievements. Armenian Law on State Budget 2004 is designed to perform the core provisions of the above public expenditure program. Growth of tax revenue of the state budget is expected to be higher in 2004 than it was in previous years. Growth of taxes is anticipated to be 13.3 % compared with the previous year's actual level, and contributed a level of 14.2 % in GDP¹. The growth of tax revenue for 2003 was expected to be 11 %, which would have contributed to the share in GDP by 14.9 %. Although 2003 tax collection was in line with defined proportions, the annual indicator was outperformed, the taxes to GDP ratio of 13.9 % was lower than the program. The declining ratio was due to GDP reaching a higher level than the program. It is obvious that, under these conditions, tax elasticity coefficient² would not have had the anticipated growth as actual indicator was 0.7 % against previous year's 1.1 %. Tax elasticity coefficient will rise in 2004 to be 1.2 if the programmed level of the taxes to GDP ratio is in place. This presumes a contraction in turnover due to tighter administrative remedies.

The state budget's taxes to GDP ratio for 2004 is insufficient to solve the social issues as included in the Poverty Reduction program. This is also true if compared with the same indicator in many transition economies. No significant improvements are anticipated in the structure of tax revenue over 2004 as indirect taxes will remain dominant in the structure while direct taxes will somewhat trend upward. In 2004, indirect taxes of state budget will be 69.6 % of taxes and duties against previous year's 69.5 %. Direct taxes will be 16.1 % against previous year's 15.1 %. In the structure of taxes and duties, stamp duties and presumptive taxes will slightly decline in 2004.

The tax collection program for 2003 was performed to further level out the disproportional collections. In particular, during 2003, 43 % of average monthly taxes was collected within the last three days of a month and 25 %, in the last day, whereas the collection rates for 2002 were 56 % and 40 %, respectively. However, no substantial improvements were seen in managing the state budget

¹ The indicator differs from the indicator shown in Armenian Law on State Budget 2004, as the 2004 GDP indicator was calculated based on the program indicator of real GDP growth of 6 % for 2003, whereas the latter's actual (original) level was 13.9 %.

² The indicator is calculated as a ratio of interest change of taxes to GDP interest change.

resources notwithstanding the improved tax collection rates. What is more, an uneven distribution of budget expenditures and certain funds saved from some items on expenditures resulted in considerable accumulations in the Treasury Unified Account (TUA) over 2003, with average daily balance of Dram 15.7 billion, and Dram 22-23 billion in certain months. For comparison, the average TUA balance in 2002 was around Dram 2.9 billion. Since these resources averaged 90.7 % of average correspondent accounts with the Central Bank (Dram 17.3 billion) and 16.0 % of average monetary base over 2003, it is obvious that the budget flows have been of great importance for short-term programming and implementation of the monetary policy. In 2003, the budget continued generating cash expenditures [which remained mostly unchanged with regard to cutting them over the year] and a more intensive collection of taxes in the last days of a month, which resulted in the actual amounts of correspondent accounts and monetary base to fluctuate sharply.

Given Dram 32.2 billion at TUA as of the last day of December of 2003, the matter seems to be the same for 2004, as any disbursements from these funds would cause significant variations in the monetary policy indicators.

The uncertainty with regard to disbursements of these funds over 2003 and inadequate programming hampered clarification of the direction of monetary policy implementation. Yet accumulation of the funds restrained to some extent the expansion of monetary aggregates by the budget.

Temporary accumulations of budget funds nevertheless indicate that programming of the revenue and expenditures proportions of the budget, whether on annual or quarterly or monthly bases, was not performed in an adequate manner. A good indication of this is the shortage of the grants to the budget, dating back into previous years, such as the Lincy Foundation-disbursed grant since 2003, and external resources of deficit financing, including funds provided for Project Implementation Units (PIUs), and the delayed disbursement of Structural Adjustment Credit (SAC). The funds saved as a result of the above two factors and certain other relevant items caused the budget expenditures to deviate from program and to make up 97.7 % of the annual planned expenditures. Current expenditures made up 93.4 % of the program indicators and capital expenditures, 78.2 %. Under these conditions, the impact of budget expenditures on aggregate demand was not felt to the extent it should have been, and expenditure impulse was expansionary, 1.0 % (Annex 5). Revenue impulse was also expansionary, 0.4 % in 2003 in lieu of a restrictive 1 % as GDP amounted to more than was projected. In the outcome, fiscal impulse was 1.4 %, an expansionary amount, over the year.

Because of the lack of grants and external funding, the program indicators of state budget expenditures for 2004 may decline, as opposed to previous years' rise. In 2004, expenditures may go down by 3 % whereas the indicator in 2003 was projected to rise by 12.7 %. Fiscal impulses, calculated based on state budget program indicators for 2004, show that the fiscal policy will have a restrictive impact of 2.2 % on aggregate demand. This will be a result of restrictive impulses of revenues (0.1 %) and expenditures (2.1 %).

Programming and implementation of Armenia's fiscal and monetary policies for 2004 will markedly differ from the previous year as Armenian Law on State Budget 2004 will not provide for any Lincy Foundation grant disbursements, SACs. As the budget's reliance reduces, it will use external resources to accomplish 14.4 % of its expenditures, whereas the same ratio in 2003 was 21.1 %.

Lessening uncertainties in the programs of budget indicators in 2004 will allow for positive trends, so observed in monetary and fiscal policy areas, to carry on and improve. The above mentioned favorable conditions for developing longer-term monetary and fiscal policies on the one hand, and for realizing short-term objectives by coordination of these policies on the other, are a good basis for such trends.

Closer cooperation with Armenian Ministry of Finance and Economy (MoFE) will result in a more realistic Central Bank estimation of the impact of cash flows of the budget on the monetary base. This will be an instrumental factor in improvement of the policy coordination.

As a result of concerted actions by the Central Bank, the downward trending interest rates of government securities will continue in 2004. The year 2003 was positive in this respect. Though fluctuating but sufficient, banking liquidity provided an adequate ground for issue and allocation of longer-term government securities. The anticipated amount of net income from sale of government securities and increased maturity of securities. The average maturity of securities in circulation was one year as opposed to the previous year's 8 months. Average maturity of government securities is intended to extend up to 2.5 years in 2004, whereby average maturity of securities in circulation will be 1.5 years. This will be an effective action to encourage longer-term savings and longer-term investments, if sustainable economic growth of the recent years continues. Also, the proceeds from sale of government securities this year would be available to use to level out the disproportional budget expenditures, which did not occur in 2003. This would promote the development of a long-term securities market in Armenia, and would in turn foster public debt management

strategies and introduce beforehand these strategies to Armenia's financial market players.

Specificity in coordination of fiscal and monetary policies of the Republic of Armenia in 2004 will involve an arrangement that around Dram 32 billion from TUA funds will have to be retained throughout the year, pursuant to Armenian Law on State Budget 2004. Therefore, availability of such an amount of funds in TUA and the net entry of Dram 5.3 billion, expected to come from the allocation of government securities in 2004, will enable the Central Bank to build a portfolio through the conduct of outright market operations. This will be an important factor in improving the efficiency of monetary policy. The aforementioned will not take place if unexpected expenditures from TUA funds are realized.

As for the impact of fiscal policy on Armenia's public debt for 2004, it should be noted that the debt will provide a level requisite for sustainability³, given the low deficit of the state budget and large-scale repayments of the debt, a part of which was rescheduled during 2003. Further, with unprecedented high GDP growth in 2003 and these completed repayments, the debt to GDP ratio was quite a low indicator, and it created a necessary condition for the debt sustainability.

For provision of Armenia's debt sustainability, the ratio of primary budget deficit to GDP and the ratio of budget revenue to GDP will need to be maintained at 3 % and 13.8 %, respectively. As provided for in Armenian Law on State Budget, the above ratios shall be 1.6 % and 14.5 %, respectively.

³ According to the method for the debt sustainability calculation, which was published by the Central Bank.

EXTERNAL SECTOR

The developments in the external sector in 2004 will be generally consistent with the overall macroeconomic environment. High economic growth in Armenia in the recent years and stable macroeconomic environment both have also had their influence over the external sector. The main feature of the external sector in 2003 was the current account deficit that was largely due to deteriorating trade balance. The trade balance was a consequence of larger imports of goods, as opposed to imports in previous years, although the export growth rate has outstripped the import growth rate. Private transfers and incomes however have increased in line with the deteriorating trade balance deficit. There was substantial capital inflow in 2003 and it exceeded the current account deficit, which boosted an increase in gross reserves of the Central Bank.

Almost all items of the current account - exports and imports of goods and services, incomes and incoming private transfers - are expected to grow, while public transfers may reduce.¹ The deficit of the current account at the absolute value is expected to reduce, inducing shrinkage of its share in GDP, during 2004. The ratio of current account (including official transfers) to GDP will be 5.1 % as opposed to previous year's 7.2 %. The current account may improve if the deficit of the trade balance will improve, incomes and private transfers grow, negative balance of services remain stable and public transfers reduce. The main reason for current account deficit, aggravated in 2003 by USD 54.8 million, was the considerable growth of the import of goods. Such growth was a result of aggregate demand, which increased as a result of higher incomes in the domestic economy, large-scale construction work, and imported raw materials required in the processing industry. Financial inflow in items of the capital and financial account, especially for the capital transfers and public loans, is expected to decrease compared with the situation in 2003. Significant reduction in capital transfers is explained by the completion of the projects carried out under the Lincy Foundation.

Overall, shrinkage of current account deficit will be in line with the decreases in the capital account, therefore the balance of payments in 2004 will be negative, which will be funded mostly by external reserves of the Central Bank.

Increased exports and imports of goods will boost volumes of foreign trade to grow upward over 2004 to total USD 2.1 billion against USD 1.9 billion in 2003.

¹ The balance of payments indicator forecasts are provided in Annex 6.1.

According to the Central Bank estimations, exports of goods (credit) in 2004 will be USD 843.3 million which will grow by around 16.9 % against the previous year. The primary contribution to such growth will come from a commodity group "Precious stones and metals". With a 53.5 % share in exports of goods in 2003, the item will amount to USD 77.3 million (up by 20.4 %) in 2004. The relevant branch of the group is expected to be added this year by new enterprises and include new manufacturing capacities in active enterprises and contract arrangements. The item "Products of prepared food" will increase this year by round USD 7.1 million (up by 10.9 %). The exports growth rate of this item has been strong and vigorous in recent years owing to new consumer markets and the ability to offer quality goods, thanks to huge investments in the enterprises of this branch. Exports of commodities of item "Base metals and articles thereof" and item "Mineral production" are also expected to grow by USD 6.2 million (6.9 %) and USD 4.9 million (10.5 %), respectively. Exports of the commodities "Base metals and articles thereof" grew by round USD 46 million owing to massive exports of aluminum foil and ferroalloy.

According to the Central Bank estimations, imports of goods (debit) in 2004 will be USD 1269.3 million growing by USD 85.5 million (up by 7.2 %) against the previous year. Growing aggregate demand, which is attributable to recently increasing incomes, will largely contribute to the growth of imports in 2004. The growth of aggregate demand will be determined mostly by increased imports of consumer goods and raw materials. The growth rate of imports however will decline in 2004 as imports were large in 2003 and because the growth rates of incomes will be slow in 2004. The commodity groups "Precious stones and metals" and "Mineral production" will be the two large contributors to the growth of imports. Imports of commodities of item "Precious stones and metals" will increase by USD 68.5 million (up by 20.0 %) as exports of these commodities will grow, since it means importing of unprocessed diamonds, and processing and exporting of the finished product. Imports of commodities of item "Mineral production" will grow by USD 12.7 million (up by 6.6 %). Growing aggregate demand will affect the volumes of imports of consumer goods. Similarly, such imports will be affected by consumer loans as these have been trending upward since 2003. The above reasons produce an expectation that imports of consumer goods would increase in 2004. Particularly, imports of item "Products of prepared food" in 2004 will increase by USD 14.7 million (up by 16.0 %).

Imports of item "Base metals and articles thereof" will grow in 2004 by USD 4.8 million (up by 5.3 %). Imports of item "Machinery and equipment" and item "Transport means", both making up a significant portion in overall imports, will decline as

compared with previous year's indicator, yet will remain higher as compared with previous years, to amount to USD 119.0 million and USD 61.5 million, respectively. Some large enterprises will commence investments in 2004, as was promised. An impressive part of new investments will be made by way of machinery and equipment.

As expected by the Central Bank, exports of services in 2004 will be USD 237.5 million growing by 12.0 % against previous year. The growth of exports of services will be determined by growing transport services involved in arrangement of export of goods. Exports of information technology and travel services will also grow. Imports of services in 2004 will increase by 10.8 % to USD 278.1 million as a result of increasing imports of transport services, connected with increasing imports of goods. The sector of travel will report growth in 2004. In the outcome, the negative balance on services will remain at previous year's levels.

The indicator of item "Income" will rise in 2004 by 9.8 % to amount to USD 112.2 million. This rise will be determined by falling incomes paid against investments and increasing incomes earned by residents for the work in foreign countries. In 2004, current transfers will remain broadly unchanged, making up USD 196.0 million. Private transfers will increase and official transfers will decrease. Funds earned on private transfers and net factor incomes in 2003 grew by USD 20.3 million (17.1 %) and USD 10.4 million (15.9 %), respectively. These will certainly affect private sector's disposable income, hence aggregate demand, which in turn will also promote the growth of imports in 2004. Private capital inflow and travel in 2003 were among the main factors, which placed impact on the nominal exchange rate. Because of large volumes of imports, demand for foreign currency throughout the year was impressive. It however had no strong impact on the nominal exchange rate. What is more, the exchange rate notably appreciated in the second half of the year.

As the capital and financial account fund flows will reduce in 2004 because of completion of capital construction projects under the Lincy Foundation, the Central Bank estimates that capital transfers will be USD 20.0 million as opposed to the previous year's USD 91.6 million. In 2004, capital transfers will fund nearly 12.6 % of the current account deficit.

The share of direct investments will remain large, as related to the current account financing. The Central Bank estimates that foreign direct investments in 2004 will total USD 80.0 million growing by 20.5 %² compared with the previous year's indicator. Direct investments in 2004 will fund 50.5 % of the current account. The mentioned volume of direct investments will be achieved owing to growing direct investments and reinvested profit.

² In the 2003 indicator of direct investments, USD 93.8 million represents a repayment of the Russian loans.

The next large item of the capital and financial account is external public loans, holding a share in current account financing that has shrunk in recent years but still remains high. It is expected to attract external net (government) credits of USD 68.0 million over 2004 to fund 42.9 % of the current account. Also, foreign credits of approximately USD 81.1 million will be attracted, while USD 13.1 million will be used to repay former loans.

Commercial bank Net Foreign Assets (NFA) in 2004 will continue to grow. These will increase by USD 30.0 million. In recent years, increased incomes have boosted domestic savings which will, under high dollarization, grow into foreign currency denominated deposits thus leading to the growth in NFA.

In a situation where the current account deficit is in excess of capital inflow, the trade balance deficit will be funded by gross foreign reserves of the Central Bank. The Government resources (the Lincy Foundation funds and the SAC tranche) will decline in 2004. The Central Bank will service foreign debt and carry out foreign currency interventions to manage the monetary base. Gross external reserves of the Central Bank will then decrease by USD 14.8 million to USD 488.8 million, contributing to a 3.8 month's import coverage indicator as opposed to the previous year's 4.2. This fall of the indicator will be determined by growing imports of goods and services and declining gross reserves. The Central Bank NFA will decrease over the year by USD 14.0 million.

In 2004, external public loans of USD 109 million are expected to be attracted, of which USD 28 million are resources to be disbursed to the Central Bank under the Poverty Reduction Growth Facility (PRGF) credit facility of the IMF; and USD 81 million are Government loans in which the privileged loans of the World Bank prevail. Foreign debt service over 2004 will amount to USD 59 million, including Government-backed loans, of which USD 11 million are interest payments and USD 48 million are amortization on the principal. The IMF loans require USD 35 million to be repaid, which accounts for a large portion in the principal amortization. After these transactions are performed, foreign public debt of Armenia in 2004 will total USD 1106 million against USD 1044 million in 2003. The issue of Russian debt was finalized in 2003. According to an arrangement, Armenia's debt to Russia was offset as some public enterprises were handed over to Russia at a value equivalent to the debt. This deal essentially improved Armenia's foreign debt indicators, the share of privileged loans in total loans grew considerably since Russia's credit was a non-privileged loan. In 2004, the share of privileged loans in the structure of attracted loans will also be huge, 97 %. Foreign debt indicators for 2004 will be as follows: the ratio of foreign debt to GDP will be 35 % against 37 % in 2003; the ratio of foreign debt service to GDP will be 1.9 % against 2.4 % in 2003; the ratio of Net Present Value (NPV) public

debt to GDP will be 22.5 % against 24.4 % in 2003. Other indicators of foreign debt liquidity will also undergo some improvement yet to be determined by growing export of goods and services. In 2004 in particular, the ratio of foreign debt service to exports will be 5 %, and the indicator of unsustainable borrowings will be 21 %³.

