THE RATIONALE FOR THE ADOPTION OF INFLATION TARGETING STRATEGY BY THE CENTRAL BANK OF THE REPUBLIC OF ARMENIA

INTRODUCTION

Based on global economic developments in the last quarter of the 20th century, economists reached a consensus regarding certain aspects of monetary theory. One such position is that in a market economy, low and stable inflation is an important prerequisite of economic growth, and that inflation is directly affected by monetary policy. Moreover, monetary policy is considered the most flexible of economic policy instruments in terms of ensuring medium-term stability and can change rapidly to level short-term fluctuations in employment and growth.

This concurrence of economists has been reflected in central bank activities and become widespread in the global economy.

All of the economic policy-making institutions explicitly or implicitly acknowledge that price stability must be the primary goal of monetary policy. There are, however, different views, mostly due to country specificities, as to the ways of achieving this goal, the choice of a nominal anchor, and the strategy to be adopted.

This Concept Paper justifies the need for streamlining the methods of monetary policy regulation carried out by the Central Bank of the Republic of Armenia (CBA). It proposes the adoption of an inflation targeting strategy to achieve the legally-prescribed goal of price stability, replacing the strategy of monetary targeting, which was adopted as the method of monetary regulation since 1994. Under this proposal, broad money, as the intermediate goal or nominal anchor of the current strategy, would be replaced with an inflation target forecast.

Monetary theoreticians believe that inflation targeting is a rather promising strategy for monetary policy, and it will become the standard approach as more and more central banks and governments come to appreciate its usefulness.

NEED FOR NOMINAL ANCHOR

Nominal anchor is a policy indicator that reflects the economic category that is ultimately to be regulated. It must be closely and tightly linked with the primary goal of monetary policy and serve as an auxiliary tool for achieving it.

The CBA bases its choice of the nominal anchor, also known as the intermediate goal, on a number of criteria. The most important criterion is that *the intermediate goal of monetary policy must be reconciled with the primary goal of monetary policy*. Changes in the intermediate goal of monetary policy must be reflected in the behavior of the primary goal. It would enable the central bank, by relying on the behavior of the intermediate goal, to achieve the desired level of the primary goal.

The intermediate goal of monetary policy must meet the test of *being measurable*. In other words, the central bank must have the ability to precisely gauge the level of the intermediate goal at any given point in time and to trace its behavior.

The central bank must have the capacity to *receive timely and accurate information* on the intermediate goal. Compared to information on the primary goal, information on the intermediate goal should be received at a greater frequency, so that the central bank can manage its intermediate goal efficiently and reach the desired level of the primary goal.

Finally, the intermediate goal must be *controllable* for the central bank, i.e. the central bank must have the possibility to influence the behavior of the intermediate goal.[1]

It is rather difficult to choose an intermediate goal of monetary policy, which would meet all of the aforementioned criteria. Nevertheless, the intermediate goal of the central bank-adopted monetary policy should *meet the aforementioned criteria to the extent possible*, thus increasing the efficiency of monetary policy.

In national economies, the role of "nominal anchors" is performed by *monetary aggregates* and *the exchange rate*. Starting from the early 1990s, *the inflation forecast* has been used as a nominal anchor. Monetary strategies with these anchors are referred to as exchange rate targeting, monetary aggregates targeting, and inflation targeting strategies.[2]

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[1] *See Roger LeRoy Miller, David D. VanHoose, "Modern Money and Banking", translation from the third edition, Moscow, 2000, p. 649.*
[2] *See Frederic S. Mishkin "The Economics of Money, Banking and Financial Markets", Sixth Edition, Addison Wesley, 2001, p. 506.*

MONETARY TARGETING APPLICATIONS IN ARMENIA AND NEED FOR CHANGE

Monetary targeting implies restrictions on the quantity of monetary aggregates for the sake of the primary goal of price stability. It is a rather efficient strategy for transition economies, which inevitably face supply and demand shocks, and the threshold of inflation necessary to support economic growth (i.e. the level above which inflation reduces the pace of economic growth) cannot be assessed. By managing monetary aggregates, it is possible to respond flexibly to short-term fluctuations in the exchange rate and economic growth, whereas price stability comes after a certain macroeconomic balance has been achieved.

In 1994, the CBA chose monetary targeting as the strategy of monetary regulation.[3]

These approaches of monetary policy regulation are enshrined in the 1996 Republic of Armenia Law on the Central Bank of the Republic of Armenia, which sets stable and low inflation as the primary goal.

By implementing a policy of targeting monetary aggregates, the CBA has managed to reduce and stabilize inflation starting from mid-1994, and in 1998-2004, average inflation was only 2.4%. By managing monetary aggregates in a transparent and accountable manner, the CBA has managed to sustain the macroeconomic balance despite various external and internal shocks then taking place.

However, the continued successful implementation of this strategy is contingent upon a number of factors.

First of all, it is necessary to have a stable relationship between inflation and monetary aggregates, so that the inflation target can be reached by means of sustaining the targeted levels of monetary aggregates. Otherwise, issues will arise. For instance, frequent CBA revisions of monetary aggregate targets in view of the priority to ensure price stability with an inflation target established by the legislature may damage the credibility of the CBA-declared monetary policy.

