



WP/03/179

# IMF Working Paper

---

## Nominal Anchors in the CIS

*Peter M. Keller and Thomas Richardson*

**IMF Working Paper**

European II Department

**Nominal Anchors in the CIS**

Prepared by Peter M. Keller and Thomas Richardson<sup>1</sup>

September 2003

**Abstract**

The views expressed in this Working Paper are those of the author(s) and do not necessarily represent those of the IMF or IMF policy. Working Papers describe research in progress by the author(s) and are published to elicit comments and to further debate.
---

Monetary policy has become increasingly important in the countries of the Commonwealth of Independent States (CIS) as fiscal adjustment and structural reforms have taken root. Inflation has been brought down to relatively low levels in almost all of these countries, raising the question of what should be the appropriate nominal anchor at this stage. Formally, almost all CIS countries have floating exchange rate regimes, yet in practice they manage their exchange rates very heavily, perhaps because of high levels of dollarization (i.e., they suffer from “fear of floating”). This paper explores the issues underlying the choice of a nominal anchor in CIS countries and seeks to assess whether the present mixed regime will prove durable.

JEL Classification Numbers: E42, E52, F41

Keywords: Monetary policy, exchange rates, nominal anchors

Authors' E-Mail Addresses: [pkeller@imf.org](mailto:pkeller@imf.org), [trichardson@imf.org](mailto:trichardson@imf.org)

---

<sup>1</sup> The authors would like to thank their colleagues in the IMF's European II Department for completing the questionnaire, Siddharth Tiwari for helping to launch these efforts, David Owen for joining in some of the interviews with mission chiefs, and Veronica Bacalu, José Fajgenbaum, Anne-Marie Gulde-Wolf, Richard Haas, Oleh Havrylyshyn, Adalbert Knöbl, John Odling-Smee, Jacque Polak, John Wakeman-Linn, and others for helpful comments.

Contents	Page
I. Introduction and Motivation .....	4
II. Recent Developments in Monetary Policy .....	5
A. Background .....	5
B. Fear of Floating.....	8
III. The Choice of a Nominal Anchor .....	10
A. Characteristics of the Current Approach.....	10
B. What Alternative Anchors Are Available? .....	11
C. No Single Currency Regime Is Right for All Countries or at All Times.....	16
D. Modifying the Current Approach: Dropping the Anchor? .....	17
IV. Related Issues .....	18
A. What Should Be the Inflation Target? .....	18
B. Should Price Stability Be the Only Objective? .....	19
C. The Issue of Dollarization.....	19
D. Should Central Banks Fight Dollarization? .....	20
V. Conclusions.....	21
References .....	40
 Tables	
1. CIS Countries: De Jure Exchange Rate Regimes .....	6
2. Volatility of Selected Indicators, January 1999–December 2002 .....	9
 Figures	
1. Broad Money/GDP .....	4
2. Foreign Currency Deposits/Total Deposits.....	5
3. CIS: CPI Inflation .....	7
4. Nominal Exchange Rates.....	8
 Appendix	
I. Developments in Monetary Policy in the CIS .....	24
A. Monetary Policy Objectives.....	24
B. Institutions and the Choice of a Nominal Anchor .....	25
C. Transmission Mechanism .....	26
D. Other Policy Instruments .....	27

Appendix Tables

1. Banking Sector Credit to Government, Net.....	27
2. Banking Sector Credit to Economy, Net.....	27
3. Monetary Policy Instruments.....	29
4. Monetary Policy Objectives.....	30
5. Choice of Nominal Anchor.....	32
6. Transmission Mechanism.....	35
7. Choice of Targets Under IMF Programs.....	37
8. Other Questions.....	38

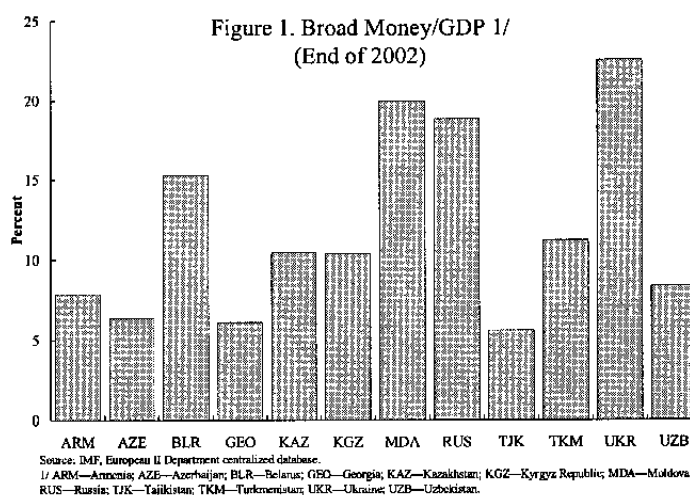
Appendix Figure

1. Foreign Currency Deposits/M3.....	27
--------------------------------------	----

## I. INTRODUCTION AND MOTIVATION

Much has changed over the course of approximately a decade of Commonwealth of Independent States (CIS) central banks gaining experience with managing independent national currencies. Monetary policy is beginning to play an increasingly important role. The main reason is the reduction of fiscal dominance as budget deficits have, by and large, been brought under control or even turned into surpluses (e.g., Kazakhstan, Russia). Moreover, most central banks are generally much less engaged than in earlier years with quasi-fiscal operations, such as providing directed credits at below-market interest rates to struggling public sector enterprises.<sup>2</sup> In most countries, politicians have now accepted the link between the money supply and inflation. After the disruptions created by the 1998 Russian crisis,