The real effective exchange rate⁴ will, according to the Central Bank estimations, depreciate by 1.4 % compared with 10.1 % depreciation in 2003. This difference explains that the nominal effective exchange rate will depreciate by 0.8 % compared with previous year's 5.4 %. This change is due to appreciated exchange rates of the partner countries vis-à-vis the US dollar. The impact of the euro, British pound sterling and Swiss franc over the real exchange rate for 2004 is estimated to depreciate by 2.6 percentage points, as opposed to 5.0 percentage points of depreciation in 2003.

Impact of average weighted inflation of the partner countries for 2004 is projected to be 7.7 percentage points against previous year's 9.2. Armenia's average inflation will be 7.7 % against 4.7 % in 2003.

Of the partner countries, Iran and Russia recorded the greatest impact, -2.6 and -2.4 percentage points, respectively, whereas the rates of depreciation of inflation and exchange rate in Turkey converged, therefore the impact has been merely -0.2 percentage point.

Depreciation of the real effective exchange rate in 2004 is expected to be somewhat slow compared with average depreciation of 3.0 % recorded for the period 1996-2003. Slowing depreciation is a result of growing domestic demand, which is underpinned by increasingly active productivity.

According to the Central Bank estimations, Armenia's terms of trade will decline in 2004 by 2.1 % against 0.9 % in previous year. In 2004, exports and imports prices are expected to rise by 1.2 % and 3.3 %, respectively.⁴

Export and import prices of consumer goods will rise by 1.3 % and 7.0 %, respectively. Export and import prices of intermediate consumption commodities will also rise, by 3.0 %. Though the oil prices will decline at the end of the year, the year will report an average 3.5 % growth.

³ The unsustainable borrowings indicator is calculated as a sum of growth rates of exports of goods and services, and gross reserves, and as a difference of the growth rate of foreign debt.

⁴ The method of calculation of the real effective exchange rate is provided in Annex 6.2.

⁵ The method of forecast of export and import prices is provided in Annex 6.3.

INFLATION

The advent of monetary policy into 2003 was characterized by low and stable inflation that was creating an adequate ground for maintaining a maximum of 3 % annual programmed inflation in the context of the impulses from the entire economy and the programmed monetary policy. The programmed average inflation rate for 2003 was 3.2 % at the end of the year.

The Central Bank's observations however were signaling certain risks with a bias for high inflation. These were the import price fluctuations and large-scale financial inflow both significantly affecting the structure of the inflation indicator for 2003. In the outcome of the monetary policy, conducted in view of the influence of these factors, inflation at the end of 2003 was 8.6 %, which notably outstripped the program.

The first mentioned risk, i.e. the import price fluctuations, was evident by way of rising prices for wheat because of decreased volume of this commodity in international market. This affected the price of the "Bread and cereals" group in the consumption basket in Armenia. In particular, the price rise by 31.3 % of this group, which holds a share of 18.3 % in the consumption basket, thus producing a supply shock, contributed to 8.6 % inflation by 5.7 percentage points. In fact, in the event of unchanged price of the commodity group "Bread and cereals", annual inflation would have been 2.9 %.

The second risk, i.e. the large financial inflow in the economy, provided the growth of the economy almost twice as much as the program, owing mostly to rise of the indicator of construction sector (50.5% - for the period January-November) to ultimately stimulate the growth of aggregate demand. These led to surpassing growth of real wages against productivity, by 15 % and 18 %, respectively, which promoted high inflation during the year.

The program indicator of inflation for 2003 was assigned by quarters at 3.3 % and -0.2 %, respectively. Inflation of 6.8 % for the first quarter outstripped the program due to the rise of the wheat price in June. The Central Bank declined at that time to curb the general price-rise by restraining broad money, because there was expectation that the third quarter might record seasonal deflation, which would have been severer due to a delayed vegetation period (later than 2003) and anticipated fall in wheat price, and because it could have exerted pressures on economic activity.

Further phased increase in wheat prices in the second half of the year became the main reason for the inflation indicator to outpace the program. In the fourth quarter 2003 the Central Bank managed monetary base at the lower limit of the band, sometimes even letting it depart from the lower limit, trying to partially offset

the growth of prices while exercising caution against shocks in the financial market (rise in interest rates and appreciation in the dram). As a matter of fact, the Central Bank gave preference to the main objective of its policy, i.e. maintaining stable prices in the long run. As a result, inflation in two halves of the year was 6.8 % and 1.7 %, respectively.

Despite the inflation indicators' deviation from the program indicator for 2003, the Central Bank's monetary policy for 2004, developed pursuant to Poverty Reduction Strategic Program of the Government and to the medium-term objectives, is designed to target up to 3 % inflation at the end of the year. The basis of the monetary policy program contains estimation of GDP potential, fiscal and external sectors' developments and expected growth of administratively regulated water, gas, and other tariffs. It is estimated that the developments in these sectors of the economy will ensure a program indicator of inflation in the event the Central Bank's policy remains unchanged. The average inflation indicator for 2004 will notably rise against the end-year indicator, to 7.7 %, as the general level of consumer prices increased because of bread prices in the last two months of 2003.

Information on changes of administratively regulated prices is now available. The Central Bank estimates that the rise in a water tariff since January 1-st will push the average annual indicator of inflation up by 0.7 percentage point directly (by data calculated based on consumption volumes in the consumption basket) and indirectly (by way of the industry extending over the consumables). Impact of the rise in gas tariff on the inflation indicator will push directly or indirectly the inflation indicator up by 0.22 percentage point.

Bread prices are quite uncertain, hence the extent of their impact over the inflation indicator for 2004. Bread prices are likely to trend upward before June 2004, depending on customs duty on exports of the wheat in Russia. The bread price would then behave according to the wheat supply in the world markets.

However, even if the above factors induce either downward or upward fluctuating prices, the Central Bank would not intervene to smooth such inconstancies bearing in mind that stable prices and economic growth is a long-term objective.

There is anticipation that aggregate demand will grow over 2004 somewhat slower than its growth in 2003. This may imply that the ratio of real wages to productivity would rise evenly and result in almost zero impact on this factor of inflation.

The developments in the fiscal sector will have unknown impact on the inflation indicator. The anticipated share of net indirect taxes in GDP is bigger than it was in 2003 which, the Central Bank estimates, will push the inflation indicator up by 0.3 percentage

point. On the other hand, where growth of aggregate demand, boosted by large-scale external funding, was considered risky for high inflation in 2003, the lack of such factor in 2004 will enable the Central Bank to effectively manage inflation. The cut in budget expenditures as a result of foreign currency conversions at the Central Bank and elimination of fluctuations in money supply through the state budget will contribute to the management of inflation. The level of inflation estimated through the approach of seigniorage will not outstrip the program indicator (Annex 9).

The forecasts for change in external equilibrium of the economy for 2004 indicate that its impact on prices will not result in inflation of more than 3 % (Annex 10).

In 2004, export volume growth is expected to surpass GDP in growth as a result of relatively higher productivity in this sector of the economy. This would also lead to increased wages in the sector which might to some extent be transformed into a non-tradable sector leading to the loss of competitiveness in import substitutes and growth in imports and rising prices. Further, according to the above model, high export growth rates would, by stimulating aggregate demand (in which event the imports would grow too), put pressure on prices.

The forecasts for increased imports, which reckon that these would stand behind the GDP growth rates, indicate that the above impacts of exports growth will not bring in higher prices. The unimpressive share of exports in GDP do not seem to bolster higher growth rates for wages in broader coverage of the economy and to bring in loss of external competitiveness. The growth of aggregate demand will not increase at rapid rates, and the rise in prices will not exceed the program level, given the noted developments in the change in external equilibrium.

The results estimated by the inflation forecast model (Annex 11) show that 17.7 % growth of broad money will provide for an annual program inflation indicator. Regulation of money supply by the Central Bank over the year will offset the restraining impact of GDP gap on prices, as external funding reduces, and to retain falling money velocity rates, as provided for in the monetary policy program.

Inflation will not exceed the program 3 % in 2004 as a result of the monetary policy in order to achieve long-term macroeconomic stability.

DIRECTIONS AND TRENDS OF THE MONETARY POLICY IN 2003

Following the provisions of the monetary policy program 2003, as these were ensuing from the Central Bank's policy of monetary targeting, the scenario for money supply management was designed to retain up to 3 % annual inflation while sustaining annual 6 % economic growth. Since the economy had further to absorb inflow of huge foreign currency funds, i.e. the Lincy Foundation's funds, other grants and the next scheduled SAC tranche, presuming autonomous growth of liquidity in economy, the Central Bank had set a task to actively employ instruments to manage monetary base within the band.

With these factors in mind, the Central Bank evaluated demand for money. The program, based on this evaluation, was providing for increase of dram broad money by 9.6 % as of the end of the period and by 34.3 % on an average annual basis, and for increase of monetary base by 0.1 % and 25 %, respectively.¹ And for all that, the other logic of the annual program for management of monetary aggregates was that the Central Bank would be managing the recently increased money supply in the first half of 2003 for certain excess of the evaluated money demand and step by step reduction of their gap to prevent tangible pressures in financial market. In the meantime, money supply was expected to grow dramatically at the end of the year owing to disbursement of huge external financial inflows the Government expected (that was keenly highlighted in the program adjustments to the second half of the year).

The macroeconomic climate and economic developments, high economic growth and delayed agricultural cycle, in particular (these seem to have repeated the 2002 patterns) were not considered in program estimations, and therefore brought some challenges to the Central Bank. These have essentially affected demand for money, giving reason for the Central Bank to adjust over the year directions of the monetary policy by announcing these directions beforehand.

The monetary policy of the Central Bank in 2003 was carried out under macroeconomic patterns as follows:

- Excess of previous year's high economic growth and real growth of 14.2 % (treated in the 2003 program as risk) against the current year's program of 6 %. Substantial growth of demand for money was observed thanks to high economic activities, which advanced the reduction of the projected gap between money supply and money demand, rather than making deviations in the scenario for money supply management by the Central Bank.

¹ Such high average annual growth indicators are a result of unprecedented growth of money supply at the end of 2002.

- High inflation indicator of 8.6 % and changing annual behavior. The year's highlight was the price-rise on bread and cereals (external shock) contributing to inflation indicator by 5.7 percentage points. The exclusion of such contribution would make inflation comply with the ceiling of the program. Heavy seasonality of inflation, especially in the second quarter (4.7 % against previous year's 3.7 %) and the third quarter (deflation of 5.4 % against previous year's 8.4 %), was a recurrence of the previous year's tendencies.

The monetary environment under these factors was consistent with economic developments. High economic growth determined high growth rates of demand for money, which reduced the gap between money supply and money demand, while money supply was managed by the Central Bank mainly within the defined scenario. Broad money and dram broad money grew by 15.1 % and 7.5 % and their annual growth averaged 22.9 % and 33.3 %, respectively.² As for quarterly seasonality, monetary aggregates behaved more calmly, as opposed to previous year's patterns, owing to relatively steady pattern of economic growth in the quarter concerned (seasonality was within 11.4 % - 15.2 % against 7.4 % - 13 % in previous year).

The growth patterns for money by components of broad money in 2003 were uniform. The increase of broad money by Dram 30.6 billion represented currency in circulation by Dram 3.4 billion, dram-denominated deposits, by Dram 5.9 billion, and foreign currency-denominated deposits, by Dram 21.3 billion. Although growth of the dram components of broad money (cash and dram deposits) lost to the growth rates of previous year, making up 3.9 % and 16.7 % against previous year's 36.2 % and 92.2 %, respectively, these indicators are still high if compared with the years preceding 2002. This perhaps can be explained by high economic growth of the last two years and increased domestic savings. The banking system too was not left out of this process as financial resources have been available mainly through banks, while generated savings have increased currency in circulation, on the other hand and have become either dram- or foreign currency-denominated deposits, on the other. As opposed to dram denominated deposits, foreign currency deposits considerably exceeded the growth rates of the previous year to 27.0 % from 6.5 %. Such slow growth of foreign currency deposits over the previous year was attributable to financial problems which arose in the banking sector in the first six months of the year, and led to a huge outflow of funds, especially foreign currency, from the sector. Slowing growth rates of broad money and its dram components at the end of the period but increasing growth rates of average annual

² In reality, average annual growth rates are higher as the data of another bank, being under bankruptcy, have been removed since 2003 from calculation of monetary data survey, for statistical adjustment.

indicators are a result of big jump of these indicators and high levels at the end of 2002.

As well as in 2003, the banking system generated growth of money supply owing to increased NFA of the banking system. The NFA increased during the year by Dram 48.9 billion that was shared out into NFA of the Central Bank of Dram 27.2 billion and NFA of commercial banks of Dram 21.7 billion. These indicators embrace the same factors of influence as were in previous year: the first occurred due to huge external inflow, and the second was contributed by increased savings of the household and businesses, part of which were placed with banks as foreign currency deposits. Meanwhile the attracted funds, mostly those accumulated in overseas correspondent accounts of Armenian banks, provide evidence that these funds continued flowing out rather than being used in lending to the economy.

The domestic lending to the economy over 2003 declined by Dram 5.9 billion or down by 6.3 % whereas there was projection for growth of 22.6 % (the loan write-offs this year were Dram 1.9 billion only). The domestic lending indicator fell exclusively under the influence of repayment by the public sector of liabilities of Dram 16.5 billion, with a prevailing portion accounted for reduced liabilities of the Government, determined by large amount of accumulations in the Treasury Unified Account (TUA). The lending in the private sector rose by Dram 10.6 billion or up by 12.6 % demonstrating buoyancy of businesses throughout the year.

The trends of monetization coefficient and money multiplier, especially with regard to deposit growth, denote that financial intermediation continued mounting. Monetization coefficient or the ratio of broad money to GDP rose to 12.3 % from 12 % in previous year and dramization coefficient, to 7.2 % from 6.5 %. Monetization coefficient grew slower versus dramization coefficient as monetary aggregates have gone through statistical adjustment (the data of a bank have been removed from calculation) since the beginning of the year, which was reflected in the decrease of foreign currency deposits.

Dram velocity fell during the year by 9.9 %³, which however was offset to some extent in the behavior of money velocity, determined by reduced foreign currency deposits mentioned above, which caused money velocity to decline in 2003 by 2.4 %. That is, money velocity remained trending downward, which is inherent in the transition period countries.

The landscape of financial intermediation connected with lending is considerably different as banks remain sluggish in fuelling the economy with funds. The main reason for it perhaps lies in large

³ The velocities of money and dram are calculated based on the data of GDP and broad money and dram broad money, so produced by the method of seasonal adjustment.

amounts of lending under external credits in recent years, which have been sufficient to satisfy the demand for credit resources. Another impediment in growth of lending is the banks' distrust of businesses in need of loans, due to their former poor credibility.

The statistical adjustment covered the money multiplier which declined over the year by 1.7 % to 1.96, whereas dram multiplier rose by 6.5 % to 1.15. Money multiplier showed some growth trends, owing to the deposit growth, if sharply reduced money multiplier in the first quarter is not taken into account. The growth rate of money and dram multipliers was low like in the previous year, because of high level of excess reserves during the year.

Implementation of the monetary policy of the Central Bank in 2003 largely replayed the trends shaped in 2002, with certain unexpected developments, which served a basis for adjusting the projected directions of the policy. In the first half of the year, higher-than-expected economic growth shaped larger demand for money which caused the Central Bank to manage the monetary base in the upper limit of the band, sometimes even overstepping it. Given the programmed 12 % for the first half, monetary base decreased by 10.7 % without considering its drastic reduction at the end of June, due to huge tax receipts. The first six months resulted in 4.7 % inflation versus 1 % deflation, surpassing the expectations, the logic necessitated introducing some adjustments to the monetary policy to manage monetary base close to the lower limit of the band. But, since departure of inflation from the program was due to seasonal factors⁴, plus nearly 10 % rise in bread and cereals prices in June, and the Central Bank was evaluating them as transient patterns whose deflationary impact was to be unveiled in the third quarter, the Central Bank did not find it meaningful to adjust the monetary policy in order to reduce money supply. What is more, considering high growth rates of aggregate demand, the Central Bank sought adjustment to expand monetary base, which implied that monetary base would have been Dram 119.0 billion at the end of the year against the originally programmed Dram 111.3 billion.

Nevertheless, bread prices went up in September, resulting in 2.5 % inflation against the program 0.3 % for the month while the 9-month deviation again hit over 3.0 percentage points. In September, to offset the situation to some extent, the Central Bank resorted more actively to absorbing instruments, the sale of foreign currency, in part, and managed monetary base below the lower limit of the band. It is appropriate to note that banks were quite aggressive throughout the year, except in April, in using standing deposit facility of the Central Bank to meet short-term liquidity

⁴ Due to the delayed agricultural cycle, prices of agricultural product rose. Treated as an irregular pattern and typical to the year 2002, this rise was not considered in the financial programming for 2003.

management problems, with the average monthly aggregate volume of more than Dram 4.9 billion.