Another important precondition is the CBA's ability to manage monetary aggregates adequately. Usually, central banks are successful in managing the monetary base, while difficulties arise in connection with managing broad money. In highly-dollarized countries with emerging financial markets, with potentially significant changes in demand for credit and deposits, as well as the structure of broad money and the level of dollarization, demand for money fluctuates abruptly, resulting in low predictability. In such countries, demand for money is in weak relationship with the interest rates, which makes it difficult for the central bank to manage broad money. On the background of these issues, there are frequent deviations from the intermediate goal, i.e. the broad money target, which once again undermines the credibility of monetary program and the central bank.

During the last three years, the aforementioned two challenges have been rather explicitly faced in the implementation of monetary policy in Armenia. As a consequence, the CBA, constrained by the requirement of price stability, i.e. the requirement to ensure a certain level inflation set by the legislature, has on numerous occasions exercised discretion by regularly revising the monetary aggregate targets, which it has explained to the public, the National Assembly, international financial institutions, commercial banks, and the media, in addition to publishing CBA reports.

There are numerous reasons for revising monetary aggregate targets in Armenia, including, among others, the unstable relationship between monetary aggregates and inflation, fluctuations in money demand, external shocks, and, last but not least, the significant impact of non-monetary factors on inflation.

Structural changes in the banking system of Armenia, coupled with a strong increase in the volume of lending, a continuous appreciation of the dram lowering dollarization, and an increase in remittances from abroad have deeply influenced the behavior of money demand—making it unstable and subject to frequent change. As a consequence, the increase in monetary aggregates has had an extremely variable influence on both demand in the consumer market and the patterns of savings and investment. Impact lags, too, vary depending on seasonality, external factors, banking sector developments, and the like. M. Khan mentions that the relationship between monetary aggregates and inflation is volatile, especially in emerging market economies, where demand for money is not steady due to the process of financial liberalization and the still-developing financial markets. Volatile demand for money can be found even in developed countries.[4] For instance, the Bundesbank, while implementing a strategy of monetary targeting, missed the targets of monetary aggregates in 50% of cases in order to reach the more important target of inflation.[5]

Effectively, a strategy of monetary targeting implied that the inflation target can be achieved by means of hitting monetary aggregate targets: in Armenia, however, concurrent achievement of the targets of both inflation and monetary aggregates in Armenia has become extremely difficult. When one is provided for, the other deviates from the target, and since the CBA's primary goal is price stability, the monetary aggregates are compromised at all times.

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[3] The monetary targeting was considered fully implemented in 1996, when the Republic of Armenia Central Bank Board adopted Decree 122 of July 19 on the Foreign Exchange Policy Principles of the Republic of Armenia Central Bank whereby it established a free-floating exchange rate for the Armenian Dram.

[4] See Khan M.,Current Issues in Design and Conduct of Monetary Policy, IMF WP 03/96, 2003, p. 10.

[5] See Mishkin F., Sevastano M., Monetary Policy Strategy For Latin America, NBER WP No 7617, Cambridge, 2000.

During 2005, for instance, with a large influx of foreign currency, the dram exchange rate appreciated steadily, which resulted in an abrupt increase in demand for drams. In this situation, taking into account the significant departure from the monetary program targets and the fact that they did not lead to strong inflationary pressures (semi-annual 1.5% inflation compared to a programmed 4%), the CBA revised the monetary program targets at mid-year with a view to carrying out a more expansionary monetary policy. Under the revised program, the monetary base would grow by 41.4% by yearend (year to year figure), compared to the original program target of only 8.9%.

The CBA has recently exercised such discretion rather frequently. This dilemma will remain, because demand for drams is expected to change significantly in terms of both volume and structure on the background of low monetization, the high share of cash drams in circulation, and the large financial inflow. This conclusion is based on the current monetary performance of rather developed economies, i.e. as the economy develops, dollarization will drop, while the share of cash in circulation and demand for drams will far outgrow GDP growth, with low predictability.

In this situation, monetary targeting cannot be a reliable anchor, and the CBA is challenged with the choice of a new strategy. Overall, it can be one of the following:

- Exchange rate targeting; or
- Inflation targeting.[6]

EXCHANGE RATE TARGETING

Adopting a strategy of exchange rate targeting can pursue two main objectives: reducing high inflation (Russia, The Czech Republic, Argentina, and other countries) and achieving economic integration (for instance, countries that newly joined the EU, such as Estonia, Slovenia, the Czech Republic, and others). However, the pursuit of these objectives poses stringent limitations on monetary policy implementing agencies in terms of short-term concerns regarding the GDP and employment.

The advantage of fixed over floating exchange rate is that fixed exchange rate directly anchors inflation expectations, which is paramount for transition countries like Armenia. However, as was already mentioned, Armenia has reported low inflation since 1998, which rules out the possibility of anchoring the inflationary expectations by means of fixing the exchange rate.

Fixing the exchange rate for purposes of economic integration, according to a classical theory of international economics called theory of optimal currency areas, is permitted only for the currency of the country that accounts for at least 35 percent of foreign trade, is engaged bilaterally in an above-average mobility of labor force and capital (i.e. free movement between countries), and if the countries are subject to the same types of external shocks.