confidence in domestic banking systems appears to be growing in most CIS countries. Financial deepening is proceeding—in several countries at a very fast pace—and bank deposits have become freely convertible internally (and often also externally), with some notable exceptions. Although ratios of the monetary and credit aggregates to GDP are still well below those observed in the Baltic or Eastern European

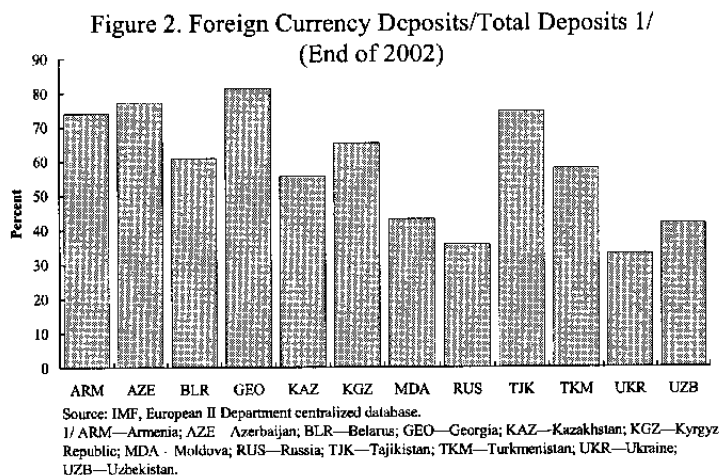


countries, they are rising rapidly in many CIS countries (Figure 1). These elements suggest that money and monetary policy are finally beginning to matter in the CIS context and their importance will certainly grow over the medium term.

Section II takes stock of the monetary policies pursued in recent years in individual CIS countries, including the policy objectives targeted. With very few exceptions, inflation has been brought down from near hyperinflation to single digit annual rates. Exchange rates—while formally floating—are, in effect, heavily managed, and in some cases the outcome comes close to a fixed peg. Exchange market interventions are typically one-sided and aimed at preventing or at least slowing the real appreciation of the currency. While a variety of monetary instruments has emerged, in most instances the main influence on the money supply still comes from exchange market interventions, with the extent of sterilization constituting the major policy decision of central banks. Interest rate policies are only now beginning to play an important role in some CIS countries. Dollarization remains high, and this has a bearing on the degrees of freedom of monetary policy—although it has not

<sup>2</sup> In what follows, Turkmenistan is included where data are available, but throughout the analysis data for this country should be treated with caution.

undermined the very substantial progress made in reducing inflation. Money demand remains difficult to predict, and there are spurts of unforeseen financial deepening. Frequent corrections to policy targets have, however, enabled policymakers (including in the context of IMF-supported programs) to cope with this problem. In most CIS countries, monetary policy appears to be aimed mainly at achieving an inflation objective rather than a balance of payments outcome. This emphasis, despite the traditional focus of financial programs on external adjustment, probably stemmed from the following: (i) balance of payments objectives did not figure prominently among the concerns of policymakers, at least, in part, because Russia had taken responsibility for the Soviet Union's external debt; (ii) with exchange rates more fixed than floating, fiscal policy is the instrument of choice for balance of payments correction while monetary policy is more effective for achieving the inflation objective (Mundell's assignment problem (Mundell, 1962)); and (iii) given the low level of monetization, monetary policy would have been relatively ineffective in achieving a balance of payments objective.



Section III discusses the potential risks entailed in the current approach and explores the various options for anchors to guide monetary policy—namely money supply rules, exchange rate pegs, and direct inflation targeting—in a formal framework based on an empirical model. It also discusses the scope for the current approach to evolve. Section IV covers related issues—namely, what the inflation target should be; whether there are targets other than inflation; and what, if anything, should or can be done to reduce dollarization so as to create greater scope for exchange rate flexibility. Section V concludes, and Appendix I offers a cross-country progress report on mechanisms of monetary policy formation in the CIS.

## II. RECENT DEVELOPMENTS IN MONETARY POLICY

### A. Background

Inflation has come down in virtually all of the CIS countries, and has reached very low levels in a few. Macroeconomic policies, including in particular deep fiscal adjustment, have shown themselves capable of achieving low to moderate inflation on a durable basis. Over the past four years, sustained disinflation has been achieved in the Caucasus, Kazakhstan, the Kyrgyz Republic, Moldova, and Ukraine, and, to a lesser extent, in Russia and Tajikistan. Relatively high levels of inflation have persisted in Uzbekistan and particularly in Belarus.