Another rise in bread and cereals prices was seen in November-December pushing the inflation indicator of the last two months up by 3.1 percentage points; as a result the annual indicator reached 8.6 %. However, the price-rise of the "Bread and cereals" group contributed to inflation by 5.7 percentage points, according to the National Statistics Service, (without such impact, inflation was within the program, 2.9 %), and demand for money was shaped under high economic growth, the Central Bank did not seek to offset the impact by implementing more restrictive policy, considering also the 3-6 month lag of the monetary policy impact over the prices. The monetary policy, intensively restrictive in the period September-October and abruptly turned in the month of December to be expansive due to huge budgetary expenditures, ensured the right monetary base as was projected by the adjustment.

In addition to the factors of high economic growth and variable inflation there have been other factors affecting the pace of the monetary policy, as follows:

1. Excess liquidity remained high throughout the year (averaging Dram 3.6 billion against Dram 1.7 billion in 2002 and Dram 1.2 billion in 2001), which made the function of the transmission mechanism of the monetary policy ineffective, given the limited use of dram instruments. This limitedness, created in recent years due to almost depleted securities of the Central Bank (Dram 1.0 billion at the end of 2003 against Dram 10.2 billion at the end of 2001) because of large financial inflow, also affected the function of the transmission mechanism. In other words, following sterilization problems of financial inflow in the mentioned period, the Central Bank has not been able to build up its securities portfolio that would allow the Central Bank to use open market operations as a strong absorbing tool. The issue of sterilization of excess liquidity was tackled by way of sales of foreign currency, active use of standing deposit facility by commercial banks and newly introduced currency swap transactions.

2. Central Bank-regulated liquidity issues existing in the field of coordination of monetary and fiscal policies persisted over 2003. These include substantial accumulations in the TUA with the Central Bank, amounted to Dram 32.2 billion from Dram 13.0 billion earlier in the year, and the uncertainty in expending these resources. Perhaps, there was uncertainty in budgetary expenditures of external funds as well that also affected the efficiency in monetary policy implementation.

The monetary environment therefore reflected the following annual changes of the Central Bank indicators:

- Monetary base grew at the end of the period by 6.6 % and by 25.1 % on average annually. The slow growth rate at the end-period explains the dramatic jump at the end of 2002, which determined the high rates of the average growth.
- The Central Bank NFA grew by 20.8 %⁵ thus providing the entire volume of annual expansion of money supply by the Central Bank. The NFA was added on account of SAC tranches and grants (mainly the Lincy Foundation), which were offset more than half by the repayment of foreign debt and foreign currency sales by the Central Bank, including other conversions for customers.
- The Central Bank Net Domestic Assets (NDA) decreased by 102.8 % bearing much of the impact of changes in Government net claims to the Central Bank, as a result of huge accumulations in the TUA. With high excess liquidity, persisting over the year and underpinned since the second half by the lowering of reserve requirement to 6 % from 8 %, the Central Bank's relationship with commercial banks consisted of the use of absorbing instruments that were concomitant with Dram 1.5 billion-worth of loans extended to banks under the German Kreditanstalt für Wiederaufbau (KfW) lending program. In the meantime, the systemic credit of nearly Dram 3.0 billion, created in the unification of two banks in 2002, was written off in the first quarter. Impact of this credit on the change in banks' liabilities to the Central Bank and in other items net of the Central Bank was essential as these liabilities decreased by Dram 1.8 billion and other items net grew by Dram 3.7 billion annually.

The set of instruments used by the Central Bank included reverse repurchase agreements of about Dram 1.0 billion (through rollovers), sale of foreign currency, equivalent to Dram 22.0 billion, and the currency swap instrument, used since October, of approximately Dram 2.1 billion. Standing deposit facility, reaching a total amount of Dram 8.0 billion in February and July, was effective in short-term regulation of excess liquidity.

In 2003, interest rates of the financial market reported faster falling rates due to high excess liquidity in the system. This fall was strongly reflected in the treasury bills market as demand for limited supply of securities of the Treasury was large. The Treasury has allocated during the year 9-12-month and medium-term coupon bonds, with the end-year yield of each dropped by 5.2 percentage points (compared with previous year's drop of 1.6 % and 0.3 %, respectively), to 9.7 % and 14.9 %.

Average annual interest rates of loans and deposits kept trending downward to 21.9 % and 6.3 % at the end of 2003 from

⁵ The change in the Central Bank NFA is calculated using the 2003 program exchange rate, which was used to calculate also the Central Bank NDA.

previous year's 24.2 % and 7.9 %, respectively. The loan and deposit interest rate spread, slightly contracted to 15.6 % from previous end-year's 16.3 % as interest rates of foreign currency loans dropped by 3.1 percentage points (interest rates of foreign currency deposits fell by merely 0.2 percentage point), whereas the spread of dram-denominated funds increased to 18.1 % from 14.9 %, owing to 3.8 percentage points drop of deposit interest rates.

In the secondary market of treasury bills and repurchase agreements, interest rates were declining in 2003 somewhat quicker due to bulky injection of liquidity into the economy through budgetary expenditures at the end of 2002. This pushed the interest rates spread of the market and the Central Bank operations to have been enlarged since the beginning of the year. This is why, despite the excess liquidity absorption-oriented policy implemented throughout the year, the Board of the Central Bank has as early as February lowered interest rates of repurchase agreements to 10 % from 13.5 %, the Lombard credits to 20 % from 28 %, and deposits to 5 % from 6 %. The motivation was the same when interest rate of repurchase agreements was lowered in August by another pp. to 9 %, and by 2 pp. in December. Deposit interest rates were lowered by 1.5 pp. in December.

Affected by downward trending interest rates in loan and deposits markets, the reference bank rate dropped to 18 % from 19 % as was recorded in the beginning of the year.

ISSUES AND DIRECTIONS OF MONETARY POLICY IN 2004

The monetary policy of the Republic of Armenia in 2004 will be conducted to retain the country's macroeconomic stability and support money supply, consistent with expected economic growth and low inflation. The Central Bank will remain committed to the strategy of monetary targeting to ensure stable prices. The main attribute of 2004 with respect to the policy environment will be the diminishing flows of external funds in budget revenue and deficit financing as a result of the absence of the Lincy Foundation's grant and the WB SAC. And as the budget will be less resourceful to enlarge the monetary base, the Central Bank will be able to effectively manage the monetary base by using dram liquidity injection instruments for the second half of the year.

The Central Bank evaluated the target money supply by the function of demand for real dram resources (dram broad money), given expected 7 % economic growth as a basis (Annex 9). Nominal money demand was evaluated taking into consideration 3 % inflation, and presuming the linear homogeneity between money demand and price level. Interest rate, another key indicator, is not included in the function, since the dependence of money demand on interest rate in Armenia is not significant at this time.

The results of the forecast made through the function of demand for money denote that growth of dram broad money at the end of 2004 will be 12.3 %, and average annual growth will be 13.6 %. Growth of cash dram in circulation at the end of the year will be 11.6 %, and growth of dram deposits will be 13.8 %. The 12-month growth rates of dram broad money as of the end of the first three quarters will be 19.9 %, 16.9 % and 14.3 %, respectively. This is explained by smoother distribution of dram deposits by quarters as compared with previous years.

Foreign currency deposits will grow in 2004 at a slower speed, growing by 12 % as opposed to 27.0 % in previous year. Extensive growth of foreign currency deposits in 2003, mainly owing to the increase in demand deposits (38.3 %), was perhaps due to mounting external turnover and exports, in particular. Growth rates of these indicators, however, are expected to slow this year, which provides a basis to forecast a sliding trend for deposit growth over 2004.

According to anticipations for dram broad money and foreign currency deposits, the increase of broad money at the end of 2004 will be 12.2 %, with the average growth of 17.6 %.

Growth of deposits will be fuelled by mounting savings, in 2003 their share in GDP increased by 8.7 percentage points to 17.6 %. High growth rates in the industry in the recent two years are expected to trend by further stimulating the deposit growth. The

launch of the deposit guarantee scheme by the Central Bank will in the medium run sustain the growth of deposits, especially the dram deposits, while enhancing confidence in the banking system.

In 2004, money velocity will remain in a downward trend because of faster growth rates of monetary aggregates against GDP growth. Broad money and dram broad money velocities will be 7.7 and 13.6, respectively, dropping by 5.4 and 2.0 pp.

Increase in NDA will be the main contributor to Dram 28.4 billion growth of broad money this year. The NFA of the banking system will increase during the year at relatively modest rates largely as the Central Bank NFA will decrease because of the absence of the Lincy Foundation's grant and the SAC funds. The NFA of commercial banks will continue to grow (43.6 %). The NFA of the banking system will increase over the year by Dram 9.5 billion or up by 4.9 %, and the NDA, by Dram 18.9 billion or up by 47.7 %.

In the structure of NDA, it is significant for 2004 that the private sector loans will grow in 2004 by Dram 15.1 billion or up by 15.9 % compared with 12.6 % in 2003 and 1.7 % in 2002. These developments are realistic and justified by some factors. First of all, there will be no autonomous repayments in 2004, as opposed to previous year's large repayments in the energy and chemical industries and within the framework of the Lincy Foundation lending program. The volume of loan write-offs will continue declining. It is assumed as well that consumer and commercial loans will continue growing this year in line with the construction and industry lending volumes. Reserve requirement, which has been reduced since 2003, may be another encouraging factor.

Related institutional measures, which the Central Bank has initiated in 2003 and will continue in 2004, also note that these measures are realistic. The deposit guarantee scheme for natural persons, actions designed to develop a mortgage market, and introduction of a credit registry will be a further stimulus to boost intermediation of the banking system and lending, in particular.

Government liabilities to the banking system will grow in 2004 by 27.4 % primarily due to the banking system purchase of Dram 4.0 billion worth of treasury bills.

The monetary policy program reflects an increase of money and dram multipliers in 2004 by 7.8 % and 4.1 %, respectively. The growth will be triggered by large-scale growth of dram and foreign currency denominated deposits, a lowered reserve requirement standard and diminished excess reserves compared to 2003.

In consideration of the above money and dram aggregate patterns and the multiplier behavior, the monetary policy program 2004 contemplates an increase of the monetary base against December 2003 by 4.9 % with average annual growth of 9.1 %. Variance of monetary base is allowable within 2 %, taking into account the share of

commercial bank excess reserves' standard deviation in monetary base. Besides, the 12-month growth rates of monetary base as of the end of the first three quarters will be 14.5 %, 14.2 % and 9.8 %, as there is anticipation that excess reserves of the banking system this year will be more smoothly distributed by quarters than in 2003. It is noteworthy though that the program indicators for monetary base growth fall behind the growth calculated by McCallum's Base Money Rule. This is because of previous year's high growth rates of monetary base that exceeded the McCallum's Rule-calculated indicator. In the two years' outcome however these two indicators almost converge (Annex 7).

As was noted, no SAC and Lincy Foundation's funds are anticipated throughout 2004 and, therefore, the Central Bank NFA will decrease, by 5.2 %. As a result, monetary base will grow solely on account of NDA.

In the NDA structure, a negative level of Government liabilities will persist. These funds will not be spent over 2004, according to Armenian Law on State Budget.

The growth of the structural components of NDA will be recorded for net liabilities of the banking system, including the loans from KfW, and for other items net. The indicator of net liabilities of the banking system will rise by Dram 6.6 billion or up by 77.1 % against the end of previous year - the loans from KfW will increase by Dram 3.1 billion, and the balance of Dram 3.5 billion will be provided through instruments of the Central Bank, and repurchase agreements, in particular. During the year, the Central Bank may purchase treasury bills from the secondary market, if there arises a need to handle liquidity.

In adjusting balance of payments, the Central Bank will discourage faster growth rates of domestic lending, and in the 4-th quarter will increase the monetary base by way of foreign currency purchase.

Other items net will increase by 58.3 % for the year as a result of the transfer of the 2003 profit of the Central Bank and its expenditures which will exceed incomes during the year.

Currency outside the Central Bank will increase over 2004 by 9.1%. Although growth of deposits would cause the required reserves to grow, the balance of correspondent accounts however will reduce by 13.8 % due to a lower level of excess reserves as compared to extremely high reserves in 2003.

Monetary base will remain seasonal by quarters but may demonstrate steady patterns. It will decrease in the first quarter by 10.0 % compared with a 16 % decrease in 2003, while growing relatively smoothly over the next three quarters by 2 %, 4.2 % and 9.6 %, respectively.

In 2004, it is anticipated that interest rates will move down at a slower pace. Market interest rates this year will be affected by some factors. On the one hand, increase in domestic savings, already recorded in recent years, further development of the banking system and much wider scope of activity of credit institutions will promote the fall of interest rates. Relatively low excess liquidity, expected over 2004, may halt the fall of interest rates, on the other hand. This will be explained by sizeable reduction in injection of liquidity on account of external financing of the budget.

In the government securities market, net sales of Dram 5.3 billion worth of treasury bills are expected, compared with previous year's sale of Dram 2.5 billion. Such volumes of sale may slow down the pace of declining interest rates.

Overall, the main features of the monetary policy for 2004 will be as follows:

- Monetary base will expand exclusively due to NDA, particularly, through execution of repurchase agreements with banks; and
- Coordination of monetary and fiscal policies will become more important so as to prevent sharp fluctuations in the level of liquidity given large balance of the Government's accounts with the Central Bank, and to make sure the treasury bills are being marketed smoothly.

RISKS IN IMPLEMENTING THE MONETARY POLICY PROGRAM

Divergences from the policy program are likely to happen in 2004 in implementing monetary policy. Below is the review of these divergences by sectors of economy:

Real sector

Notwithstanding record economic growth of 14.6 % in 2003, official statistics however do not provide an adequate reflection of changes in unemployment level.¹ This circumstance makes it difficult to evaluate reduction of the GDP gap, which in turn reflects in forecasting the main macroeconomic indicators, economic growth and inflation, for 2004.

Evaluating private investments to be made in 2004 is risky, too. Growth of investments in 2003 was 41.3 %, and this increases uncertainty for further forecast of the indicator.

Fiscal sector

This sector is effected by diminishing funds of the state budget because of the lack of external sources such as SAC and the Lincy Foundation's grant. As a result, the risk of fiscal sector's impact on implementation of the monetary policy in 2004 will considerably lessen. The only risk perhaps, that may emerge this year, is divergence from the program proportions of the funds in the TUA. This divergence may arise if tax revenue indicator for 2004 fails to be sufficient, and if the deficit is funded from the TUA in order for the budget to avoid gathering debt. Since the second half of the year this landscape may refocus the monetary policy towards using absorbing instruments instead of injecting instruments. In this situation, the Central Bank will have a tougher task to handle monetary program indicators and management of inflation.

External sector

Developments in the external sector in 2003 showed that the Armenian economy has been sensitive to unpredicted changes in international markets despite gradually improving balance of current account and recently abundant sources for its funding. In particular, the rising prices of wheat in international markets in 2003 immediately echoed in the domestic market. The risks that may emanate from the external sector over 2004 may include further

¹ See 'The socio-economic situation in Armenia, January-September, 2003'.

changes in prices on wheat, depending on weather conditions in the countries that hold leading share in the world wheat markets.

Risks are likely to arise from possible oil price fluctuations which, naturally, will cause deviations from the program imports prices. The reason lies in uncertainties in international fuel costs that in turn depend on geopolitical developments worldwide.

More-than-expected volumes of imports also may impede smooth implementation of the monetary policy. Such development may take place if the inertia of high demand, set in motion by high growth in 2003, proves longer than is provided for in the monetary policy program. It should be mentioned that the program contemplates slowing growth of demand, and hence slower growth rates of imports.

Another risk from the external sector may be the possible appreciation in international markets of the euro and other hard currencies against the US dollar. And, although the euro is expected to slightly appreciate in 2004, such appreciation however will likely outpace the anticipations of financial markets, as it did in 2003.

Financial sector

The recovery of the financial sector in recent years has dramatically compressed occurrence of potential risks in the sector while fostering the ability to resist risks in other sectors. The main risk lies with the process of further development of the financial system as the sector will incorporate non-banks and credit institutions to boost financial intermediation. Such scenario implies more lending to the economy - that promotes growth of aggregate demand - and places expanding impact on inflation.

In implementing the monetary policy program and considering price stability in the long run, these risks, including changes in international and administered prices, will not however entail considerable changes and will not lead to adjustments of the program.

Program adjustment may be required if projected 7 % economic growth indicator would vary, both upward and downward. This will be associated with uncertainties in capital inflows in the private sector. Should this risk arise in any area, the money supply regulation scenario would be adjusted consistent with the patterns of money demand.