There is no straightforward answer to the question about a national currency against which the Armenian Dram exchange rate could be fixed. Though at first sight, the logical answer would be the US Dollar, fixing the Armenian Dram exchange rate against the US dollar would not be safe. Though the bulk of financial inflows (i.e. private remittances) are in US dollars, the main trading partners of Armenia are the EU countries (accounting for 35.7% of foreign trade in 2004) and Russia (12.4% in 2004), though free movement of labor and capital holds true only for Russia. Fixing the exchange rate against the US Dollar could seriously harm the economy, if the US Dollar suddenly started to appreciate vis-à-vis the Euro or the Russian Ruble, which would mean an appreciation of the Dram's real exchange rate, a loss of competitiveness, and an eventual crisis.

Such a situation emerged in Argentina in 2001, when the 1999 Brazilian crisis and the 1999-2000 strong depreciation of the Euro caused the Argentinean Peso (affixed to the US Dollar) to appreciate vis-à-vis the currencies of the main trading partners, which led to the crisis in Argentina.

The Dram exchange rate cannot be fixed against the Euro or the Russian Ruble, either. Fixing against the Russian Ruble would cause problems, because Armenia and Russia are affected by asymmetric shocks: for instance, an increase in oil prices may result in appreciation of the Russian Ruble, and if the Dram exchange rate were fixed against the Russian Ruble, then the Dram would also appreciate considerably, causing Armenia to lose its international competitiveness. Alternatively, the negative developments in Russia (such as high inflation or a possible economic decline caused by a drop in oil prices) would be reflected identically in Armenia.

In such a situation, fixing the exchange rate could have grave consequences for the economy, because economic shocks elsewhere in the world have direct implications for the economy of a country. Here is a brief overview of possible shock scenarios.

An example of a possible unfavorable shock would be the deterioration of foreign terms of trade, i.e. lower prices of exports or higher prices of imports. For instance, the international oil price about doubled as of July 2005

[6] *In theory, there are other regimes, as well, but the aforementioned two are the key ones.*

compared to December 2003, while the gasoline price in the domestic market of Armenia increased by only 11.4%. Irrefutably, it has been due to the appreciation of the exchange rate.

However, the most dangerous and difficult-to-overcome shock would be an outflow of capital, especially after a voluminous inflow. In recent years, financial inflows to Armenia have increased considerably (mostly in the form of remittances from Armenians living abroad). The economic literature views the existence of financial inflows favorably in terms of shifting to a fixed exchange rate (mostly referring to inflows in the form of foreign direct investments). As for speculative portfolio investments (also known as "hot money"), their inflow can quickly turn into an outflow, which will render a currency crisis rather likely, and the country will need to protect the exchange rate. Financial inflows to Armenia are in the form of private remittances, i.e. consumption-oriented, rather than investment-oriented.

What would happen if the CBA had not allowed an appreciation of the exchange rate and had converted the entire inflow of foreign currency to drams? The higher broad money would have implications for the whole economy, leading to a significant (about 20%) price increase, mostly on account of services and other non-tradable goods. The only possible tool for the CBA would be to contain the increase in broad money by means of higher interest rates, which would have a very negative impact on the economy, driving the cost of credit up and causing problems in the form of bad loans in the banking sector, at the same time promoting the inflow of additional capital. The free-floating exchange rate has helped avoid such measures and has by default mitigated the price increase, because the dram appreciation has led to relatively lower cost of imports, and the additional demand was met by means of imports.

This example confirms the trilemma known in economics: a modern central bank must be able to choose two of the three possible goals known as the "impossible trinity". The three goals are: exchange rate stability, price stability, and free flows of capital. Only two of these three goals can be provided for at the same time.

For a small open country (such as Armenia), limiting financial flows (foreign direct investments or remittances) would mean rejecting long-term development. In this sense, in view of large foreign inflows, the CBA is forced to give preferentiality to price stability due to the following reasons: in a social sense, prices are a more important indicator, and the international experience has shown that price stability is far more important for economic development than exchange rate stability.

Supporters of fixed exchange rate policy explain their position by the need to maintain competitiveness. However, the emphasis should be placed on investment-driven high-quality, capital- and science-intensive production as the safeguard of true competitiveness, rather than production of low-quality products by creating artificial competitiveness by means of the exchange rate and abusing cheap labor force (which is the long-term impact of artificial exchange rate depreciation).

In this sense, we believe there would be no need to consider a transition to the fixed exchange rate: first of all, the necessary conditions are not present, and secondly, it contradicts the CBA's primary goal of price stability. Rather, it is necessary to develop measures to reduce dollarization and ensure the breadth and depth of the currency market, which will level exchange rate fluctuations and prevent currency market speculations. These measures could include the development of currency derivatives markets and precluding pricing and payments in foreign currency.

ESSENCE OF AN INFLATION TARGETING STRATEGY

Inflation targeting strategies have recently been adopted widely in both developed and developing economies. Experience has shown that all countries have one common cause for adopting a new strategy, which is the need to choose a new nominal anchor of monetary policy. Inflation targeting strategies have been adopted by countries with previous experiences of fixing the exchange rate and targeting monetary aggregates. The former (i.e. countries fixing the exchange rate) suffered greatly due to the existence of the aforementioned problems, as a consequence of which the number of such countries fell from 50% of the total number of countries to 25%, whereas countries targeting the monetary aggregates destabilized the link between monetary aggregates and inflation.

A strategy of inflation targeting can be defined in the following way:

"Inflation targeting is a framework for monetary policy characterized by the public announcement of official quantitative targets (or target ranges) for the inflation rate over one or more time horizons, and by explicit acknowledgement that the low, stable inflation is monetary policy's primary long-run goal".