Most CIS countries have free or managed floating exchange rate regimes—at least on paper.<sup>3</sup> The official rate in Turkmenistan seems to be pegged and differs by 400 percent from the curb market rate, while Belarus has a crawling band. Four CIS countries—Armenia, Georgia, Moldova, and Tajikistan—report freely floating exchange rate regimes, while the remainder report managed floats.

**Table 1. CIS Countries: De Jure Exchange Rate Regimes**

Type of Regime	Country
Fixed peg	Turkmenistan 1/
Crawling band	Belarus
Managed float	Azerbaijan
	Kazakhstan
	Kyrgyz Republic
	Russia
	Ukraine
	Uzbekistan
Independent float	Armenia
	Georgia
	Moldova
	Tajikistan

Source: IMF, *Annual Report on Exchange Arrangements and Exchange Restrictions*, 2003.  
1/ De facto peg; de jure regime is unknown.

However, many of the CIS countries seem to manage the exchange rate heavily, and thus it would be difficult to consider them floaters in practice. In part this observation stems from interventions to rebuild reserves following the Russia crisis. Ukraine has seen very little nominal exchange rate movement vis-à-vis the U.S. dollar since early 2000, and at least through the first half of 2003, Kazakhstan's tenge tracked the Russian ruble closely. Both Georgia and the Kyrgyz Republic have also witnessed relatively modest exchange rate volatility during the past three years. In most cases, the authorities point to the tight and rapid link between inflation and the exchange rate as a key reason why they prefer relatively stable exchange rates, although in a number of countries concern about the impact of an appreciation on economic performance plays a role as well.

<sup>3</sup> Differences between de jure and de facto exchange rate regimes can also go the other way. In the Western Hemisphere, for example, the shelf life of a “fixed” exchange rate was substantially less than a year (Klein and Marion, 1997).

Figure 3. CIS: CPI Inflation  
(12-month percent change)