DEVELOPMENT OF THE BANKING SYSTEM

As of January 2003, the banking system had 25 commercial banks with a total 231 branches. Of these, 20 banks were operating under general monitoring, 5 banks, under special monitoring. Over 2003, 4 banks were in liquidation, 1 bank decided on self-liquidation, 1 bank converted to a credit organization, and 1 bank obtained a license for banking. As of December 2003, banks operating in Armenia numbered 20, with a total 232 branches, of which 19 were under general monitoring, and 1 bank, under special monitoring.

Licensing of credit organizations in Armenia started after Armenian Law on Credit Organizations took effect on January 1 2003. There are 6 credit organizations operating, of which 2 are leasing firms. Total capital of credit organizations is Dram 2.0 billion, total liabilities, Dram 1.5 billion, total assets, Dram 3.5 billion, and total loans, Dram 2.3 billion.

Net book value of Armenian banking system over 2003 increased by Dram 11.6 billion or up by 30.0 % to total Dram 50.1 billion¹. The growth of total capital is attributable to the statutory capital, increased by Dram 2.0 billion and the year's profit, increased by Dram 6.5 billion, and to the liquidation in 2003 of 'Ardshinbank' whose Dram 5.6 billion-worth of loss is not included in total capital as of December 2003. Growth generated Dram 2.6 billion to offset the equally diminished undistributed profit of banking system of previous period. Statutory capital grew considerably as minimum total capital has been set since July 1 2003 to be USD 2 million equivalent Armenian drams. Profit of banking system in 2003 surpassed previous year's level, attributable to growing interest and non-interest incomes. It is worthwhile to mention that the dramatic growth of less costly demand deposits and high-yielding consumer and commercial lending volumes was a positive contributor to shaping long-term growth trends for net interest income.

The increasingly solid net interest income and commission fee income of the banking system allow anticipating high profit in 2004 to total close to Dram 7.5 billion. In pursuit of meeting the minimum total capital requirement to be effective July 1 2005 of USD 5 million equivalent Armenian drams, banks planned to increase statutory capital in 2004, which is expected to be nearly Dram 4.0 billion. Considering also the distributed profit of previous period by banks, total capital of the system is expected to grow in 2004 by

¹ Analysis of banking system was made by comparing general indicators of 21 banks (20 banks under general monitoring, and 'Ardshinbank' under special monitoring) operating in the system as of 31/12/2002 with general indicators of 19 banks operating under general monitoring as of 31/12/2003.

round Dram 9.5 billion. These expectations are supported also by strategic programs submitted by banks.

Liabilities of the banking system grew in 2003 by Dram 27.4 billion or an increase of 13.4 % to total Dram 232.0 billion. Funds and correspondent accounts, attracted from banks decreased by Dram 5.6 billion or down by 22.5 %, term deposits of individuals grew by Dram 6.5 billion or up by 15.0 %, term deposits of legal entities grew by Dram 0.8 billion or up by 2.8 %, and demand liabilities grew by Dram 25.8 billion or up by 30.5 %. In 2003, banking sector saw dramatic growth in demand liabilities, due to climbing demand liabilities of individuals. The economic growth underpinned the activities of sole proprietors. Banks dealt with more accounts of card holders, promoting in the long run the growth of demand liabilities. Improved quality of banking services also supported this process. It is noteworthy that the number of plastic cards increased over the year by more than twice.

Deposits are expected to trend upward in 2004, too. The established policy pursuing bigger banks and discouraging uncompetitive and insolvent banks will enhance confidence of the population in banking system. The competitive environment presents challenges to banks to update and expand the high-tech services they provide. More cash dispensers, ATMs and service terminals of the ArCa payments system will help people to promote interest in banking accounts. Relying on these trends and strategic programs of banks, total liabilities of banking system are expected to grow by Dram 31.5 billion.

Pursuant to the upward trend for 2002, the banking system reported another growth year in 2003 of total assets, by Dram 39.0 billion or up by 16.0 % to total Dram 282.1 billion. Liquid assets of banks grew by Dram 29.4 billion or up by 30.3 %, and loan investment (loans and receivables), by Dram 18.5 billion or up by 16.8 %. Because liabilities of the banking system grew at the expense of demand liabilities, high liquid assets surpassed in growth loan investment, in terms of retaining liquidity of the system. Under such surprising growth though the system's current liquidity indicator fell by 4.8 percentage points to 101.4 %.

Loan investment in total assets remained unchanged, making up around 45.7 %. Loan investment with non-residents increased by Dram 0.5 billion or up by 2 %, loan investment with residents, by Dram 18.0 billion or up by 21.5 %. Loan investment reported significant growth in consumer (Dram 8.1 billion or 53.5 %), commerce (Dram 5.6 billion or 35.6 %), finances (Dram 4.9 billion or 147.6 %) and construction (Dram 1.5 billion or 46.7 %) areas. The loan investment was however reduced in industry, by Dram 2.4 billion or down by 7.5 %, due to diminishing rate of lending to energy, chemical industry and metallurgy sectors. The change in the

structure of loan investment in favor of consumer loans may be encouraging as loan investment in industry was associated with the energy sector, formerly containing poor quality loans, which were in reality an inadequate factor in development of the sector. The growth of consumer loans under a developing economy is normal, however, consumer loans are further expected to trend upward. The growth of loan investment in construction is normal, too. It is noteworthy that the banking system evinced sound interest in this sector also for the part of guarantees issued by it for about Dram 3.5 billion.

Assets of the banking system in 2004 are expected to grow by nearly Dram 41 billion, to be invested in real sector of economy and also in highly liquid assets such as government securities and nostro correspondent accounts of foreign banks. Liquid assets are predicted to grow as the banking system retains liquidity as determined by expected increase in demand liabilities, and because the system is gearing up to respond to the expected increase in volumes of transfers.

The banking system has been the part of the environment of sustainable macroeconomic developments throughout 2003. The growth of nominal GDP of 19 % in 2003 was in line with the increase of total assets, by 16.0 % and loan investment, by 16.8 %. Assets and capital of 19 banks operating under general monitoring constitute 17.4 % and 3.1 %, respectively, of nominal GDP. The increase of gross national disposable income by 18 % was in line with 35 % growth of demand deposits and term deposits of individuals with commercial banks.

These indicators may infer that the most problematic issue - weak financial intermediation in the banking sector - is still persisting.

To overcome the above issues, the Central Bank will develop in 2004 a policy to:

- Raise financial intermediation in banking system; and
- Strengthen the system to further contribute to financial stability.

In 2004, the Central Bank will take action to raise financial intermediation, as follows:

- Creation and operation of the individuals' deposit guarantee scheme will be very important in view of institutional development of banking system. Pursuant to Armenian Law on Central Bank, banks have since July 1 2003 begun making contributions, while remuneration of the guaranteed deposits will commence effective July 1 2005. Further, the drafting of Armenian Law on Mandatory Guarantee of Bank Deposits of Individuals is underway, and it is planned to be adopted during 2004. This law aims at enhancing the population's

- The loan origination process by the banking system will increasingly involve collateral provided by borrowers, as the subject of collateral invites greater security. In consideration of making collateral more marketable, there arises a need to turn assets into financial assets. For a supplemented list of financial assets, the Central Bank will assist the Real Estate Cadastre Committee at the Government of Armenia to complete drafting Armenian Law on Registration of Ownership over Collateral for Movable and Leasehold;
- Demand for mortgage loans is gathering momentum as purchase and sale transactions of real estate are expanding, the real property prices are rising, and construction by private sector is rapidly growing. The revival of the banking system's consumer market is creating an adequate foundation for supply in the mortgage market. For development of the mortgage market, the Central Bank will seek in 2004 legislative amendments and creation of clearer regulatory framework that would enhance dealings between participants in a mortgage loan while finding solutions to the collateral marketing-related issues. It is intended to set up a secondary mortgage loans operator, which will pursue refinancing of banks that originate mortgage loans. These banks will be refinanced through a new type of financial asset, the mortgage-backed securities;
- For 2004, the Government of Armenia will be taking measures to create and develop private pension funds and insurance markets, in collaboration with the Central Bank. These markets could be a precursor to the development of the mortgage market. These markets require long-term financing which could be supplied by the above institutions. Development of the banking system is interrelated with the overall financial condition of economy, and further development trends of the system should be evaluated in the context of the overall financial system; and
- Loan investment of banking system are concentrated mainly in Yerevan, so the Central Bank will propose in 2004 a package of measures designed to stimulate lending in Armenia's regions which are currently underserved.

In the context of further strengthening of financial stability over 2004, the Central Bank will:

- Carry out work to foster the financial stability of the Armenian economy, to identify the determinants for and monitor financial stability;

- Launch a multilateral study of the Basle II Accord to evaluate the need for its introduction into the banking system of Armenia and make judgment on the related issues;
- Spend concerted efforts with the Government of Armenia and other regulating agencies to arrange for the establishment of a unified controlling body to harmonize and systemize activities in various segments of financial system;
- Highlight the importance of communicated information on borrowers by means of the Credit Registry in order to reduce exposure to loan portfolio and to amplify stability in the banking system. The communicated information is expanding as banks and credit organizations are more willing to use information. Further work will include enlarging the scope of communicated information and compiling data and information on smaller loans;
- Carry on remedies to improve management systems in banks. Due attention will be paid to having in place banks' internal control systems. Minimum requirements for internal control of banks will be defined in order to minimize bank-related risks; and
- Make sure different units of bank management have more explicit competences, determine relationship between these units and, more importantly, define the scope of responsibility for each of them. To this effect, the Central Bank is drafting legislative changes to corporate governance, which is planned to be adopted in 2004.

DEVELOPMENT OF PAYMENTS AND SETTLEMENTS RELATIONS

The Central Bank's policy in the payments and settlements area in 2004 will consist of the standard measures that will further develop the payments and settlements relations and promote non-cash circulation in Armenia, and will cover:

- a) control of the payments and settlements system; and
- b) taking action to stimulate non-cash circulation in Armenia.

In 2004, the Central Bank will continue to regulate the payments and settlements area. Armenian Law on Payments and Settlements System and Organizations involved in Payments and Settlements, drafted by the Central Bank in 2003, will enable the regulation of payments and settlements transactions, activity of and control over organizations involved in these services, and procedures defined for clearing and settlements. Once the draft law is approved there will have been created an adequate legal framework to regulate the usage of payment instruments and operation of the systems.

Payments systems represent a key component in the economy and financial sector, and their efficient operation enables timely and safe execution of payments and will ensure the normal functioning of the entire economy. Payments systems however can expose participants with significant risks as those systems may serve as an environment to transmit and propagate system problems from one segment into another. The policy of disclosing risks in financial systems and managing such risks, and considering the leading role and development trends for payments and settlements system, the Central Bank's plans for 2004 include the drafting of principles for oversight of payments and settlements system and the work to regulate the related processes. These principles will enable infrastructures of payment systems and payment service markets to:

- a) operate obstacle-free and effectively;
- b) minimize and have oversight of risks that may arise out of the failure of a system player to do clearing and settlements of its liabilities, and that may cause propagation of shocks in the economy; and
- c) achieve technological and institutional development that would respond to the needs of a developing economy in payments and settlements area.

The increasing non-cash circulation in the country was successful in 2003 as it made possible non-cash payments not only at retail and service outlets, but also in payments for energy, phone and other public utility services. Also, certain payments, salaries for example, started to be made in 2003 via the banking system.

In 2004, the Central Bank will carry on efforts to promote non-cash circulation and develop retail payments market, in three main directions:

1. Licensing and regulation of organizations involved in payments and settlements services;
2. Study and application of new non-cash payment instruments and means, development of new technologies, i.e. smart cards, e-commerce, Internet and telephone banking, etc; and
3. Creation of conditions for providing payment services nationwide, including in distant regions of the country.

The Central Bank will design in 2004 a new concept and principles for electronic payments system operation, based on international criteria required for similar systems.

In view of new legal framework for circulation of government securities, the Central Bank plans for 2004 include final employment of Treasury Bills Accounting and Settlements System to be operating on the DVP-based (delivery versus payment) module. There are plans to further develop the system, including working on a new type of bonds for circulation.

The Central Bank will, in collaboration with the banking system, government agencies and other concerned parties, disclose any existing impediments in non-cash payments, and minimize and/or remedy these where appropriate.

The Central Bank will increase efficiency in its internal automated systems.

A N N E X

Commentary for the main indicators

1. There are data discrepancies in actual nominal GDP and its expenditure components, real growth rates and deflators among the monetary policy programs for 2004 and 2003 and other publications of the Central Bank. Over 2003, the National Statistics Service (NSS) revised these indicators and published them in the report Socio-economic situation in Armenia, January-March and January-April, 2003 issues. The Central Bank used the revised data in preparing the program for 2004.
2. The 2002 indicators are still subject to revision and the 2003 indicators are the Central Bank estimations based on official data as of January-September and January-November 2003 (January-December 2003 indicator of real GDP growth of 13.9 % was published in final stage of preparation of the Program, with no respective adjustment in it, as that indicator little deviated from the Central Bank forecasts and would not considerably affect the forecasts for 2004).
3. The 2003 external and fiscal sectors indicators used in the monetary policy program 2004 and the 2002 external and fiscal sectors indicators used in the monetary policy program 2003 are preliminary data by the NSS and MoFE and the Central Bank estimations.
4. Aggregate and private sector disposable income indicators were calculated by the Central Bank.
5. Indicators of tables Broad Money Structure and Monetary Base Structure for the end of 2003 are preliminary and subject to revision. Figures used in section Development of the Banking System are not compatible with those provided in other sections and annexes of the Program because of different classification and grouping.

Macroeconomic indicator survey

	2001	2002	2003	2004
National income and prices (interest change)				
Real GDP index	109.6	112.9	114.6	107.0
GDP deflator	104.1	102.3	104.7	104.0
Consumer price index (period end)	102.9	102.0	108.6	103.0
Consumer price index (period average)	103.1	101.1	104.7	107.7
External sector				
Export of goods and services (share in GDP)	25.5	29.5	33.2	34.6
Import of goods and services (share in GDP)	46.2	46.8	51.0	49.5
Current account (excluding official transfers, share in GDP)	-12.9	-8.6	-9.3	-6.7
Current account (including official transfers, share in GDP)	-9.5	-6.2	-7.2	-5.1
Import coverage (by months)	4.0	4.7	4.2	3.8
Exchange rate (period average)	555.1	573.4	578.8	580.0
Exchange rate percentage change	2.9	3.3	0.9	0.2
Public sector				
Budget revenue (share in GDP)	20.0	19.8	18.4	18.5
Budget expenditure (share in GDP)	23.6	22.4	20.8	20.8
Budget deficit (share in GDP)	-4.7	-2.3	-1.5	-2.4
Capital investments and net credit (share in GDP)	4.7	4.1	4.3	4.0
Monetary sector				
Broad money growth (%) (M2X average)	27.0	6.8	22.9	17.6
Broad money velocity (GDP/M2X average)	7.7	8.3	8.1	7.7
Money multiplier (M2X)	2.2	2.0	2.0	2.1
Narrow money growth (%) (M2 average)	24.2	21.4	33.3	13.6
Narrow money velocity (GDP/M2 average)	16.2	15.4	13.9	13.6
Narrow money multiplier (M2)	1.04	1.08	1.15	1.19
Monetary base, % (average)	23.8	17.8	25.1	9.1

GDP expenditure component deflators and real growths

	2001	2002	2003	2004
Inflation (against previous December)	102.9	102.0	108.6	103.0
Inflation (average, against previous quarter)	103.1	101.1	104.7	107.7
Inflation (cumulative, against the same period of the previous year)	103.1	101.1	104.7	107.7
Deflators				
GDP deflator	104.1	102.3	104.7	104.0
Consumption deflator	102.4	101.2	104.7	106.3
Public	104.5	100.4	104.7	106.3
Private	102.2	101.3	104.7	106.3
Capital investments deflator	103.9	103.5	103.0	103.0
Public	103.9	103.6	103.0	103.0
Private	103.9	103.6	103.0	103.0
Export deflator	103.6	105.7	102.2	101.4
Import deflator	102.7	107.3	103.1	103.1
Exchange rate (AMD/USD)				
Period average	555.1	573.4	578.76	580.0
Percentage change (cumulative)	2.9	3.3	0.9	0.2
Percentage change index				
Real GDP	109.6	112.9	114.6	107.0
Consumption	107.1	108.5	108.0	104.2
Public	104.3	103.2	114.4	107.1
Private	107.5	109.1	107.4	103.9
Capital investments	116.3	118.3	134.7	95.3
Public	91.3	183.9	117.7	63.5
Private	113.7	104.0	141.3	105.5
Export of goods and services	119.9	126.3	132.1	114.4
Import of goods and services	101.4	109.0	127.0	104.4