Among the important features of inflation targeting are vigorous efforts to communicate with the public about the plans and objectives of the monetary authorities, and in many cases, mechanisms that strengthen the CBA's accountability for attaining those objectives.[7]

[7] *B. Bernanke, Th. Laubach, F. Mishkin, A. Posen, Inflation Targeting, Lessons from the International Experience, Princeton University Press. 1998, p. 4.*

The next important aspect of inflation targeting is about the bodies conducting monetary policy publicizing programs, objectives, goals, and ways of achieving these goals.

According to another source, inflation targeting is about setting an inflation target, forecasting inflation for the same period, and then, carrying out targeted policies to eliminate the deviation between the target and the forecast.[8]

The inflation forecast becomes an intermediate goal for the CBA because it is manageable by the CBA, understandable and measurable for the public, and clarifies the directions of monetary policy. The inflation forecast is managed by means of operational targets.

An inflation targeting strategy is not simply about meeting the inflation target; rather, it is a highly transparent and accountable monetary policy approach based on certain rules. Adopting this strategy is in essence about adopting a targeting rule: the inflation target should be met, and expectations of high inflation should be reduced.

When carrying out an inflation targeting strategy, the instrument rule (e.g. Taylor's rule) is not used to meet the target. It requires discretion, which implies setting of the operational goal on the basis of broader information, including the judgment of those carrying out policies and Taylor's rule.

WHAT IS DISCRETION

Some economists believe that the choice of a monetary policy regime depends on the balance between central bank's discretion and commitment. Discretion is a central bank's operational freedom, independence, or autonomy to choose the primary goal of monetary policy, its target, operational goals, and monetary policy instruments. Commitment is the opposite, i.e. how much the actions of those carrying out monetary policy are restricted. In reality, neither absolute discretion nor absolute commitment can be found; therefore, it is more convenient to examine their relationship. "Discretion" and "commitment" are relatively new terms in economics literature and are used here to describe the taxonomy of monetary policy regimes.

Monetary Regimes

Strategies / **Characteristics**	**Exchange Rate Targeting Strategy**		**Inflation Targeting Strategy**				
	The exchange rate peg includes perspectives of directly fixing the exchange rate, fixing the exchange rate under a horizontal band, and fixing the exchange rate with a crawling band.	Lack of monetary autonomy, with variants such as a currency board, a currency union, and the use of another foreign currency as a legal tender.	Fully-fledged inflation targeting	Implicit anchor of price stability or eclectic inflation targeting	"Lite" inflation targeting	***Weak Anchor*** These countries were reporting above 40% inflation.	***Money Anchor*** Achieving the inflation target by means of targeting monetary aggregates
Discretion	Average	Minimal	Low	High	High	High	Average
Commitment	Average	High	High	Low	Low	Weak	Average

A strategy of targeting the monetary aggregates has been applied by the CBA for over 10 years now. Under these options, the discretion-commitment relationship varies. Inflation is the lowest in countries that have adopted an implicit anchor of price stability. The third place belongs to countries pursuing fully-fledged inflation targeting, followed by countries adopting a money anchor, countries without monetary autonomy and, finally, countries with "lite" inflation targeting.

The trends of the last decade show that significant change has taken place in the choice of monetary regimes: the number of countries without monetary autonomy has doubled; there are no longer any countries with weak anchors; the share of countries pursuing an exchange rate peg regime has declined from 50% to 25%, and the number of countries pursuing fully-fledged inflation targeting has increased from zero to 25.*

Under an inflation targeting strategy, one is dealing with constrained discretion,** which, according to theoreticians, is the best solution to one of the most important problems of monetary policy—the time inconsistency problem.*** Constrained discretion is mainly about the central bank's discretion in achieving the primary goal, which is the same as discretion in the implementation of policy.

[8] *See Inflation Report, Bank of England, February 1996.*

** Stone M., Bhundia A., A New Taxonomy of Monetary Regimes, IMF WP No 04/191, October 2004.*

*** B. Bernanke, Th. Laubach, F. Mishkin, A. Posen, Inflation Targeting, Lessons from the International Experience, Princeton University Press. 1998, p. 4.*

**** An issue with time inconsistency arises when the best policy planned today for the future stops being the best over time, because public expectations influence the course of policy (see Cukierman A., Central Bank Strategy, Credibility and Independence. Theory and Evidence, MIT press, 1998, pp. 15 - 17).*

Under the fully-fledged inflation targeting, the central bank is constrained by the goal of inflation and is guided by its own inflation forecasts. Here, discretion is low and exercised only in the choice of the means for achieving the forecasted level of inflation. This constrained discretion is the advantage of inflation targeting strategy over the monetary targeting: under the latter, the broad money aggregate was considered the only factor influencing inflation, which could have trends other than inflation, whereas under the former, a wide spectrum of indicators and the judgment of experts are considered to influence inflation.

The other two types of inflation targeting strategies differ from the fully-fledged targeting regime by the discretion concerning the goal and implementation: under implicit inflation targeting, discretion is higher and the bank has goal independence (for instance, a central bank may, for a certain period, prefer employment while compromising inflation), though rarely exercised. Under lite inflation targeting, it is the opposite: discretion of choosing a goal is constrained, but can be exercised from time to time. This is the reason why it is often considered a transition stage to fully-fledged targeting.