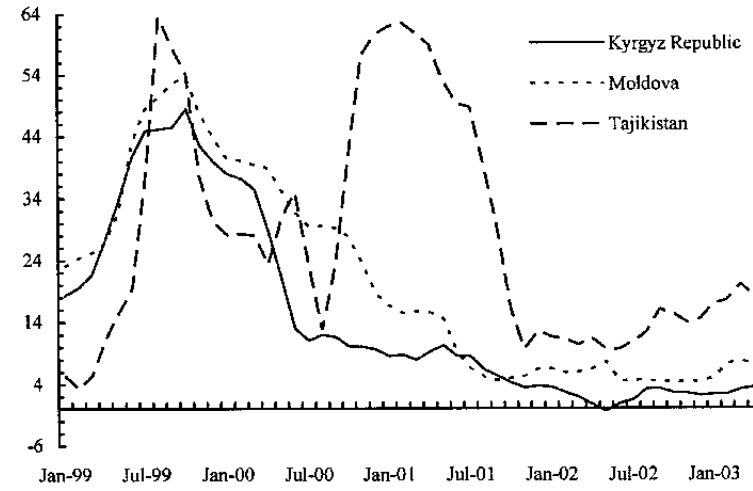
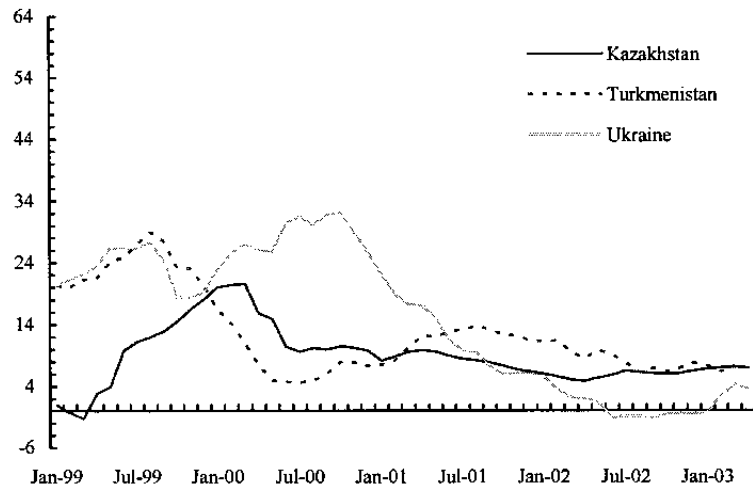
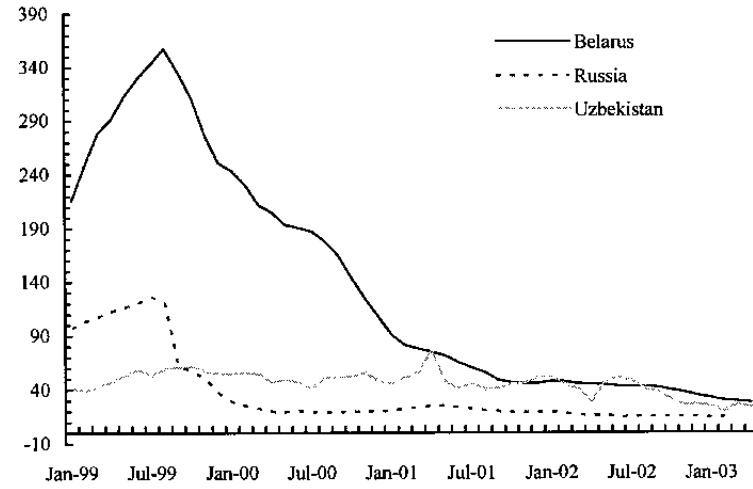
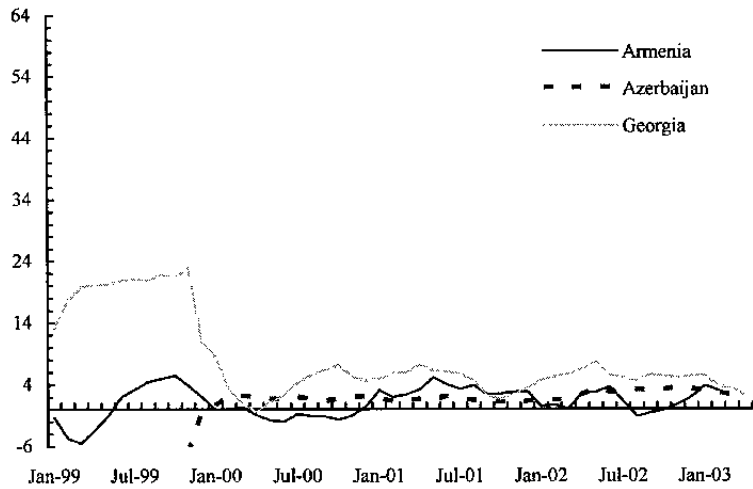
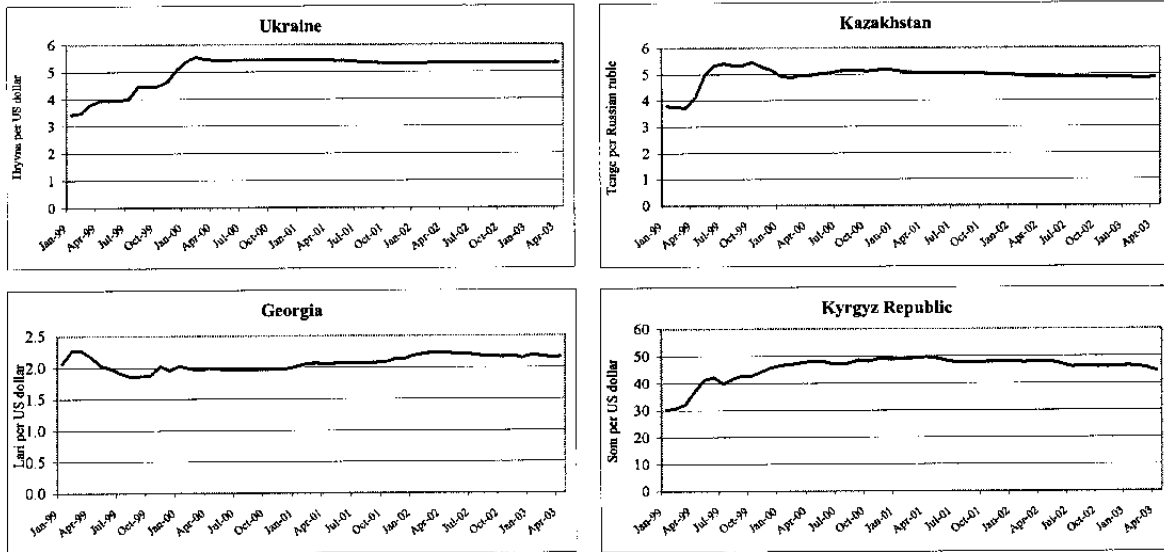




Figure 4. Nominal Exchange Rates



### B. Fear of Floating

One other explanation for the divergence between de jure and de facto exchange rate regimes may stem from “fear of floating.”<sup>4</sup> This type of implicit resistance to floating is pervasive in many parts of the world, including in the CIS, and a number of possible explanations have been offered for it, including high levels of liability dollarization, potential output costs if exchange rates are highly variable, and constraints on borrowing in external markets. Table 2, which replicates a key result of Calvo and Reinhart, shows the probability that monthly changes in nominal exchange rates and gross reserves are within a  $\pm 2.5$  percent band.<sup>5</sup> Over the period from January 1999 to end-2002, the volatility of reserves was about twice that of the nominal exchange rate. This result is even stronger if one excludes countries where reforms are at a relatively early stage—Belarus, Tajikistan, Turkmenistan, and Uzbekistan. If 1999—the post-Russia crisis year—were excluded, the volatility of the exchange rate would in most cases be still less.