GDP by expenditure components

	2001	2002	2003	2004
<i>Current market prices (mln drams)</i>				
Nominal GDP	1175877	1356983	1628721	1812005
Consumption	1232744	1353410	1531497	1697308
Public	132708	137575	164658	187447
Private	1100035	1215835	1366840	1509861
Capital investments	232329	284408	394990	388421
Public	40840	77699	94223	61660
Private	191490	206709	300767	326761
Export of goods and services	299538	399979	540128	626852
Import of goods and services	543036	634737	830440	897525
Statistical discrepancy	-45698	-46077	-7454	-3051
Net factor income	35270	50574	59159	65073
Net transfers	96575	99391	113831	113680
Private	56668	68031	80434	84680
Official	39907	31360	33397	29000
Gross national disposable income	1307722	1506948	1801710	1990758
Public sector disposable income	1167959	1301399	1566927	1773257
<i>Percentage change index</i>				
Nominal GDP	114.0	115.4	120.0	111.3
Consumption	109.7	109.8	113.2	110.8
Public	109.0	103.7	119.7	113.8
Private	109.8	110.5	112.4	110.5
Capital investments	120.8	122.4	138.9	98.3
Public	99.9	190.3	121.3	65.4
Private	126.5	107.9	145.5	108.6
Export of goods and services	124.2	133.5	135.0	116.1
Import of goods and services	104.2	116.9	130.8	108.1
Statistical discrepancy	1077.6	100.8	16.2	40.9

Balance of payments

(mln US dollars)

	2001	2002	2003	2004
Current account (including official transfers)	-200.5	-147.9	-202.7	-158.5
Current account (excluding official transfers)	-272.4	-202.6	-260.4	-208.5
Trade balance	-420.2	-368.8	-462.6	-426.1
Export	353.1	513.8	721.2	843.3
Import	-773.3	-883	-1183.8	-1269.3
Services (net)	-17.8	-40.7	-39.0	-40.6
Credit	186.5	183.8	212.0	237.5
Debit	-204.3	-224.5	-251.0	-278.1
Income (net)	63.5	88.2	102.2	112.2
Private transfers (net)	102.1	118.7	139.0	146.0
Official transfers (net)	71.9	54.7	57.7	50.0
Capital and financial account	201.5	226.2	234.8	144.5
Capital transfers	30.1	68.1	91.6	20.0
Foreign direct investments	69.9	110.7	160.2	80.0
Portfolio investments	-5.7	1.5	-0.2	0.0
Public sector (net)	62.6	54.7	-16.3	68.0
Disbursements	101.6	94.0	117.9	81.1
Amortization	-39.1	-39.3	-134.2	-13.1
Other capital	44.6	-8.8	-0.5	-23.5
Privatization account	12.8	-6.8	2.9	0.0
Net foreign assets of banks	-25.3	-31.5	-37.6	-30.0
Other private sector	57.2	29.4	34.2	6.5
Overall balance	1.0	78.3	32.1	-14.0
Change in gross international reserves (-growth)	-20.0	-81.7	-50.1	14.8
Change in gross international reserves (+growth)	7.3	12.1	3.6	-0.8
International Monetary Fund (net)	3.5	7.5	3.5	-6.4
Purchase/Disbursement	13.0	25.1	27.1	28.2
Repurchase/repayment	-9.5	-17.7	-23.6	-34.6
Other (net)	3.8	4.6	0.1	5.6
Financial gap	-11.7	8.7	-14.5	0.0
Error and omission	11.4	-8.6	6.7	0.0
Vertical review	-0.3	0.1	-7.7	0.0
Exchange rate (AMD/USD), period average	555.1	573.4	578.8	580.0

Export and import prices

(mln US dollars)

	2001	2002	2003	2004
Export				
Total	100.7	102.3	101.3	101.2
Investment commodities	102.1	100.1	100.0	100.0
Consumer goods	100.8	101.7	100.4	101.3
Diamond	100.3	96.9	100.0	100.0
Intermediate consumer goods	96.5	102.6	103.4	103.0
Exports, total (in dram terms)	103.6	105.7	102.2	101.4
Import				
Total	99.9	103.9	102.1	103.3
Investment commodities	99.7	93.6	100.0	100.0
Consumer goods	105.3	105.7	110.7	107.0
Intermediate consumer goods	95.9	98.4	102.9	103.0
Oil product	102.7	99.0	107.6	103.5
Diamond	102.9	112.9	100.0	100.0
Natural gas	98.4	94.8	100.0	100.0
Imports, total (in dram terms)	102.7	107.3	103.1	103.6
Exchange rate (period average)	555.1	573.4	578.8	580.0
Exchange rate (cumulative)	555.1	573.4	578.8	580.0
Exchange rate index (cumulative)	102.9	103.3	100.9	100.2

Cash flows of Central Bank foreign assets and liabilities (mln US dollars)

	2001	2002	2003	2004
Interest on Government loans	-9.9	-7.0	-7.0	-9.3
Interest on Russian loans	-5.9	-9.9	-2.6	0.0
Interest on Central Bank loans	-2.2	-1.5	-1.0	-1.1
IMF	-2.2	-1.5	-0.9	-1.1
KfW loans	0.0	-0.1	-0.1	0.0
Income on international reserves management	15.3	9.7	7.5	9.7
Interest on Georgian loan	0.4	1.1	0.4	0.5
Repayment of Georgian loan	0.0	0.0	0.0	0.0
Loans to Government	-3.2	14.2	34.8	-11.0
Multilateral (excluding IMF loan, net)	6.4	26.6	36.5	-9.3
Disbursement	14.4	35.1	42.8	0.0
SAC	14.4	35.1	42.8	0.0
Amortization	-7.9	-8.5	-6.3	-9.3
Bilateral	-9.7	-12.4	-1.7	-1.7
Disbursement	6.8	0.3	0.0	0.0
Amortization	-1.8	-12.6	-1.7	-1.7
Repayment of Russian loans	-14.7	0.0	0.0	0.0
Loans to CBA	7.3	12.1	3.6	-0.8
IMF loans	3.5	7.5	3.5	-6.4
Disbursement	13.0	25.1	27.1	28.2
Amortization	-9.5	-17.7	-23.6	-34.6
KfW loans	3.8	4.6	0.0	5.6
Disbursement	3.8	4.6	0.0	5.6
Amortization	0.0	0.0	0.0	0.0
Other	0.0	0.0	0.1	0.0
Lincy grants	11.3	50.1	46.4	0.0
Other grants	13.1	26.4	16.9	16.4
Conversion from privatization funds	12.8	8.8	3.7	0.0
Other conversions*	-18.9	-22.2	-53.4	-19.2
Change in gross international reserves	20.0	81.7	50.1	-14.3
Change in gross foreign liabilities	7.3	12.1	3.6	-0.3
Change in net foreign assets	12.7	69.6	46.5	-14.0
<i>Memorandum items (as of year end)</i>				
Privatization funds	3.6	10.4	8.2	8.2
Credit	32.9	15.6	0.0	0.0
Debit	-45.7	-8.8	-3.7	0.0
Gross international reserves (by program exchange rate)	330.4	431.2	503.7	488.8
Gross foreign liabilities	179.0	206.9	232.2	231.3
Net foreign assets (including KfW)	151.4	223.3	271.5	257.5

* Includes Central Bank interventions in the interbank market and conversions for Government (membership fee, etc).

Broad money

(mln drams)

	2001	2002	2003				2004				2004	
			QI	QII	QIII	QIV	2003	QI	QII	QIII		QIV
Net foreign assets (NFA)	81410	148902	141005	160010	179508	197755	193623	189813	191638	195405	203083	203083
Central Bank	84908	130616	116338	129437	143498	157807	153675	142905	141256	141561	145736	145736
Commercial banks	-3498	18286	24667	30573	36010	39948	39948	46908	50382	53844	57348	57348
Net domestic assets (NDA)	75935	53686	41678	34156	31816	35442	39574	38530	45543	52010	58464	58464
Domestic credit	103016	93437	83874	76343	78272	87564	87564	85874	94140	100154	106710	106710
Public sector	20054	9085	5560	-8422	-6601	-7418	-7418	-7348	-4467	-1384	-3414	-3414
Government	9396	963	-2317	-14641	-13083	-14606	-14606	-14536	-11655	-8572	-10602	-10602
Public organizations	10658	8122	7877	6219	6482	7188	7188	7188	7188	7188	7188	7188
Private sector	82962	84352	78314	84765	84873	94982	94982	93222	98607	101538	110124	110124
Other assets, net	-27081	-39751	-42196	-42187	-46456	-52122	-47990	-47343	-48598	-48143	-48246	-48246
Broad money (M2X, period end)	157345	202588	182683	194166	211324	233197	233197	228343	237180	247415	261547	261547
Currency in circulation	65037	88556	74801	76479	81184	91997	91997	86137	88637	92637	102637	102637
Dram deposits	18392	35341	31522	37328	40880	41233	41233	41239	44576	46811	46943	46943
FX deposits	73916	78691	76360	80359	89260	99967	99967	100967	103967	107967	111967	111967
Dram broad money (M2, period end)	83429	123897	106323	113807	122064	133230	133230	127376	133213	139448	149580	149580
Note.												
Broad money (M2X average)	153073	163517	189164	191334	206819	216704	201005	224099	229241	240427	251610	236344
Dram broad money (M2 average)	72582	88143	111861	111651	121719	124602	117458	127153	129145	136331	141014	133411
Broad money velocity (GDP/M2X, average) *	7.68	8.30	1.77	1.96	2.12	2.24	8.10	1.65	1.81	2.05	2.14	7.67
Dram broad money velocity (GDP/M2, average) *	16.20	15.40	2.98	3.31	3.63	3.92	13.87	2.89	3.16	3.64	3.88	13.58
Money multiplier (M2X)**	2.20	2.00	1.88	1.93	1.99	2.05	1.96	2.02	2.11	2.16	2.17	2.12
Dram multiplier (M2)**	1.04	1.08	1.11	1.13	1.17	1.18	1.15	1.15	1.19	1.23	1.22	1.19

Broad money

(percentage change)

	2001	2002	2003				2003	2004				2004
			QI	QII	QIII	QIV		QI	QII	QIII	QIV	
Net foreign assets (NFA)	34.5	82.9	-5.3	13.5	12.2	10.2	30.0	-2.0	1.0	2.0	3.9	4.9
Central Bank	13.5	53.8	-10.9	11.3	10.9	10.0	17.7	-7.0	-1.2	0.2	2.9	-5.2
Commercial banks	-75.5	622.8	34.9	23.9	17.8	10.9	118.5	17.4	7.4	6.9	6.5	43.6
Net domestic assets (NDA)	-15.7	-29.3	-22.4	-18.0	-6.9	11.4	-26.3	-2.6	18.2	14.2	12.4	47.7
Domestic credit	-9.1	-9.3	-10.2	-9.0	2.5	11.9	-6.3	-1.9	9.6	6.4	6.5	21.9
Public sector	-35.6	-54.7	-38.8	-251.5	21.6	-12.4	-181.7	0.9	39.2	69.0	-146.7	54.0
Government	1.0	-89.8	-340.6	-531.9	10.6	-11.6	1616.7	0.5	19.8	26.5	-23.7	27.4
Public organizations	-51.2	-23.8	-3.0	-21.0	4.2	10.9	-11.5	0.0	0.0	0.0	0.0	0.0
Private sector	0.9	1.7	-7.2	8.2	0.1	11.9	12.6	-1.9	5.8	3.0	8.5	15.9
Other assets, net	-16.4	-46.8	-6.2	0.0	-10.1	-12.2	-20.7	1.3	-2.6	0.9	-0.2	-0.5
Broad money (M2X, period end)	4.5	28.8	-9.8	6.3	8.8	10.4	15.1	-2.1	3.9	4.3	5.7	12.2
Currency in circulation	9.3	36.2	-15.5	2.2	6.2	13.3	3.9	-6.4	2.9	4.5	10.8	11.6
Dram deposits	12.5	92.2	-10.8	18.4	9.5	0.9	16.7	0.0	8.1	5.0	0.3	13.8
FX deposits	0.1	6.5	-3.0	5.2	11.1	12.0	27.0	1.0	3.0	3.8	3.7	12.0
Dram broad money (M2, period end)	8.8	48.5	-14.2	7.0	7.3	9.1	7.5	-4.4	4.6	4.7	7.3	12.3
Note:												
Broad money (M2X, average)	27.0	6.8	1.2	1.1	8.1	4.8	22.9	3.4	2.3	7.3	4.7	17.6
Dram broad money (M2, average)	24.2	21.4	6.4	-0.2	9.0	2.4	33.3	2.0	1.6	7.2	3.4	13.6
Broad money velocity (GDP/M2X, average) *	-10.2	8.0	-39.6	10.7	8.3	5.4	-2.4	-26.2	9.3	13.7	4.4	-5.4
Dram broad money velocity (GDP/M2, average) *	-8.2	-5.0	-20.6	11.3	9.5	8.1	-9.9	-26.2	9.2	15.1	6.5	-2.0
Money multiplier (M2X) **	2.5	-9.3	-5.5	2.9	3.1	3.2	-1.7	-1.4	4.0	6.8	0.4	7.8
Dram multiplier (M2) **	0.3	3.1	-0.7	1.6	4.0	0.8	6.5	-2.7	3.3	6.7	-0.8	4.1

* Money velocities are calculated based on quarterly seasonally adjusted indicators.

** Money multipliers are calculated using average quarterly indicators.

Monetary base

(mln drams)

	2001	2002	2003***				2004***				2004	
			QI	QII	QIII	QIV	2003	QI	QII	QIII		QIV
Net foreign assets, including KfW loans*	84908	130616	116338	129437	143498	157807	153675	142905	141256	141561	145736	145736
O/w KfW	3581	7447	7447	7447	7447	7447	8617	9670	11777	11777	11777	12170
Net foreign assets	88489	138063	123785	136884	150945	165254	162292	152576	153033	153338	157513	157906
Net domestic assets	-4539	-19343	-23007	-34053	-40083	-39221	-35089	-36124	-32366	-28073	-21351	-21351
Net lending	12123	681	-6065	-22077	-24367	-22907	-22907	-26599	-23010	-21154	-16273	-16273
Net claims on the banking system**	3855	10392	7500	6500	7278	8600	8600	6438	7946	7519	15230	15230
O/w KfW	3600	7200	7500	8100	8400	8700	8700	9670	11777	11777	11777	11777
Net claims on the Government	8268	-9711	-13564	-28577	-31645	-31507	-31507	-33037	-30956	-28673	-31503	-31503
Other assets, net	16662	-20024	-16943	-11976	-15716	-16314	-12181	-9525	-9356	-6919	-5078	-5078
Monetary base (period end)	80369	111273	93331	95384	103415	118586	118586	106782	108890	113488	124384	124384
Currency outside CBA	66692	92088	77965	79967	85537	96838	96838	89137	91637	95637	105637	105637
Correspondent and other accounts with CBA	13677	19185	15366	15417	17878	21748	21748	17645	17253	17851	18747	18747
Monetary base (period average)	69493	81834	100866	99117	103943	105538	102366	110684	108836	111189	115936	111661
Percentage change												
Net foreign assets, including KfW loans	13.5	53.8	-10.9	11.3	10.9	10.0	17.7	-7.0	-1.2	0.2	2.9	-5.2
Net domestic assets	-89.7	-326.2	-18.9	-48.0	-17.7	2.2	-81.4	-2.9	10.4	13.3	23.9	39.2
Net lending	4.3	-94.4	-990.6	-264.0	-10.4	6.0	3463.8	-16.1	13.5	8.1	23.1	29.0
Net claims on the banking system	15.7	169.6	-27.8	-13.3	12.0	18.2	-17.2	-25.1	23.4	-5.4	102.5	77.1
O/w KfW	128.6	100.0	4.2	8.0	3.7	3.6	20.8	11.2	21.8	0.0	0.0	35.4
Net claims on the Government	-0.3	-217.5	-39.7	-110.7	-10.7	0.4	-224.4	-4.9	6.3	7.4	-9.9	0.0
Other assets, net	-18.9	-20.2	15.4	29.3	-31.2	-3.8	39.2	21.8	1.8	26.0	26.6	58.3
Monetary base (period end)	11.0	38.5	-16.1	2.2	8.4	14.7	6.6	-10.0	2.0	4.2	9.6	4.9
Currency outside CBA	7.8	38.1	-15.3	2.6	7.0	13.2	5.2	-8.0	2.8	4.4	10.5	9.1
Correspondent accounts with CBA	30.0	40.3	-19.9	0.3	16.0	21.6	13.4	-18.9	-2.2	3.5	5.0	-13.8
12 month monetary base growth	11.0	38.5	29.0	28.2	28.6	6.6	6.6	14.4	14.2	9.7	4.9	4.9
Monetary base (period average)	23.8	17.8	7.1	-1.7	4.9	1.5	25.1	4.9	-1.7	2.2	4.3	9.1

* Loans from KfW are included in NFAs as foreign liabilities and are not included in item "Other assets, net".