Inflation targeting also requires a forward-looking approach in inflation forecasting models, which can significantly improve the predictability of inflation. The need for this approach is due to the target policy impact lag, the impact of present-day policies on future expectations of the public, and the impact of such expectations on the current and future levels of inflation.

A fully-fledged inflation targeting regime requires the central bank to disclose the inflation forecasting models and to regularly publish inflation forecasts. As was already mentioned, it becomes an intermediate goal for the central bank, and the operational target is determined on the basis of the objective to minimize the discrepancy between forecast inflation and the target. These measures are the core rules underlying an inflation targeting strategy.

TYPES OF INFLATION TARGETING STRATEGIES

There are three inflation targeting regimes,[9] as follows:

1. Fully-fledged. This regime is adopted by countries in which the central bank enjoys above-average confidence, conducts transparent policies, is accountable, and, most importantly, clearly adheres to the target. Countries with this regime have one model of forecasting inflation; they publish the unconditional forecast of inflation, which includes the qualitative and quantitative aspects of the central bank's activities and the policy impact on inflation. Besides, in all of these countries, the operational goal is clearly the short-term interest rate, because these countries have strong financial markets and adequately functioning interest rate pass-through mechanisms. Among these countries are New Zealand, which was one of the first to adopt this regime (in 1991), Canada, The United Kingdom, and others, including transition countries like The Czech Republic, Hungary, and Poland.

2. Eclectic. In countries, which adopt this regime, confidence in the central bank is so high that price stability can be maintained without declaring explicit intermediate goals and being fully transparent and accountable (USA, European Central Bank). Thanks to financial stability and low inflation, these countries are able to provide for macroeconomic stability and high employment in rather a flexible manner.

3. Lite inflation targeting (Kazakhstan was the first CIS country to have it exercised in 2004). This regime is adopted by central banks of countries that face a number of obstacles on the way to effectively achieving the inflation target, including frequent external and internal shocks in the economy, the limited ability to confront such shocks, financial instability, underdeveloped financial markets, high level of dollarization, and volatile terms of trade. In these countries, both reserve money and interest rates are adopted as operational goals. As for the monetary policy toolkit, foreign currency buy and sell transactions are rather frequently engaged. The Central Bank of Armenia has recently carried out such a strategy beyond the strategy of monetary targeting.

Taking into account the need to change the strategy of targeting monetary aggregates, the existence of inflation targeting strategy elements in the monetary policy process currently managed by the Central Bank of Armenia, and the aforementioned advantages of this strategy, the Central Bank of Armenia will start a transition to fully-fledged inflation targeting in January 2006, but there will be a transition stage, rather than an immediate shift. The CBA will publish the conditional inflation forecast, though the impact of CBA's actions on inflation has not been presented yet. Only the substantive direction of actions will be presented. In this way, the public will receive information only on the directions of the CBA's actions, rather than the managed operational goal and quantitative forecasts of other indicators. At the same time, pending the implementation of fully-fledged inflation targeting, the CBA will not publish its inflation forecasting model.

[9] *See Carare A., Stone M., Inflation Targeting Regimes, IMF WP No 03/9, January 2003, pp. 3-4, and Stone M., Inflation Targeting Lite, IMF WP No 03/12, January 2003.*

INFLATION TARGETING CRITERIA; APPLICATIONS IN ARMENIA; STEPS TO BE TAKEN BY THE CENTRAL BANK TO IMPLEMENT INFLATION TARGETING.

The inflation targeting strategy criteria are classified by institutional, operational, and macroeconomic aspects:

Institutional

1. Price stability as the stated primary goal of the Central Bank;
2. Choice of the inflation target, band, and time horizon;
3. Policy implementation discretion;
4. Transparency and accountability; and
5. Operational independence.

Operational

1. Inflation forecasting; and
2. Clear understanding of transition mechanism.

Macroeconomic

1. A developed financial market;
2. Absence of fiscal dominance; and
3. Internal and external stability.

Institutional Criteria

The situation in Armenia is the following:

1. *Price stability as the primary goal of the CBA* is defined in the 1996 Republic of Armenia Law on the Central Bank.

2. *Inflation target*: target range and time horizon.

When defining an inflation targeting strategy, the choice of the inflation indicator is important: headline (consumer price index) vs. core (price index for a limited number of commodities in the consumer basket). In making a choice, central banks face the "publicity vs. inflation management capability" dilemma.

The advantage of choosing headline inflation is that the public can understand and monitor it better. However, it has the following main weakness: non-monetary factors may cause significant fluctuation in the inflation indicator, which makes it difficult to achieve the target.

For core inflation, commodities subject to frequent supply shocks or commodities with an explicit seasonal price behavior are extracted from the consumer basket. The main advantage of core inflation is that it is more manageable by the central bank, but it is difficult for the public to understand, and does not fully reflect inflation trends. In particular, the basket chosen by the central bank for core inflation may not be representative, whereas the price behavior of some commodities included in the basket may be extremely important for the public. And, if the price trends of such commodities regularly and significantly deviate from core inflation, then the central bank's monetary policy will not be perceived as an inflation management policy.

The international experience has shown that different countries adopt different practices in this respect. The CBA has always calculated and published the core inflation index. Prior to 2004, the changes in prices subject to administrative regulation, as well as seasonal fluctuation of fruit and vegetable prices were excluded from the headline CPI and were published as core inflation figures. Since 2004, the 15% trimmed mean inflation is being published, which is calculated by means of classifying the individual indices of consumer basket commodities in the order of value, after which 15% of the indices are trimmed from each side of the line. Core inflation is calculated as the average weighted index of all the other indices. The CBA will continue to monitor core inflation, develop calculation methods, and ensure publicity.