<sup>4</sup> Calvo and Reinhart, 2002.

<sup>5</sup> It also shows the probability that changes in nominal interest rates are within a  $\pm 4$  percent band.

Table 2. Volatility of Selected Indicators, January 1999–December 2002

	Probability the monthly change is:		
	Within a +/- 2.5 percent band		Greater than +/- 4 percentage points
	Exchange rate	Gross reserves	Nominal interest rate 1/
<b>CIS Countries</b>			
<i>Independent float</i>			
Armenia	97.7	68.9	22.2
Georgia	79.5	38.6	11.6
Moldova	84.8	43.2	2.4
Tajikistan	57.8	25.0	37.1
<i>Managed float</i>			
Azerbaijan	97.7	47.7	0.0
Kazakhstan	88.4	34.1	0.0
Kyrgyz Republic	81.4	30.0	19.5
Russia	89.4	43.2	10.0
Ukraine	85.1	26.1	19.6
Uzbekistan	55.3	36.4	7.5
<i>Crawling band</i>			
Belarus (10/00 - 12/02)	48.1	18.5	46.2
<i>CIS Average</i>	78.7	37.4	16.0
<b>Non-CIS Countries</b>			
<i>Independent float</i>			
Brazil	47.7	46.7	9.8
Mexico	81.8	73.3	2.2
Peru	97.7	73.3	0.0
Poland	72.7	73.3	0.0
<i>Managed float</i>			
Croatia	65.9	51.1	0.0
Paraguay	70.5	24.4	17.8
Slovak Republic	63.6	46.7	0.0
Slovenia	56.8	46.7	0.0
<i>Non-CIS Average</i>	69.6	54.4	3.7
<i>Memorandum items:</i>			
Belarus (1/99 - 12/02)	29.5	18.2	44.8
Turkmenistan 2/	100.0	63.2	58.3

Source: IMF, European II Department centralized database and International Financial Statistics.

1/ Three month T-bill rate.

2/ De facto fixed peg; data on reserves extend to the end of 2000; interest rate data from January 2000 to January 2001.

Fear of floating in the CIS is at least as strong as in more widely studied emerging market countries. Table 2 also shows a sample of Central European transition and Latin American countries, equally divided into managed and free floaters. Exchange rate stability in these countries still exceeds that of reserves, but by noticeably less than in the CIS.

Table 2 also shows that most CIS countries do not seem to rely on interest rate policy in the conduct of monetary policy and to smooth movements in the exchange rate. The volatility of nominal interest rates in the eight more advanced countries is only about one quarter of that in the relatively slower reformers, where inflation and exchange rate volatility remain high. (Interest rate volatility is still lower in the non-CIS countries in Table 2.)

The foregoing points to the existence of a number of unresolved problems affecting monetary policy formation in the CIS. In the early years of transition, monetary and fiscal policies were often directed toward support of failing state enterprises. In marked contrast, price stability has now become a core goal of the monetary authorities in almost all of them. At the same time, in a few countries price stability is in conflict with, even subordinated to, a fear of the loss of competitiveness associated with real appreciation. Although the financial sectors in CIS countries are growing, they remain small in absolute terms, and are heavily dollarized. Moreover, the nonbank financial sectors are just emerging. Central banks are usually independent, at least on paper, but many of them are quite politicized, and directed credits remain a problem in a few countries. The relationship between monetary aggregates, inflation, and output is not subject to reliable econometric specification (despite the gradual abatement of barter transactions).<sup>6</sup> These factors heavily influence the choice of a nominal anchor for the conduct of monetary policy in the post transition period.

### **III. THE CHOICE OF A NOMINAL ANCHOR**

#### **A. Characteristics of the Current Approach**

Although the precise relationships between monetary aggregates and inflation outcomes remain difficult to predict, the very short time lags in the CIS between changes in policy instruments and in inflation outcomes make error correction relatively easy. While in the larger industrial countries such lags have been estimated at 1½ to 2½ years, lags in CIS countries are 3–6 months or less for a nearly complete pass-through of a monetary impulse. In the countries with the least developed financial markets, much of the effects of a change in the money supply on inflation can be felt within a matter of weeks and on the exchange rate even within days. In effect, in recent years, CIS policymakers (supported by IMF-programs) were often quite successful in achieving inflation objectives (in the absence of fiscal dominance). The incomplete understanding of the rapidly changing behavioral relationships

---

<sup>6</sup> Appendix I provides a cross-country progress report on the objectives and institutions of monetary policy in the CIS.