** Loans to Central Bank from KfW are included in item "Net foreign assets" as foreign liabilities. Such funds lent to commercial banks by Central Bank are included in item "Bank liabilities".

*** In Q4 columns of item "Net foreign assets" assets are calculated based on program exchange rates of the year. In annual columns the assets are calculated based on actual exchange rates as of December of that year, which will be taken as program exchange rates for the next year. These differences are equally shown in item "Other items net".

Financial flows 2001 - 2004

	Domestic economy			External sector	Statistical deviation	Horizontal review
	Private	Public sector	Banking			
	1	2	3	4	5	6
Gross disposable income						
2001	1,167,959	139,763				
2002	1,336,201	170,743				
2003	1,607,717	193,994				
2004	1,773,257	217,501				
Consumption						
2001	-1,100,035	-132,708				
2002	-1,215,835	-137,575				
2003	-1,366,840	-164,658				
2004	-1,509,861	-187,447				
Capital investments						
2001	-191,490	-40,840				
2002	-206,709	-77,699				
2003	-300,767	-94,223				
2004	-326,761	-61,660				
Export of goods and non-factor services						
2001				-299,538		
2002				-399,979		
2003				-540,128		
2004				-626,852		
Import of goods and non-factor services						
2001				543,036		
2002				634,737		
2003				830,440		
2004				897,525		
Net factor income						
2001				-35,270		
2002				-50,574		
2003				-59,159		
2004				-65,073		
Net transfers						
2001				-96,575		
2002				-99,391		
2003				-113,831		
2004				-113,680		
1	Non-financial balance*					
2001	-123,567	-33,785		111,653	-45,698	0
2002	-86,343	-44,528		84,793	-46,077	0
2003	-59,890	-64,887		117,323	-7,454	0
2004	-63,365	-31,606		91,920	-3,051	0
2	Net lending by the Government					
2001	3,229	-3,229				0
2002	10,208	-10,208				0
2003	14,900	-14,900				0
2004	11,313	-11,313				0
3	Domestic non-banking funding to Government					
2001	-10,418	10,418				0
2002	-2,541	2,541				0
2003	-1,721	1,721				0
2004	-1,300	1,300				0
4	External funding of the Government					
2001		37,200		-37,200		0

	2002		36,210		-36,210		0
	2003		38,430		-38,430		0
	2004		37,647		-37,647		0
5	External funding of the private sector						
	2001	95,332			-95,332		0
	2002	116,076			-116,076		0
	2003	123,614			-123,614		0
	2004	63,734			-63,734		0
6	Change in net foreign assets of the banking system						
	2001			-20,880	20,880		0
	2002			-67,492	67,492		0
	2003			-44,721	44,721		0
	2004			-9,460	9,460		0
7	Domestic lending of the banking system						
	2001	772	-11,095	10,324			0
	2002	1,390	-10,969	9,579			0
	2003	10,630	-16,503	5,873			0
	2004	15,142	4,004	-19,146			0
8	Change in broad money						
	2001	-6,746		6,746			0
	2002	-45,243		45,243			0
	2003	-30,609		30,609			0
	2004	-28,350		28,350			0
9	Change in other items net						
	2001	269	-4,079	3,810			0
	2002	-16,886	4,216	12,670			0
	2003	-23,121	14,882	8,239			0
	2004	-255	-1	256			0
10	Vertical review**						
	2001	4,569	-4,570	1			0
	2002	-12,063	12,063	0			0
	2003	467	-467	0			0
	2004	-31	31	0			0

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

** Deviations from vertical review are due to the difference in indicator on lending to Government by the banking system, provided from bank balance sheets and state budget statistics.

Real GDP growth and GDP deflator forecast methodology

Real GDP growth was forecasted through a forecast of value added in net indirect taxes and certain sectors of the economy (industry, agriculture, construction, services). Forecast of real GDP growth was made by multiplying the real growth forecast rates for each sector by share of nominal value added of the relevant sector in GDP of 2003 to produce the sum, which represents real GDP growth rate for 2004:

$$(I_{-1}/GDP_{-1}) \times I + (A_{-1}/GDP_{-1}) \times A + (C_{-1}/GDP_{-1}) \times C + (S_{-1}/GDP_{-1}) \times S + (T_{-1}/GDP_{-1}) \times T = GDP,$$

where

- I* real industry growth rate forecast for 2004;
- A* real agriculture growth rate forecast for 2004;
- C* real construction growth rate forecast for 2004;
- S* real services growth rate forecast for 2004; and
- T* real net indirect taxes growth rate forecast for 2004.

Real growth of sectors of the economy other than services was forecasted by the exponential smoothing method, which represents an adaptive forecasting method. The use of this method is effective when existing time series are short, or the trends for the variable observed underwent structural changes and rendered unusable for regression analyses. Unlike forecasts from the regression models, which use fixed coefficients, forecasts from exponential smoothing methods are adjusted based on past forecast errors.

The method covers several approaches for forecast, which will be opted depending on specificity of existing series. The Holt-Winters multiplicative method, appropriate for series with a linear time trend and multiplicative seasonal variation, was used for the agriculture and construction areas. The recent trends in the agriculture and construction denoted that these sectors have had high seasonality and growth patterns. In forecasting growth in construction, the consideration was that there would be no foreign capital inflow into this sector over 2004. To this effect, the Lincy Foundation's disbursements have been removed since 2001 from the construction time series. After this, the forecast for 2004 was made, and the above disbursements were added to the 2001-2003 time series to produce the 2004 growths.

The forecast for industry growth rates used the double smoothing method that is appropriate for series with a linear trend. As opposed to trends in construction and agriculture, previous year's

trends in industry showed that this sector has had no high seasonality because export-oriented businesses hold a considerable share. But there are growth trends in this sector.

The Holt-Winters multiplicative methodology is as follows:

The smoothed series of the actual y_t series is denoted as \hat{y}_t , which is represented in the formula as follows:

$$\hat{y}_{t+k} = (a + bk) c_{t+k} \text{ where}$$

a a permanent component,

b trend,

c_t a multiplicative seasonal factor.

These three coefficients are defined by the following recursions:

$$a(t) = \alpha \frac{y_t}{c_t(t-s)} + (1-\alpha)(a(t-1) + b(t-1)),$$

$$b(t) = \beta(a(t) - a(t-1)) + (1-\beta)b(t-1),$$

$$c_t(t) = \gamma \frac{y_t}{a(t)} + (1-\gamma)c_t(t-s),$$

where $0 < \alpha, \beta, \gamma < 1$ are smoothing factors, s is the seasonal frequency. In the outcome, the forecasts are computed by:

$$\hat{y}_{t+k} = (a(T) + b(T)k) c_{T+k-s}$$

where seasonal factors are used from the last s estimates.

The double smoothing method lies in the double smoothing of the actual series. Double smoothing of series y is defined by the following recursions:

$$S_t = \alpha y_t + (1-\alpha) S_{t-1}$$

$$D_t = \alpha S_t + (1-\alpha) D_{t-1},$$

where S denotes the series smoothed once, D denotes the smoothed S , i.e. the double smoothing of the actual series. Here, α ($0 < \alpha \leq 1$) is a smoothing factor, and the lesser the value of it, the smoother the forecasted series will be. The above formula can be summed up as follows:

$$S_t = \alpha \sum_{s=0}^{t-1} (1-\alpha)^s y_{t-s}$$

The forecasted series \hat{y}_{T+k} is computed as:

$$\begin{aligned} \hat{y}_{T+k} &= \left(2 + \frac{\alpha k}{1-\alpha}\right) S_T - \left(1 + \frac{\alpha k}{1-\alpha}\right) D_T = \\ &= 2S_T - D_T + \frac{\alpha}{1-\alpha} (S_T - D_T)k \end{aligned}$$

This formula shows that the double smoothed forecasted series lie on linear trend with intercept $2S_T - D_T$ and slope $\frac{\alpha}{1-\alpha}(S_T - D_T)$.

The results of the forecasts made by these methods are as follows:

Coefficients	The real growths forecasts, 2004		
	Industry	Agriculture	Construction
α	114.2	102.5	106.0
β	0.36	0.98	0.22
γ	0.0	0.0	0.09
	-	0.0	0.0

Here, α is the coefficient of adjustment, the values of β and γ indicate estimations for the trend and seasonality components. The zero values of β and γ will imply that the trend and seasonality components are estimated as constant, that is, the proportions of the growth trends and seasonality remain unchanged over the time. For the industry and construction, relatively lower values of α denote that behaviors of previous year and the rest of the years do affect development of these sectors, but importance of impact of preceding years however is trending downward. In other words, impact of the first year preceding is greater than that of the second. Whereas for agriculture, relatively higher value of α denotes that development of the sector mostly carries previous year's impact.

Forecast for the real GDP growth and deflator, by sectors of the economy

Yielding	Indicators	Value added (mln drams)					GDP
		Industry	Agriculture	Construction	Services	Net taxes	
1	January-December 2003	352623.7	340205.7	267393.1	517616.1	139267.0	1619406.3
2 = 1/GDP nom.	Share in GDP	0.22	0.21	0.17	0.32	0.09	
3	Forecasted real growths, 2004	114.2	102.5	106.0	105.0	109.0	107.0
4 = (3 - 100) x 2	Contribution to growth	3.1	0.5	1.0	1.6	0.8	7.0
5 = 1 x 3/100	Real GDP	402696.2	348710.8	283436.7	543496.9	151833.0	1730173.6
6 = 5/GDP real	Share in GDP	0.23	0.20	0.16	0.31	0.09	
7	Forecasted deflators, 2004	105.5	103.0	103.0	102.6	109.0	104.0
8 = 6 x (7 - 100)	Contribution to deflator	1.28	0.60	0.49	0.82	0.79	4.0
9 = 1 x 3 x 7/10000	Nominal GDP	424844.5	359172.1	291939.8	557627.8	165498.0	1799082.2

In forecasting services, the last two years' developments of growth of the sector and GDP were considered. Growth rates in services sector were consistent with economic growth, but of a lesser amount. It was seen that real growth in services in period 2002-2003 has been averaged at 0.7 of real GDP growth. The Central Bank estimates that the same trends will persist throughout the program period.

With these conditions, services may report 5 % real growth in 2004 if there is 7 % real economic growth over 2004.

Here, net indirect taxes come in as an exogenous factor, and this component was calculated using the data specified in the state budget law, 2004.

The exponential smoothing method was used to forecast also GDP deflator; deflators of the above sectors were forecasted individually, then these were multiplied by the share of value added of any given sector in GDP for the year to calculate the total amount, which represented GDP deflator.

Real private consumption forecast methodology

Private consumption was forecasted as a function of GDP. Forecasts were made by the ADL (Autoregressive Distributed Lags) model using the indicators adjusted through the Additive Smoothing Method (see Table 4.1). The unadjusted figures were calculated using seasonal factors after forecasts.

Results of regression analysis of real GDP and real private consumption expenditures*

Table 4.1

Dependent variable \ Independent variable	C intercept	First difference of real GDP	Real private consumption (previous quarter)	Real GDP (previous quarter)	Ratio of determination (R ²)	Durbin-Watson statistics
The first difference of real private consumption expenditures	1.547 (1.47) **	0.812 (6.02)	-0.878 (-3.12)	0.753 (3.14)	0.85	1.74

* All variables are expressed in logarithms.

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

Real private capital investments forecast methodology

Estimation of dependence between real private capital investment and real GDP was also made by the ADL (Autoregressive Distributed Lags) regression model using the indicators adjusted by the Additive Smoothing Method (see Table 4.2). The unadjusted indicators were calculated using seasonal factors after forecasts.

Results of regression analysis of real GDP and real private capital investments*

Table 4.2

Dependent variable \ Independent variable	C intercept	First difference of real GDP	Real capital investments (previous quarter)	Real GDP (previous quarter)	Ratio of determination (R ²)	Durbin-Watson statistics
The first difference of real private capital investments	-2.169 (-0.87) **	1.564 (5.08)	-1.112 (-4.23)	1.112 (3.29)	0.66	1.60

* All variables are expressed in logarithms.

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

Fiscal indicators programming methodology

As official actual indicators of the consolidated budget 2003 were lacking, the Central Bank estimations of consolidated budget were used in the monetary program. These estimations were based on preliminary indicators of the actual state budget performance, provided by the MoFE, and strictly primary data on the local and social security fund budgets.

The source for indicators of consolidated budget 2004 was the draft to Armenian Law on "State Budget 2004". Quarterly distribution of the 2002-2003 budgets served a basis for setting quarterly proportions of the fiscal indicators for 2004.

Fiscal impulse indicator

The fiscal impulse indicator was used to evaluate fiscal policy impact on overall demand and, therefore, prices. The fiscal impulse indicator represents the sum of budget revenue impulse and expenditures impulse, and is calculated by the formula as follows:¹

$$FI_t = FI_t^r + FI_t^e = (t_0 - \Delta T_t / \Delta Y_t) * \Delta Y_t + (\Delta G_t / \Delta PY_t - g_0) * \Delta PY_t$$

where

FI , FI_t^r , FI_t^e fiscal, revenue and expenditure impulses, respectively,
 t_0 , g_0 revenue/GDP and Expenditures/GDP ratios, respectively, in the base period,
 T_t , G_t revenue and expenditure levels, respectively, in the current period,
 Y_t , PY_t nominal and potential GDP levels, respectively, in the current period.

According to estimated fiscal impulses for 2003 and 2004, the following results were produced:

Indicator	Revenue impulse	Expenditures impulse	Fiscal impulse
2003			
Annual (preliminary)	0.4	1.0	1.4
2004			
Annual (program)	-0.1	-2.1	-2.2

¹ Detailed methodology of calculation is provided in annexes of the Monetary Policy Program 2000.

Indicators in the table show that execution of the budget program over 2004 will result in contraction of aggregate demand by 2.2 %².

² *Impulse indicators in the table are calculated as a percentage in GDP.*

Methodology to forecast movement in "Goods" and "Services" of BoP current account

Quarterly data* on foreign trade turnover of the Republic of Armenia serve a basis to forecast items "Goods" and "Services" of current account balance of payments by commodity and service (inclusive of the period from 1996 through Q3, 2003). For forecast, commodities were grouped as follows:

1. Forecast of the volume of commodities of the first group relied on trends of previous year. It included calculation of increase/decrease rate for each commodity in the group. This indicator was then multiplied by the 2003 data to produce the 2004 data. Forecast considered high economic growth and investments in recent years. The above method was used to assess volume of the commodities as follows:
 - Fats and oils;
 - Mineral production;
 - Goods of chemical production;
 - Plastic, rubber;
 - Skins and articles of leather;
 - Wood and articles of wood;
 - Paper and articles of paper;
 - Textile articles;
 - Footwear, umbrellas, headgear;
 - Stone, plaster, cement;
 - Machinery and equipment;
 - Furniture, toys; and
 - Works of art and antiques.
2. The second group included commodities that are manufactured locally and are competitive in world markets. There is anticipation that exports of these commodities will grow, based on trends of previous years. These commodities are:
 - Animal and products of animal origin;
 - Products of vegetable origin;
 - Products of prepared food;
 - Machinery and apparatus;
 - Transport means; and
 - Base metals and articles thereof.
3. The third group covered commodities that would have turnover depending on public agreements or international private contracts. The group included item "Precious stones and metals", which is expected to report growing exports and imports in 2004.

* Commodity turnover data are taken from the NSSA bulletin and presented in million of US dollars.

For the imports forecast, commodities included in imports were grouped as follows:

1. *Consumer goods*, which include:
 - Animal and products of animal origin;
 - Products of vegetable origin;
 - Products of prepared food; and
 - Footwear, umbrellas, headgear.

Imports of consumer goods were forecasted as a function of private sector's gross national disposable income, its previous year's level and nominal exchange rate. Forecasts were made by the ADL (Autoregressive Distributed Lags) model using the indicators adjusted through the Additive Smoothing Method. The unadjusted figures were calculated using seasonal ratios after forecasts. The results of the regression analysis for consumer goods imports are presented in Table 6.1.1.

Table 6.1.1. Results of the regression analysis for the consumer goods imports

Independent variable \ Dependent variable	C intercept	GNDI private (-3) lag	Previous quarter indicator of consumer goods imports	GNDI private	Nominal exchange rate	Ratio of determination (R ²)	Durbin-Watson statistics
Consumer goods imports	62.1 (2.73) *	0.037 (2.05)	0.395 (2.73)	0.036 (2.63)	- 0.142 (- 3.13)	0.7 6	2.29

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

2. *Ores and minerals*, which include:
 - Mineral products;
 - Goods of chemical production;
 - Plastic, rubber;
 - Skins and articles of leather;
 - Wood and articles of wood; and
 - Paper and articles of paper.