At the present stage, when it is necessary to clarify the choice of the appropriate inflation indicator – core vs. headline, the CBA finds the approaches of Poland and the Czech Republic more acceptable: this approach is about targeting headline inflation, whereas the following economic phenomena are considered exceptions which, if uncovered, trigger Central Bank explanation on the reasons for inconsistency. The exceptions are the following:

- *Major inconsistency between projected and actual levels of global prices;*
- *Significant exchange rate fluctuations caused by external shocks, which does not reflect the economic fundamentals and the course of monetary policies;*
- *Significant demand fluctuations in agriculture, which are expressed in the form of significant changes in the prices of agricultural products; and*
- *Force majeure events.*

Inflation: point vs. target range? Historically, Armenia has used the practice of both point and target range. Experience has shown that in order to address domestic economic and other short-term concerns effectively, setting a target range is more appropriate, because it permits cyclical fluctuations of inflation which, too, requires flexibility. The target range is also appropriate in places where commodity prices are susceptible to considerable seasonal fluctuations (like Armenia), although the loss of confidence in the central bank would be greater in case of deviation from the target range, rather than a point. The loss of confidence, of course, would depend on the magnitude of the deviation.

As for the breadth of the target range, the broader the target range, the easier the program implementation, but the more difficult lowering the expectations and gaining confidence, which are extremely important for the CBA. Some economist, in view of the uncertainty associated with forecasting inflation in transition economies, suggest setting a point figure, rather than a target range, and, in the event of deviations from the point, explaining the reasons as a means of bolstering confidence in the central bank.[10] In its inflation targeting strategy, the CBA will set a maximum *3% inflation target range*. A fan-chart regarding the inflation target will be devised and published.

Time Horizon. This is an important concern in terms of both stabilizing long-term expectations and the lags between current policy implementation and expected results.

The Monetary Policy Program of the Republic of Armenia is aimed at *achieving a maximum 3% headline inflation by yearend 2006 with a one-year horizon*. At the same time, the plan is that low inflation reported in recent years will be kept low in the medium term.

3. *Policy implementation discretion.* This element of monetary policy represents an advantage of inflation targeting over the monetary aggregates strategy: under the latter, the broad money aggregate is considered the factor influencing inflation, whereas under the former, a wide spectrum of indicators and the judgment of experts are considered to influence inflation. In the implementation of monetary policy, the CBA is currently exercising discretion, which is evidenced by revisions of the target monetary aggregates in order to achieve the inflation target. However, discretion should be based on an inflation forecasting model with a reaction function and a wide spectrum of inflation indicators. The latter will be included in the CBA's quarterly forecast model.

When exercising discretion, the conditionality of the CBA NFA and NDA indicators (NFA floor and NDA ceiling) will be met. In the event of deviation from these indicators, the Monetary Policy Program and inflation reports will provide the necessary explanations.

4. *Transparency and accountability.* The public should be informed of the programs, objectives, and goals of the CBA. In this sense, transparency of monetary and financial policies is prioritized worldwide and in Armenia: in 1998, Code of Good Practices in Transparency of Monetary and Financial Policies were elaborated. The CBA Board decision 34 (dated 2000) confirmed that the policies implemented by the CBA are in accordance with the Code; it was further decided to make this finding public. A document was published and posted on the CBA's website.[11]

As a matter of principle, the CBA enshrined transparency in the Philosophy document of the CBA.[12]

With a view to ensuring transparency, the CBA publishes annual, quarterly, and monthly reports, the Monetary Policy Program, and statements on the implementation of monetary policy. *Inflation Reports* have been published semi-annually since 1996 to provide detailed information on the inflation behavior, the underlying factors, the impact of monetary, fiscal, real, and external sector developments on inflation, and forecast of inflation based on different econometric methods. Starting from 2006, the inflation report will be published on a quarterly basis and, in addition to the foregoing, will contain information on the monetary policy priorities established by the CBA Board for the next quarter, the interest rates on CBA instruments, and Board meeting minutes related to such decisions.

Armenia has the preconditions necessary to ensure the transparency of its inflation targeting strategy and to provide for CBA accountability: this will, therefore, not be an issue for the transition to inflation targeting. When fully-fledged inflation targeting is employed, the inflation forecasting model will be published.

The inflation report compiled under the inflation targeting strategy should embrace a forward-looking approach. It will be reflected in the inflation model and forecasts. The yield curve and the findings of survey polls will also be factored in. The CBA is already regularly publishing data on the yield curve. Starting from 2005, it has been publishing the indices of consumer confidence, economic activity, and the business climate, which will continue to be published.

5. *Operational Independence.* The CBA does have operational independence, because it is autonomous in its decisions regarding the monetary polity toolkit, its application frequency, volumes, and price indicators.

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[10] *See Jiri Jonas, Inflation targeting in Transition Economies: Some Issues and Experience, Czech National Bank and Monetary and Exchange Department of the IMF, 2000, p. 13.*

[11] *See Hayastani Hanrapetutiun daily of November 29, 2000, p. 4.*

[12] *See Protocol Decision of the CBA number 5 dated March 5, 2002.*

Besides the aforementioned conditions, central bank independence is an important precondition for the success of inflation targeting strategy. Indices calculated in Armenia on the basis of 16 criteria have confirmed the very high level of CBA's independence: according to various estimates, Armenia is the first or second (after Albania) among 19 transition economies in this respect.[13]

Thus, one can state that the Central Bank of Armenia fully complies with the aforementioned institutional criteria.