(such as money demand or money multiplier) and the underlying lag structure, was often successfully compensated for by frequent adjustments of the monetary instruments. Stone (2002) labeled this approach as “inflation targeting lite,” which, however, conveys a sense of greater precision and sophistication than may actually be the case. Mussa and Savastano (1999), in discussing the success of IMF-supported programs in general, stress that the “usefulness of financial programming depends not so much on the accuracy of its forecast, as on the *flexibility* for revising the main numerical targets as new information becomes available.” They characterize this iterative process as “open loop.” In any case, this approach has worked well particularly where the objective was to reduce inflation from still relatively high rates. Lissovolik (2003) supports the conclusion that this approach may not be as effective when the goal is to fine-tune inflation outcomes.

The main concerns with the current approach relate to the heavy focus by most, if not all, CIS countries on the exchange rate in addition to the inflation objective. While some “fear of floating” is understandable given the high degree of dollarization of the financial systems in most CIS countries, excessively stable nominal exchange rates (i) reinforce dollarization, (ii) reduce the effectiveness of monetary instruments, (iii) make it difficult to maintain control over monetary aggregates in the face of increasingly large capital flows, and (iv) could, down the road, result in serious misalignment of exchange rates.

However, the present approach has so far been very successful in lowering inflation in most CIS countries. Switching to a different approach or to different approaches (depending on the circumstances of the country) should, therefore, not be rushed without careful consideration of all available options and recognizing that introducing a new anchor entails additional risks during the switch of regimes as the choice of the regime is not *de novo*.

## **B. What Alternative Anchors Are Available?**

We will examine in turn the advisability of (i) the “classical” money supply rules, (ii) the even older exchange rate pegs, and (iii) the “fashionable” direct inflation targeting framework as possible anchors.

### **Money Supply Rules**

The IMF’s approach to monetary programming was developed in the late 1950s and 1960s (e.g., Polak, 1957) when economists were heavily under the influence of Anna Schwartz and Milton Friedman’s empirical work demonstrating that changes in nominal income were irrefutably linked, if not proportional, to changes in the money supply. The early “Polak” model was based on the assumption of a constant income velocity of money, and Polak (1997) argues that the strict quantity theory was in general a reasonable approximation. While the model does not provide a breakdown between changes in real GDP and in the price level, in high inflation situations this is not an issue as any change in output is dwarfed by changes in the price level.

Conceptually, money-supply rules are not suitable where the demand for money is very difficult to predict including because of uncertainties related to the remonetization process. The relationship between monetary aggregates and nominal GDP growth does not necessarily remain stable even in industrial countries.<sup>7</sup> The instability and unpredictability of this relationship appears to be, however, particularly high in the CIS and compounded by a paucity of reliable data. This said, IMF-supported programs generally continue to set credit ceilings and NIR targets with a view to bringing about a certain rate of monetary expansion.<sup>8</sup> Is this situation perhaps akin to that of the proverbial drunk, who looks for his lost keys under the street light not because he lost the keys there, but because there is light? A more benign interpretation would suggest that—as argued by Mussa and Savastano (1999)—forecast errors are typically successfully dealt with through IMF program reviews, automatic adjusters, and waivers or modification of performance criteria. Thus, money-supply targets are often shortlived and, therefore, do not “anchor” monetary policy in contrast to, for example, in Germany before the euro-area’s creation or the United States in the 1960s and 1970s.

Why do CIS policymakers state that they target monetary aggregates when they do not, but instead attach greater importance to relatively stable exchange rates? Part of the explanation may be the bureaucratic requirement formally to target monetary or credit aggregates in the context of Fund-supported programs. Despite obvious shortcomings, quantitative monetary targets figure prominently in a program context, as they are suitable for precise and timely testing. Moreover, it has been argued in the literature that meeting a declared money supply target could allow policymakers to establish credibility quickly, although this argument may not be relevant in the CIS. While a money-supply rule is easily understood by CIS central bankers, it is far less understood by government officials and perhaps not at all by the general public. Also, the theoretical linkage between money supply and inflation is still not fully understood outside central banks and narrow financial circles, although most senior policymakers now accept that rapid monetary expansion is inconsistent with price stability. By assuming responsibility for meeting a money-supply target rather than a specific inflation

---

<sup>7</sup> In a recent interview in the *Financial Times*, Milton Friedman is quoted as saying that, “The use of quantity of money as a target has not been a success,” (June 7/8, 2003, Weekend Section, page W3).

<sup>8</sup> Strictly speaking, programs typically target both a certain expansion of credit and a change in money supply. In a perfectly flexible exchange rate setting this distinction becomes irrelevant. Under a more-or-less fixed exchange rate regime limiting domestic credit expansion will strengthen the overall balance of payments, but money supply is not under the control of the authorities. For example, an unexpected gain in confidence in the currency will pull in reserves. Polak (1997, pp 16, 17) suggests that “... it will be possible to rejoice over the increase in reserves without feeling qualms about the rise in money supply” and “to frustrate this demand by either a float or (with a fixed rate) putting a ceiling on the money supply would needlessly depress the economy.”

outcome, CIS central banks can safely point to a myriad of factors that influence price level changes such as harvest outcomes and tax rate changes without assuming responsibility for unfavorable inflation outcomes. Directly targeting a specific inflation outcome instead would, of course, require a more active response of monetary policy to such events and more difficult judgments.