Imports of ores and minerals were forecasted as a function of GDP. Forecasts were made by the ADL model.

Table 6.1.2. Results of the regression analysis for the ores and minerals imports

Dependent variable	Independent variable	C intercept	GDP (net)	Ratio of determination (R ²)	Durbin-Watson statistics
Imports of ores and minerals		70.3 (20.57)*	0.066 (7.82)	0.74	1.79

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

4. *Investment goods*: forecast for these goods was based on trends of previous years and judgment of economic activity for 2004. Investment goods include:

- Machinery and equipment; and
- Machinery and apparatus.

4. *Precious stones and metals* were forecasted in consideration of volumes of exports of these goods.

5. *Other goods*, which include commodity groups not included in the above items. Forecast for the exports was based on trends of previous years. These goods are:

- Products of vegetable origin;
- Textile articles;
- Transport means;
- Furniture, toys; and
- Works of art and antiques.

These forecasts for individual commodities are presented in data Exports (FOB) and Imports (CIF), as the existing statistics on commodities is expressed in FOB prices for exports and CIF prices for imports. The monetary policy program relied on these data to evaluate the Exports (credit) and the Imports (debit) data in the following manner:

- Balance of payments data for 2001-2003 were used to calculate the ratios Exports (credit)/Exports (FOB) and Imports (debit)/Imports (CIF). Forecast for item "Commodities" for 2004 is based on average ratio of 2001-2003. Calculation is provided in the table; and
- Forecasted Exports (FOB) of USD 824 million and Imports (CIF) of USD 1426 million were multiplied by the relevant ratios above to produce evaluation of the amount of Exports (credit) of USD 843 million and Imports (debit) of USD 1270 million.

Table 6.1.3. Methodology to evaluate the Exports (credit) and Imports (debit) data using the Exports (FOB) and Imports (CIF) data

Indicators	2001	2002	2003	2004
Exports (credit)	353.1	514	721	843
Exports (FOB)	342	505	708	824
Ratio	1.033	1.017	1.019	1.023

Indicators	2001	2002	2003	2004
Imports (debit)	773	883	1184	1270
Imports (CIF)	877.4	987	1335	1426
Ratio	0.881	0.894	0.887	0.891

Forecast for exports and imports of non-factor services was made using the data on non-factor services of the BoP of Armenia (mln US dollars, see Table 2.4). Non-factor services were grouped as follows:

- Transport;
- Travel;
- IT services; and
- Others.

Forecast for exports of non-factor services was made as follows. For each sector, the forecast covered the exports based on previous trends and considering the dynamics of these exports. Forecast considered also the development prospects. Exports of all four groups were then added to achieve assessment of total exports of non-factor services.

Imports of non-factor services were forecasted as a function of imports of goods and private sector's gross national disposable income. The results of the regression analysis are presented in Table 6.1.4.

Table 6.1.4. Results of the regression analysis for the services imports

Independent variable	C intercept	Imports of goods	C intercept	Ratio of determination (R ²)	Durbin-Watson statistics
Imports of services	19.0 (5.38) *	0.115 (6.38)	0.012 (2.89)	0.87	1.81

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

Table 6.1.5. Exports (mln US dollars)

	2001	2002	2003	2004	02/01	03/02	04/03
1 Animal and products of animal origin	1.2	2.7	6.4	7.2	67.6%	139.1%	12.5%
2 Products of vegetable origin	1.3	1.8	2.8	3.3	40.9%	57.4%	16.9%
3 Oils and fats of animal and vegetable origin	0.1	0.0	0.0	0.0	-98.9%	2571.1%	45.1%
4 Products of prepared food	48.0	54.9	64.9	72.0	14.4%	18.3%	10.9%
5 Mineral production	37.9	42.4	46.3	51.2	13.4%	9.2%	10.5%
6 Goods of chemical production	2.8	1.9	2.7	3.3	-32.0%	38.3%	21.4%
7 Plastic, rubber	13.1	6.4	3.6	7.0	-50.9%	-43.8%	93.8%
8 Skins and articles of leather	2.1	0.6	1.0	1.9	-71.3%	72.2%	83.4%
9 Wood and articles of wood	0.9	1.3	1.5	1.6	42.9%	16.6%	6.6%
10 Paper and articles of paper	1.3	0.7	0.7	1.1	-43.5%	-1.0%	57.2%
11 Textile articles	24.3	28.7	28.4	28.0	17.8%	-0.9%	-1.4%
12 Footwear, umbrellas, headgear	0.3	0.4	0.4	0.7	21.2%	3.1%	98.3%
13 Stone, plaster, cement	1.6	3.0	2.0	3.2	85.4%	-32.3%	61.0%
14 Precious and semi-precious stones, metals and articles	122.8	259.2	378.3	455.7	111.0%	46.0%	20.4%
15 Base metals and articles thereof	43.4	44.8	90.8	97.0	3.0%	102.8%	6.9%
16 Machinery and equipment	28.5	21.4	21.7	24.3	-24.9%	1.3%	12.3%
17 Transport means	2.4	15.7	17.5	21.9	543.9%	11.4%	25.4%
18 Machinery and apparatus	8.8	19.2	35.8	41.6	118.9%	86.3%	16.1%
19 Industrial manufacture	0.8	1.4	2.4	2.9	90.4%	65.3%	23.2%
20 Works of art and antiques	0.3	0.8	0.6	0.3	128.9%	-24.4%	43.0%
Total (FOB)	341.8	507.2	707.8	824.3	48.4%	39.6%	16.5%
Total (credit)	353.1	515.8	721.2	843.3	46.1%	39.8%	16.9%

Table 6.1.6. Imports (mln US dollars)

	2001	2002	2003	2004	02/01	03/02	04/03
1 Animal and products of animal origin	30.8	27.9	35.6	47.0	-9.4%	27.6%	31.9%
2 Products of vegetable origin	85.2	74.5	71.9	65.4	-12.6%	-3.4%	-9.1%
3 Oils and fats of animal and vegetable origin	19.5	18.4	26.9	40.0	-5.9%	46.1%	48.8%
4 Products of prepared food	76.9	79.1	92.0	106.7	2.9%	16.2%	16.0%
5 Mineral production	188.2	174.3	193.3	206.0	-7.4%	10.9%	6.6%
6 Goods of chemical production	65.1	63.0	88.9	82.0	-3.3%	41.1%	-7.8%
7 Plastic, rubber	22.5	22.3	29.2	28.5	-0.9%	31.3%	-2.5%
8 Skins and articles of leather	5.8	1.8	1.2	2.3	-68.9%	-36.3%	100.0%
9 Wood and articles of wood	5.9	7.2	9.2	10.1	21.4%	28.3%	9.6%
10 Paper and articles of paper	24.5	18.5	22.0	23.5	-24.3%	18.4%	7.0%
11 Textile articles	36.0	35.6	40.2	39.0	-0.9%	12.7%	-2.9%
12 Footwear, umbrellas, headgear	6.0	4.4	5.9	10.0	-26.2%	33.1%	69.7%
13 Stone, plaster, cement	15.4	19.4	23.8	23.2	25.7%	22.8%	-2.7%
14 Precious and semi-precious stones, metals and articles	106.8	213.5	343.5	412.0	100.0%	60.8%	20.0%
15 Base metals and articles thereof	36.1	55.7	90.4	95.1	54.5%	62.2%	5.3%
16 Machinery and equipment	88.4	103.5	127.2	119.0	12.9%	27.6%	-6.5%
17 Transport means	25.9	40.2	79.6	61.5	55.2%	97.9%	-22.7%
18 Machinery and apparatus	27.0	20.6	37.7	40.0	-23.6%	83.1%	6.1%
19 Industrial manufacture	11.5	11.0	16.0	14.8	-4.6%	45.3%	-7.3%
20 Works of art and antiques	0.0	0.0	0.3	0.3	55.4%	1324.4%	-23.5%
Total (CIF)	877.4	991.1	1334.8	1426.3	12.5%	35.2%	6.9%
Total (debit)	773.3	882.5	1184.0	1270.4	14.1%	34.2%	7.3%

Real effective exchange rate

The real effective exchange rate for Armenian economy will be calculated by a formula as follows:

$$REER_i = \prod_{i \neq j} \left[\frac{ER_i \times CPI_i}{ER_j \times CPI_j} \right]^{W_{ij}} \quad \text{where,}$$

- II* product,
REER real effective exchange rate of i country,
CPI consumer price indices of i and j countries,
ER direct nominal exchange rates of i and j countries in US dollar (e.g. AMD 1 or RUR 1 presented in US dollars),
W_{ij} competitive weights, which are based on volume of trade turnover of i and j countries, and are assessed by a formula as follows:

$$W_{ij} = \frac{Ex_{ij} + Im_{ij}}{Ex_i + Im_i} \quad \text{where,}$$

- Ex_{ij}, Im_{ij}* trade turnover between i and j countries, and
Ex_i, Im_i volume of exports and imports of i country.

These formulas show that increase in consumer price index and nominal exchange rate of a country or their decrease in partner countries would appreciate REER of the present country, which implies better terms for imports, and worse, for exports.

The REER for Armenian dram was assessed using data on average weight of the countries involved in foreign trade turnover in period 1997-2001. In assessment, the humanitarian aid, gas and oil product values were excluded from imports as fuel prices are considered relatively inelastic to price changes.

The weights for calculation of real exchange rate and the country impact for the period 1995-2003 are provided in Table 6.2.1.

Table 6.2.1. Weights for calculation of real effective exchange rate and country impacts

Indicator	1996	1997	1998	1999	2000	2001	2002	2003	2004**	Weights
REER (1995=100)	101.6	96.1	101.1	102.9	100.5	96.0	86.5	86.46	77.74	
	1.6%	-5.4%	5.2%	1.7%	-2.2%	-4.5%	-9.9%	-	-1.4%	
								10.1%		
Armenia's inflation	18.8%	13.9%	8.8%	0.7%	-0.8%	3.2%	1.1%	4.7	7.7	
Dram exchange rate	-1.8%	-	-2.9%	-5.6%	-0.8%	-2.8%	-3.2%	-0.9%	-0.2%	
		15.7%								
Partner countries inflation	20.0%	12.3%	14.1%	22.4%	11.3%	11.7%	10.1%	-9.2%	-7.7%	
France	0.1%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	-0.1%	-0.1%	3.3%
Germany	0.1%	0.2%	0.1%	0.1%	0.2%	0.2%	0.1%	-0.1%	-0.1%	8.7%
Netherlands	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	-0.1%	-0.1%	2.7%
Italy	0.2%	0.1%	0.1%	0.1%	0.1%	0.2%	0.1%	-0.1%	-0.1%	5.8%
United Kingdom	0.2%	0.2%	0.2%	0.1%	0.2%	0.1%	0.1%	-0.2%	-0.2%	7.0%
Switzerland	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	4.7%
Iran	5.1%	3.2%	3.5%	3.8%	1.9%	2.6%	2.7%	-3.3%	-3.2%	20.3%
Russia	10.0%	3.4%	5.3%	15.1%	4.7%	4.8%	3.6%	-3.3%	-2.9%	25.2%
USA	0.4%	0.3%	0.2%	0.3%	0.4%	0.4%	0.2%	-0.3%	-0.2%	13.3%
Turkey	5.2%	5.4%	5.5%	4.4%	3.9%	3.7%	3.4%	-2.0%	-1.1%	9.0%
Partner countries' exchange rate	-8.3%	-	-	-	-	-7.9%	-2.2%	-4.4%	-0.6%	
		12.5%	16.9%	36.8%	11.8%					
France	-0.1%	-0.4%	0.0%	-0.1%	-0.5%	-0.1%	0.2%	-0.6%	-0.3%	3.3%
Germany	-0.4%	-1.2%	-0.1%	-0.4%	-1.3%	-0.3%	0.4%	-1.6%	-0.7%	8.7%
Netherlands	-0.1%	-0.4%	0.0%	-0.1%	-0.4%	-0.1%	0.1%	-0.5%	-0.2%	2.7%
Italy	0.3%	-0.6%	-0.1%	-0.3%	-0.8%	-0.2%	0.3%	-1.0%	-0.5%	5.8%
United Kingdom	-0.1%	0.3%	0.1%	-0.2%	-0.4%	-0.4%	0.3%	-0.6%	-0.6%	7.0%
Switzerland	-0.2%	-0.8%	0.0%	-0.2%	-0.5%	0.0%	0.4%	-0.7%	-0.3%	4.7%
Iran	0.0%	0.0%	0.0%	0.0%	-0.1%	0.1%	0.0%	0.7%	0.6%	20.3%
Russia	-2.2%	-3.2%	-	-	-3.4%	-0.9%	-1.8%	-0.4%	0.5%	25.2%
			11.1%	29.4%						
USA	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	13.3%
Turkey	-5.2%	-5.8%	-5.1%	-4.3%	-3.7%	-6.0%	-2.1%	0.1%	0.9%	9.0%

** 2004 forecasts are based on the indicators of the "World Economic Outlook", September 2003 edition and the Central Bank estimations.

Exports and imports price forecast methodology

Forecast for exports and imports prices was made using the BEC (Broad Economic Classification) classification, which enables a review of the commodity groups according to their economic importance.

Table 6.3.1. BEC classification group weights in imports

	1998	1999	2000	2001	2002
Consumer commodities	22.4%	27.6%	24.5%	28.7%	21.4%
Ores and minerals	33.8%	41.3%	36.1%	36.0%	36.2%
Investment goods	6.7%	8.9%	7.3%	5.3%	7.0%
Petrol	10.9%	8.2%	8.9%	11.4%	9.4%
Diamond	10.4%	9.4%	12.0%	9.9%	19.7%
Natural gas	15.8%	4.6%	11.2%	8.6%	6.3%

Table 6.3.2. BEC classification group weights in exports

	1998	1999	2000	2001	2002
Consumer commodities	24.0%	23.2%	30.5%	25.8%	22.3%
Ores and minerals	42.5%	46.6%	44.9%	40.2%	34.8%
Investment goods	4.2%	5.3%	5.8%	6.8%	3.6%
Diamond	29.3%	25.0%	18.8%	27.2%	39.2%

Petrol, diamond, and natural gas were separated from total imports, as prices on petrol are directly linked to international prices, and prices in international futures contracts served as a basis for forecast; prices on natural gas are determined by interstate agreements thus it remained unchanged for forecast; and prices on diamond are also constant as it is imported for reprocessing and further export.

Previous trends in investment and raw material commodity groups serve as a basis for forecast, where prices on investment goods (machinery and equipment) are constant, while prices on raw material commodities trend upward that is consistent with prices at world commodities exchanges.

Forecast for prices on consumer goods relied on the methodology of calculation of unit value as per partner countries. According to

the methodology, export and import unit values of consumer goods are broadly determined by inflation and exchange rate levels in the partner countries by weighing through the formula of geometric mean.

Because these countries are positioned differently in the exports and imports structure, the Central Bank used different methods for forecast. Thus, if there is no strict country concentration in the imports of consumer goods, and it may be forecasted through a classic unit value calculation, about 60% of exports of consumer goods accounts for the USA. Therefore, forecast for export prices on consumer goods relied on inflation in the USA alone, under a stable exchange rate. Forecast for import prices on consumer goods relied on the shares, inflation and exchange rates of the partner countries for 2001, as provided below.

Table 6.3.3. Partner country share in imports of consumer goods in 2001 and forecasts for 2004

Country	Weight	Inflation	Exchange rate	Impact
Russia	17.4%	12.4%	-1.9%	1.7%
UAE	13.6%	0.0%	0.0%	0.0%
USA	11.4%	1.3%	0.0%	0.1%
Iran	10.3%	17.0%	-3.0%	1.4%
United Kingdom	9.0%	2.5%	8.0%	0.9%
Panama	8.2%	0.0%	0.0%	0.0%
Ukraine	7.8%	5.3%	-0.2%	0.4%
Germany	6.3%	0.6%	8.2%	0.6%
Switzerland	4.7%	0.5%	5.9%	0.3%
Turkey	4.3%	13.4%	-10.0%	0.1%
France	3.6%	1.7%	8.2%	0.4%
Italy	3.4%	2.0%	8.2%	0.4%
Addition: European Union	13.2%	1.6%	8.2%	0.7%
Total	100.00%	5.4%	1.1%	7.0%

In the country shares, one will observe the so called "third country effect", when goods are imported from a country that is not the manufacturer of the goods (Panama, UAE). These countries were therefore viewed as "fictitious", keeping their inflations and exchange rates on a constant level. The inflation and exchange rate data of other countries were taken from the IMF International Financial Statistics database, and the data of the IMF 'World Economic Outlook' were used in estimations.

In the outcome, prices of imports and exports of commodity groups in dollar terms are weighted, which is then multiplied by the average quarterly AMD/USD exchange rate to produce the exports and imports prices in dram terms.