Operational Criteria

1. *Inflation forecasting* The CBA has developed various methods for inflation forecasting (which are published in the appendix to the Monetary Policy Programs). For the future, it is planned to have a general model that will necessarily include a reaction function and forward-looking expectations. The general inflation model will be published after the fully-fledged inflation targeting strategy is adopted.

Considering that past trends cannot be a good guide for inflation forecasting, being rather volatile and impacted by factors such as price liberalization, fluctuations in money demand, wages, and the exchange rate, as well as structural reforms, which are mainly transitory, the model will continuously be modified. In this respect, S. Fisher notes that in such a situation, one should not expect a stable relationship between inflation and the factors underlying it, and that there is no need to emphasize it. It is necessary to adopt an inflation targeting strategy, and the relationship will stabilize.[14]

To this end, the experience of the Czech National Bank (which was the first transition country to adopt an inflation targeting strategy in 1998) can be of interest. In response to critics of the new strategy, which were claiming that in the absence of a model, transition to an inflation targeting strategy is inappropriate, the Czech Bank proposed that it is just as serious an obstacle to adopting the monetary targeting regime as well. In Armenia, since it has been possible to achieve stable and low inflation under the strategy of monetary targeting in the absence of such a model, and the only issue is about stabilizing expectations and enhancing credibility of the CBA, one should not wait for the relationship between interest rates and inflation to stabilize before a new strategy is adopted.

2. Clear understanding of transition mechanism

The transition mechanisms of monetary policy are the ways in which monetary policy influences economic activity decisions of enterprises, consumers, and financial intermediaries, which directly influence economic activity and prices. Of all the possible transition channels (interest rates, exchange rate, changes in the cost of credit and securities, the wealth effect, cash flows, liquidity, and others), the two considered here are the main channels by which monetary policy impacts the economy.

Change in short-term interest rates, which takes place by means of the Central Bank applying monetary policy instruments (mostly short-term repos), is after some period reflected in the behavior of other interest rates. The other interest rates, which primarily include the cost of borrowing, in turn affect aggregate demand as a consequence of changes in consumption and investments.

Interest rates influence the volume of lending to the economy and the affordability of credit for enterprises as well. As interest rates increase, the share of high-risk projects financing increases, which results in a larger amount of non-performing loans, increased transaction costs of bank supervision over borrower compliance, and, ultimately, shrinking of the volume of credit.

Change in the exchange rate influences economic activity and prices both directly and indirectly. The direct impact takes the form of direct changes in the local currency-denominated price of imported raw materials and final goods. This change, in turn, influences the cost of producing other commodities through changes in the wages. Higher cost of imports, attributable to the demand created due to maintaining real purchasing power of income in the economy, results in higher wages and, consequently, higher costs of production.

The exchange rate influence has indirect implications for aggregate demand through its impact on net exports. When the exchange rate depreciates, locally-produced goods become relatively cheaper, which drives an increase in exports and reduces imports, thus contributing to a higher aggregate demand.

There are two ways in which the CBA can influence the exchange rate. The first method is direct foreign currency intervention, which changes the proportions of foreign currency and local currency in the currency market. The second is based on interest rates: in this case, changes in the interest rate influence the inflow of foreign currency into the economy, which is then followed by a change of the exchange rate.

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[13] See **Cukierman A.**, *Central Bank Strategy, Credibility and Independence. Theory and Evidence, MIT press, 1998, pp. 349-454.*

[14] See **Fisher S.,** *Opening Remarks by S. Fisher at the Seminar on Implementing Inflation Targets, Washington D. C., March 2000.*

Certain conditions must be present for the transmission mechanisms to work effectively. The first condition is that the changes in the Central Bank short-term interest rates be reflected in other interest rates in the economy. The second is that economic actors be sensitive enough to make decisions based on interest rates. Either way, it is necessary to have a developed financial market with a high level of financial intermediation and a diverse financial toolkit.

These conditions are underdeveloped in Armenia, which renders the CBA-managed interest rate transmission channel rather ineffective. Despite this, the CBA will try to bring about a certain level of aggregate demand by influencing the management of short-term interest rates in order to meet the inflation target.

Under an inflation targeting strategy, the CBA has to consider its choice of the operational target on the background of a shallow financial market and high dollarization. The CBA will adopt short-term interest rate as its operational target. However, with a view to ensuring financial stability, the CBA will apply volume regulation approaches as the need may be.

Macroeconomic Criteria

1. *A developed financial market.* The CBA also attaches great importance to the development of the financial market, because the monetary policy influences the real sector of the economy through financial intermediation, which requires a developed financial market and an active transition mechanism for the interest rate channel.

The main difficulty associated with fully-fledged inflation targeting in Armenia is the underdeveloped financial market, which is characterized with a rather small banking industry (the ratio of commercial bank assets to GDP is 19.2%), limited financial instruments, and almost no application of derivatives.

The latter are among the reasons contributing to high dollarization, which, too, is a serious obstacle to effective monetary policy. Changes in foreign currency have a major impact on the formation of interest rates in financial markets.