Pursuing the wrong money-supply target because money demand has been misjudged is not cost free. There are examples in the CIS context (and elsewhere) of periods of unexpectedly rapid monetization where inflation targets were met with unexpectedly high rates of monetary expansion and where the observance of money-supply targets could have led to massive recession (e.g., Russia in 2001 and Ukraine in 2001/2002). As noted below, overly tight monetary policies may have been behind the economic downturns in the Czech Republic and Poland.

### **Exchange Rate Anchors**

As discussed earlier, most, if not nearly all, CIS countries rely de facto on the nominal exchange rate as an anchor, but typically not as the exclusive anchor for monetary policy. Will this “fear of floating” continue? The answer is most likely affirmative for the next few years. For one, at least in the smaller and poorer CIS countries, financial markets are likely to remain very thin, and even in the more advanced economies, foreign exchange and domestic money markets have yet to develop depth and liquidity. Fears that exchange rates would overshoot<sup>9</sup>—whether justified or not—are likely to remain for some time an obstacle to freer floating. Also, in the heavily dollarized economies of the CIS, particularly in those where banks have extended dollar-denominated credits to borrowers without an earning base in foreign currencies, retaining some fear of floating would not be irrational given the likely impact of large exchange rate changes on financial sector stability. Moreover, the exchange rate to the U.S. dollar will more than likely continue to be widely followed by the population. Domestic currency prices of imported (and import competing) goods follow closely exchange rate movements and this has a substantial impact on the price index and perhaps even more importantly on inflation expectations. Stabilizing the exchange rate vis-à-vis the dollar, or keeping a downward slide of the exchange rate within narrow limits, will thus continue to provide immediate confirmation about the relative success of monetary policy in limiting inflation. And there is little doubt that, at least in the Baltics, fixed exchange rates have reinforced fiscal and financial discipline.

Should CIS countries take the final step and move to hard exchange pegs (or full dollarization) as monetary anchors as advocated in some of the recent literature for dollarized

---

<sup>9</sup> This phenomenon also exists in very deep markets (Dornbusch, 1976), viz., the swings in the euro-dollar or yen-dollar exchange rates. However, day-to-day fluctuations are generally relatively modest except at times of crisis.

economies?<sup>10</sup> Hard exchange rate pegs have been very successful in the Baltics in anchoring macroeconomic policies after a period of high inflation. Also, Austria and the Netherlands had successfully linked their currencies to the deutsche mark for long periods before the introduction of the euro.<sup>11</sup> There is also little doubt that managing successfully an independently floating currency is not an easy or inexpensive task, and perhaps not cost effective for small countries (Buiter, 2002). Looking back over the relatively short history of CIS currencies, one might well argue that the freedom to pursue an independent monetary policy—and letting the exchange rate go—has generally not been put to good use. Particularly in the early transition periods, loose monetary policies may well have reduced economic growth as they delayed structural reform through validating soft budget constraints and because high inflation rates severely distorted resource allocation.<sup>12</sup> And there is no guarantee that inflation objectives will not at the time of some future crisis become again subordinate to budget financing and quasi-fiscal operations.

With inflation rates much reduced in the CIS, a move toward hard pegs would, in general, not be motivated primarily by a need for rapid progress on inflation although gaining policy credibility could be an important consideration for some countries. Several CIS countries aiming at closer trade (and political) integration with neighbors are already considering linking their currencies, although the energy exporters (Russia, Kazakhstan) and energy importers (Belarus, Ukraine) in this group face very different external shocks. In the absence

---

<sup>10</sup> Moron and Winkelried (2003) argue that dollarization of liabilities and flexible exchange rates does not seem to be an appropriate combination. Calvo (1999), Hausmann, et al (1999), Berg and Borensztein (2000) suggest that high liability dollarized economies should move toward a more fixed regime or full dollarization, while others should move towards greater flexibility.

<sup>11</sup> In addition to benefiting from the reputation of the German Bundesbank, a major motivation was to foster closer integration with a large trading partner. There is strong empirical evidence that a fixed peg, and even more so a common currency, promote trade and that increased trade supports higher economic growth (Rose, 2000). This is particularly important for small open economies and, therefore, worthwhile to consider also in the CIS context.

<sup>12</sup> An unanswerable, but nevertheless interesting, question remains whether currency boards (as in the Baltics) or outright dollarization in most CIS countries at the beginning of the transition process, particularly in smaller ones, would have provided a more transparent and stable macroeconomic framework for the transition process. Given the low degree of monetization in CIS countries, the loss of seignorage would have been small. However, the Argentine experience suggests that governments may well have quickly undermined the monetary system by creating unofficial parallel currencies (scrip) to avoid wage and pension arrears and sustain unprofitable enterprises. Indeed, coupon currencies emerged in some CIS countries in the early transition years, but are no longer an issue.

of large intergovernmental support arrangements, exchange rate pegs or links would, however, need to be to currencies of countries that are exposed to symmetric rather than asymmetric shocks. This said, being exposed to identical shocks is in itself an insufficient reason for a monetary union. Specifically, why would a country link its currency to that of a neighbor with much higher inflation or to the currency of a country with much stronger pressures for real appreciation?