**Comparative analysis for actual and rule-
calculated
monetary bases**

Monetary base forecasts for 2004, and its actual indicators of previous years are put into comparison with the McCallum Base Money rule-calculated monetary base indicators.*

The above rule as a formula is 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 logarythm of the level of monetary base, Y and Y* are the logarythms of actual and potential GDP levels, respectively. All indiactors are taken on a quarterly basis.

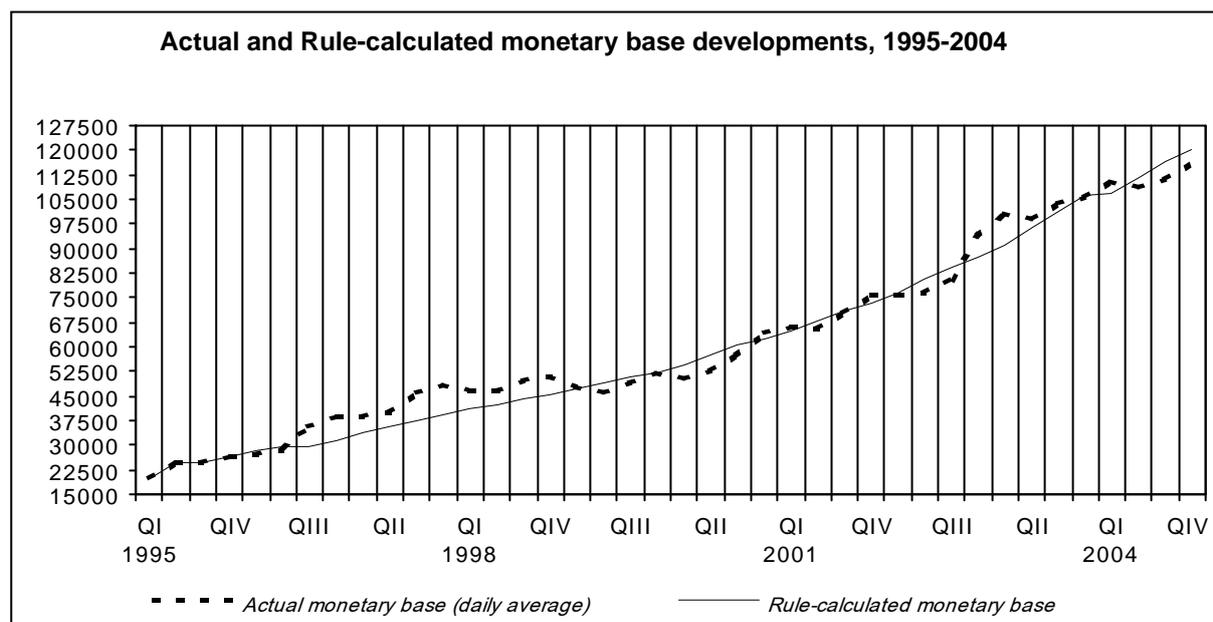
As it is seen, growth of monetary base is a function of the following three variables:

1. α is a constant, which is equal to potential GDP growth. Potential growth of nominal GDP (α) was evaluated using the trend approach, and it made up 2.84% quarterly.
2. The second component is set to adjust the growth of the monetary base according to the change in the smoothed money velocity. McCallum's proposal is to calculate it for each quarter using average change in behavior of previous 4 years. Such a long period for averaging is used because the smoothing should reflect impact of institutional, other than cyclical, changes on velocity of money.
3. The third factor (λ coefficient) will make sure there is a feedback between GDP cyclical changes and the monetary policy. It accepts values placed within the range 0;1, and ensures dynamic stability and equilibrium of the Rule. McCallum has assessed the optimal value of λ coefficient to be 0.25.
4. Potential GDP (Y*) was calculated by a formula as follows:

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

Where Y and Y* are the logarithms of actual and trend GDPs.

* See Andrew G. Haldane, Bennett T. McCallum, Chris Salmon "Base Money Rules in the United Kingdom", Issued by the Monetary Analysis Division, Bank of England, 1996.



As noted above, the monetary base of 2003 mostly outstripped the Rule-calculated indicator. This is mainly attributable to the spending of SAC and Lincy Foundation's funds by the Government. In 2004, the Central Bank is planning that monetary base will grow somewhat slower versus growth of Rule-calculated monetary base. In view of declining GDP growth rates over 2004 and high growth of monetary base over 2003, such policy will offset probable inflationary pressures. Under these circumstances, actual and Rule-calculated indicators of growth of monetary base for a two-year period nearly converge 36.5 % and 38.8 %, respectively.

Actual and rule-calculated monetary bases and nominal GDP developments in 1996 - 2004

Table 7.1

Year	Nominal GDP (actual)	Monetary Base (actual)	Nominal GDP (Rule)	Monetary Base (Rule)
2000	4.4	15.1	14.7	18.0
2001	14.0	23.8	15.1	17.6
2002	16.3	17.2	14.7	18.7
2003	20.0	25.1	13.5	20.3
2004	11.3	9.1	12.4	15.4

Key monetary indicators forecast methodology

Forecast for dram broad money for 2004 was made through an Autoregressive Distributed Lags (ADL) model. A regression equation underlying the analysis is as follows:

$$M2_t = c + \alpha_1 M2_{t-1} + \beta_0 GDP_t + \beta_1 GDP_{t-1} + \varepsilon_t \quad (1)$$

where,

M2 is real dram broad money,

GDP is real GDP.

Some simple mathematic modifications changed the equation, as follows:

$$\Delta M2_t = c + \beta_0 \Delta GDP_t - (1 - \alpha_1) M2_{t-1} + (\beta_0 + \beta_1) GDP_{t-1} + \varepsilon_t \quad (2)$$

Before modification, the review of the time series stationarity has revealed that each of these series is first order integrable on the first order I (1). In other words, the first difference time series $\Delta M2$, ΔGDP , which have been included in the equation above, are stationary I(0). The stationarity has been tested by Dickey-Fuller test. Below are the results of the test for the time series $\Delta M2$, ΔGDP :

<u>$\Delta M2$</u>			
ADF Test	-	1% Critical Value*	-3.8067
Statistics	5.043469	5% Critical Value	-3.0199
		10% Critical Value	-2.6502

<u>ΔGDP</u>			
ADF Test	-	1% Critical Value*	-3.8067
Statistics	10.52397	5% Critical Value	-3.0199
		10% Critical Value	-2.6502

The advantage of the model is that in addition to ΔGDP variable that describes short term developments of dram broad money, the equation has considered the components describing also long term correlation. Before estimating the model, existence of cointegration between the variables was tested. For simplicity, equation (2) may

be represented in terms of the Error Correction Model equation, as follows:

$$\Delta M2_t = \beta_0 \Delta GDP_t - (1 - \alpha_1) \left[M2_{t-1} - \frac{c}{(1 - \alpha_1)} - \frac{(\beta_0 + \beta_1)}{(1 - \alpha_1)} GDP_{t-1} \right] + \varepsilon_t \quad (3)$$

In fact, the model shows that a change in dram broad money exerts influence on the current change in real GDP and an error correction component in brackets. This component equals zero in case of long term equilibrium. It will be non-zero in case of disequilibrium, and the coefficient $(1 - \alpha_1)$ shows the speed of adjustment.

Results of the regression analysis*

Table 8.1

Independent variable	First difference of real GDP (ΔGDP)	Real dram broad money indicator of previous quarter ($M2_{t-1}$)	Real GDP indicator of previous quarter (GDP_{t-1})	C intercept	Coefficient of determination R^2
Dependent variable					
The first difference of real dram broad money ($\Delta M2$)	0.294 (9.93) **	-0.349 (-13.81)	0.745 (16.83)	-5.419 (-17.53)	0.95

* All variables are expressed in logarithms, and the indicators smoothed by the Additive Smoothing were used.
 ** The figure in brackets is the value of T statistic.

Estimation of the link between inflation and budget deficit in Armenia

An analysis was made to reveal an existing long-term link between state budget and inflation to describe inflation behavior, to provide more accurate inflation forecasts, and to estimate fiscal policy impact on monetary policy.

The rationale of estimation of the link is that monetary and fiscal policies in the long run are jointly determined by the government budget constraint, which is formulized as follows:

$$b_{t+1}^g/R_t = pd + b_t^g + \frac{(M_{t+1} - m_t)}{P_t},$$

where

- b_t^g real value of the Government's net financial assets in period t
- pd primary deficit
- $R=1+r$, where r is real interest rate
- m_t dram broad money
- M_{t+1} sum of the balance of dram broad money in period t and dram supply change by the Government through the Central Bank in period $t+1$.

The last term of equation represents the seigniorage.

Exposure of budgetary limitation of the Government to some mathematical modifications will produce an equation for inflation, as follows:

$$\pi = \frac{D - Int}{m} - \frac{\Delta rGDP}{m},$$

where

- π inflation
- m dram broad money in real terms
- D dram supply change by the Government through the Central Bank, which is determined as the budget deficit added by state official transfers less interests and non-dram accounts of PIUS
- Int volume of the Central Bank interventions
- $\Delta rGDP$ real GDP change.

Results of the regression between the state budget deficit and inflation

Dependent variable	Independent variable	C intercept	Deficit less interventions divided by the dram broad money by a two-quarter lag	Real GDP change divided by the dram broad money	Inflation by one-quarter lag	Dummy variable**	Ratio of determination (R ²)	Durbin-Watson statistics
Inflation		-0.055 (-)		-1.086 (-)	-0.4	11.39	0.68	2.5

	0,08)*	12,56	4.11)	(-3.2)	(4.37)		
		(3,39)*					

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

** The dummy variable was used in 1997 to offset the change in tax laws.

Annex 10

Analysis of results of the applied model 'Changes in Wages, Production and Prices under International Trade'

The rationale of the model is that, as a small and open economy, Armenia bears the influence of prices in international markets. The model is mainly concentrated on comparing productivities and wages in Armenia and the rest of the world, and evaluating their impacts on output and relative prices.* One of the features of the model is existence of 'homothetic' demand, which implies that the share of income spent by the world on domestically produced goods is proportional to the share of those goods in the total range of goods (the goods are indexed on an interval [0,1]). The model also considered the transportation costs as an impacting factor on prices, which give rise to a range of goods that become non-tradable. Relative prices of home and foreign country's non-tradables become the main reason in price differences across the countries.

As a result, a model was built, which gave an alternative opportunity to estimate Armenian price level, depending on economic relationship between our country and the rest of the world, which is formulized as follows:

$$\ln CPI\$ = - \frac{1 - \text{exp}/GDP}{1 - \text{exp}/GDP + \text{imp}/GDP}$$

$$(1) Z^H = \frac{1 - \text{exp}/GDP}{1 - \text{exp}/GDP + \text{imp}/GDP}, \text{ from which } \ln CPI \$ = - Z^H$$

ln CPI\$ logarithmic expression of the dollar value index of the consumption basket

Z^H range of locally manufactured goods

exp/GDP ratio of exports to GDP

imp / GDP ratio of imports to GDP.

The theoretical logic lies in the following: impact of domestically produced goods on relative prices is negative, that is the decrease in the range of domestically produced goods (Z^H) will entail a price-rise, and vice versa. The increase in domestically

* The paper 'Changes in salaries, production and prices under international trade' is detailed in the Central Bank Q3 2003 report.

produced goods (z^H) means that imported goods are substituted by relatively cheap domestically produced goods, owing to comparative advantages obtained in non-tradable sector of economy. The declining z^H however will mean that the range of domestically produced goods decreases, implying a price-rise in non-tradable sector.

According to the formula (1) exports growth has dual impact. On the one hand, the growth of exports, due to increasing productivity, will mean that the part of non-tradable goods turns to be tradable, owing to price advantages. On the other hand, the productivity growth in tradable sector has positive impact on wages both in tradable and non-tradable sectors, which leads to the loss of external competitiveness in non-tradable sector, decline in the range of domestically produced goods (z^H), and substitution of the part of non-tradables by imported goods. Besides, wage growth, as demand component, boosted by productivity growth, will stimulate imports, which in turn will result in shrinking range of domestically produced goods and price-rise. In the outcome, the second factor is prevailing among the above mentioned factors, and export growth entails the decrease in the range of domestically produced goods and the price-rise.

The import growth pushes z^H to decline. It implies not only a loss of comparative advantages in non-tradable sector, but also means growth of imports of new quality goods owing to increasing demand. That is, the decline of the range of domestically produced goods is determined by widened range of imported ones rather than substitution of the domestically produced goods by imported ones.

The mentioned model was used to estimate price behavior in Armenia for 2004. Behavioral equation was built and estimated through regression coefficients. Then, the above equations were used to calculate z^H for 2004, based on the Central Bank's forecast for quarterly indicators of imports and exports. In calculating the z^H , item 'Precious and semiprecious stones and metals and articles' was excluded from exports and imports. The results of the regression analysis are provided in Table 10.1.

Table 10.1. Results of regression analysis of the dollar value index of the consumption basket

Independent variable	Dependent variable
C intercept	D19981**
Range of domestically produced goods ZH	D19994**
Previous quarter indicator of the range of domestically produced goods ZH(-1)	D20034**
	Ratio of determination (R ²)
	Durbin-Watson statistics

The logarithmic expression of the dollar value index of the consumption basket (lnCPI\$)	4.967 (98.17) *	- 0.312 (- 5.91)	-0.271 (-5.52)	0.077 (4.08)	0.057 (3.29)	0.089 (5.08)	0.8 8	1.7
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* The figure in brackets is the value of T statistics.

** The dummy variable.

**Brief theoretic description of the P-STAR model
Analysis of inflation in Armenia***

P-STAR is a simplified model that describes price dynamics. The model enables forecast of short-term price fluctuations as a process with which actual prices are brought in compliance with the equilibrium prices. The P-STAR model-yielded price gap (P^*-P) can be treated as a benchmark indicator that allows the prediction of future changes in prices, or otherwise, as it reflects inflationary potential of economy. The P-STAR model of inflation is based on the quantity theory of money, whose basic identity is the following:

$$p + y = m + v \quad (1),$$

where p is the level of prices, y is real GDP, m is money supply, v is velocity of money (all variables are in logarithms).

According to the model, long-term equilibrium price level (p^*) is determined by the formula as follows:

$$p^* = m + v^* - y^* \quad (2),$$

where p^* is long-term equilibrium price level, v^* is equilibrium level of velocity of money, y^* is potential GDP.

The difference between the equations (1) and (2) produces the price gap (p^*-p)

$$GAP=p^*-p= (y-y^*) + (v^*-v) \quad (3)$$

The above expression denotes that the price gap represents a combination of two other gaps, as

($y-y^*$) capacity utilization gap or GDP gap, and
(v^*-v) velocity gap.

Followers of the P-STAR model think that the main reason for occurrence of inflation lies in the difference between the long-term equilibrium price level (p^*) and the current price level. They insist that excess supply of money, not yet reflected in current prices, may bring the velocity of money to decline from the equilibrium price level and/or raise GDP from its potential level. The situation like this will create inflationary pressures in the economy. So, the implication is when real GDP and velocity of money are consistent with their equilibrium levels, the price level moves together with money supply and inflation is a monetary phenomenon.

* The complete material is provided in the Central Bank Q2 2002 report.

The P-STAR model may be turned into an equation for inflation, as follows:

$$\pi_t = \alpha (p^*_{t-1} - p_{t-1}) + \pi_{t-1} \quad (4), \quad \text{or, otherwise}$$

$$\pi_t = \gamma_1 (Y_{t-1} - Y^*_{t-1}) + \gamma_2 (v^*_{t-1} - v_{t-1}) + \pi_{t-1} \quad (5)$$

Below are the results of regression analysis of the P-STAR model for Armenia. It should be noted that the equilibrium levels of GDP (y^*) and velocity of money (v^*) were calculated using the Hodrick-Prescott filter.

$$INF = \gamma_1 * YGAP_{t-1} + \gamma_2 * VGAP_{t-1} - \gamma_3 * INF_{t-1} - \gamma_4 * INF_{t-3} - \gamma_5 * DUM + C \quad (6)$$

Results of the regression analysis

Table 11.1

Independent variable \ Dependent variable	GDP gap (YGAP)	Velocity gap (VGAP)	Inflation indicator by 1 quarter lag (INF _{t-1})	Inflation indicator by 3 quarters lag (INF _{t-3})	Dummy variable (DUM - Q 3 1998)	C intercept	Ratio of determination R ²
Inflation (INF)	24.61 (4.972) *	22.83 (4.172))	-0.35 (- 3.693)	-0.29 (- 2.432)	-6.52 (- 4.108)	2.25 (6.412))	0.90

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

The equation (6) may be treated as a model that brings the Philips Curve and the monetarist model of inflation altogether. That is, equation (6) includes two arguing aspects for shaping of inflation. Philips is arguing that inflation is a result of disequilibrium in the goods market. The monetarist theory's argument is that inflation is a result of money market disequilibrium.

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