Having a developed financial market is interconnected with the disclosure of how the transition mechanism works.

As was already mentioned, the absence of developed financial markets is perhaps the most serious obstacle to the effective implementation of an inflation targeting strategy.

2. *Fiscal dominance.* There are several criteria for measuring fiscal dominance: direct Government lending by the Central Bank or, for example, the share of seniorage in GDP (quantitative measure), which, if below 2%, indicates the absence of fiscal dominance and, if above 2%, shows that there is fiscal dominance. According to these, fiscal dominance is not available in Armenia. The seigniorage to GDP ratio has not exceeded 1.6% in Armenia in recent years; however, the CBA does not consider this an accurate criterion for countries with low monetization. Different theoreticians propose different criteria for measuring this phenomenon.

International experts have been debating several other criteria of fiscal dominance: for instance, whether the Government will be able to overcome an economic shock, or whether it will need central bank support. If there is a need for such support, then there is fiscal dominance. The considerable increase of private remittances during 2004 and 2005 can serve as an example of such a shock: To avoid the excessive supply and ensuing foreign currency market pressures, the CBA was mainly responsible for absorbing the inflow, with effective Government support.

Some other examples of criteria include whether the law on the central bank mentions that the central bank must transfer a certain amount of profit to the government every year, or whether the government's cash flows do not trigger sharp fluctuations of monetary aggregates. This is clearly the case in Armenia as the Government's impact on reserve money is often greater than the volume of the CBA's instruments. During the last week of December 2004 alone, 7.1% of the annual budget expenditures were executed.

In general, debates on fiscal dominance have not produced a conclusion yet, but according to our estimates, the arguments in Armenia are mostly in favor of fiscal dominance.

As a result of fiscal policy, any expression of fiscal priorities (such as the large increase in reserve money or large savings caused by spending funds received from the Lincy Fund, the Millennium Challenge Account, and other external sources) will be treated as a shock, because the inflationary impact of fiscal policy has a shorter lag than monetary policy.

Nevertheless, considering that the role of fiscal policy priorities has recently been declining, this issue is not a serious obstacle to the implementation of an inflation targeting regime.

3. *Internal and external stability.* Internal macroeconomic stability is mainly determined by low inflation and robust economic growth. Both of these conditions are present in Armenia, because, as was mentioned earlier, average inflation during 1998-2004 was 2.4%, parallel to unyielding economic growth, hitting the double digits in the last three years.

Clearly, despite the significant trends of improvement in the external balance of Armenia, the balance of payments current account deficit to GDP has been declining (down to 4% in 2004). However, a strong increase in private remittances, which account for a large share of the balance of payments, has been key to reducing and stabilizing the current account deficit. In this situation, unfavorable economic developments in Russia, from where about 80% of the remittances originate, can directly influence the sustainability of Armenia's external balance. Nevertheless, the recent strong growth of exports and the increase in foreign direct investment show that major shocks in the balance of payments are not expected in the short run.

CONCLUSION

1. A new nominal anchor must be adopted in order to boost the effectiveness of monetary policy.
2. The nominal anchor adopted by the CBA will be the inflation forecast. The anchor of monetary aggregates is already not working and will not work, and as for the exchange rate, it is not an appropriate nominal anchor.
3. From 2006, the CBA will start the transition to fully-fledged inflation targeting, i.e. the CBA will adopt a transitory regime of fully-fledged inflation targeting.
4. Headline inflation will be adopted as the indicator of inflation. Quarterly inflation reports to be published by the CBA in 2006 will provide a detailed analysis of inflationary developments both for the reported period and in terms of current annual trends. There will be more detailed analysis and explanation of the extraordinary factors that are globally considered objective non-monetary factors influencing inflation, such as:
   - Major inconsistency between projected and actual levels of global prices;
   - Significant fluctuation of the dram exchange rate caused by external shocks, which does not reflect the economic fundamentals and the course of monetary policy;
   - Significant changes in agriculture, which influence the price of goods; and
   - Force majeure events.
5. Short-term interest rates will be adopted as the operational target. At the same time, with a view to maintaining financial stability, elements of volume regulation will be applied. One of the reasons why such elements are appropriate is that the CBA is still not rejecting all the principles of the monetary aggregate targeting strategy. The NFA floor and NDA ceiling will be maintained. Discretion will be explained and publicized.
6. The CBA will improve the current methods of inflation forecasting in the frameworks of a general quarterly forecasting model. The inflation forecast will become an intermediate goal that will be published quarterly for a one-year horizon.
7. Though the inflation targeting strategy is in full compliance with the Republic of Armenia Law on the Central Bank (Article 4), some language in the law needs to be changed in order to streamline the relationship with the National Assembly and the public and to increase Central Bank accountability in accordance with the newest standards. To this end, the CBA will submit draft amendments to the Government in August 2006, as per the List of Measures Supporting Performance of the Government's Action Plan. When implementing fully-fledged inflation targeting, legislative amendments will be proposed, so that the Republic of Armenia Law on the Central Bank no longer specifies limitations on broad money and lending to the economy, which would contradict the logic of a fully-fledged inflation targeting strategy. Parallel to implementing fully-fledged inflation targeting:
   - The targeting horizon will be expanded to incorporate the policy implementation impact lags;
   - A general model of inflation forecasting will be published; and
   - The level of unconditional inflation will be published.