### **Direct Inflation Target Framework<sup>13</sup>**

As described earlier, all CIS countries are pursuing price stability and the progress made has in most instances been remarkable. However, none of the CIS countries is targeting inflation within a formal direct inflation targeting framework derived from empirical models linking policy action to inflation outcomes. Only in the case of Russia has a possible shift to direct inflation targeting been extensively discussed, while Kazakhstan and some other CIS countries have expressed an interest in moving in this direction.

What are the reasons why formal direct inflation targeting the way it is understood, for example, in Canada, New Zealand, South Africa, Brazil, Chile and some Central and Eastern European Countries, is not currently pursued by CIS countries? And can it become a viable option for the near term? First, at this stage, the relationship between changes in policy instruments and inflation outcomes remains in all CIS countries insufficiently predictable or stable as the rapid transformation of their economies and their financial sectors continues. A premature introduction of direct inflation-targeting would therefore entail substantial risks, including of discrediting this approach altogether. For example, in reviewing the experience with direct inflation targeting by the more advanced East European transition countries (the Czech Republic, Poland, and Hungary), Jonas and Mishkin (2003) note that inflation targets were often missed by wide margins. They argue that undershoots of inflation targets in the Czech Republic and Poland have resulted in serious economic downturns and undermined central banks. In their view, the main reason was the increased uncertainty prevailing in transition economies, which makes it particularly difficult to predict inflation sufficiently well as required by the forward-looking nature of formal direct inflation targeting.

For now, there are no reliable empirical models for CIS countries that can firmly link policy actions to inflation results. Reliable empirical models are, however, indispensable requirements for full-fledged inflation targeting. It is difficult to predict whether within the next few years such models could be estimated with any degree of confidence in one or two of the CIS countries. Second, successful introduction of direct inflation targeting requires both **credibility** of the policymakers and **transparency** in the policy-decision-making process. While important progress has been made in this regard over the last decade,

---

<sup>13</sup> We reserve the term “direct inflation targeting” to mean the use of a formal, empirical model-based, inflation targeting framework.



substantially more remains to be done.<sup>14</sup> Third, the concept of **core inflation** would need to be developed. In particular, food price fluctuations linked to the results of the harvest, administrative price adjustment, Balassa-Samuelson effects, and, possibly, price shocks from exchange rate changes would need to be separated out. While primarily a technical issue, the definition of an appropriate inflation measurement is also intimately linked to questions of credibility and transparency.

### C. No Single Currency Regime Is Right for All Countries or at All Times<sup>15</sup>

In an open economy, exchange rate policy and monetary policy are essentially two sides of the same coin. As discussed above, choosing a formal, direct inflation-targeting framework requires a freely floating exchange rate regime, while, by definition, the use of a hard exchange rate peg or full dollarization precludes exchange rate adjustments, except in extreme situations. It would, therefore be important to consider the choice of anchor for monetary policy together with the question of broader suitability of the concomitant exchange regime choice. Fleming (1962) and Mundell (1961) showed that under high capital mobility<sup>16</sup> fixed and floating exchange rate regimes have starkly different implications for the choice of policy instruments (monetary policy, fiscal policy) for the achievement of the targets of domestic and external balance. Reversing this argumentation and reinterpreting monetary and fiscal policies as nominal and real shocks (Gulde and Keller, 2002), fixed exchange rates provide greater protection for output and/or price level in the face of nominal shocks, while floating exchange rates offer better insulation against real shocks.<sup>17</sup> A pegged exchange rate regime will, therefore, be preferable to a floating rate regime when the central bank has an incentive to generate surprise inflation—and is unable to credibly pre-commit to not doing so—or when unanticipated monetary shocks predominate. However, when real shocks predominate and establishing policy credibility is less of an issue, a floating exchange rate regime may be preferable.<sup>18</sup>

Countries are not unconstrained in regime choice. For one, countries may simply not be in a position to credibly peg their rates because of an insufficient level of foreign exchange reserves. A second consideration is that depending on the degree of capital mobility, there is little or no scope for monetary policy under a fixed exchange rate, and the full burden of macroeconomic policies falls on fiscal policy. The latter may perhaps not be flexible enough

---

<sup>14</sup> See, for example, Banerji (2003) and Bassett (2003).

<sup>15</sup> Title taken from that of the Graham Lecture by Frankel (1999).

<sup>16</sup> Even with less than perfect capital mobility, these results largely hold.

<sup>17</sup> This is an extension of the argument in the original Poole paper (Poole, 1970).

<sup>18</sup> Some observers judge that real shocks predominate in CIS countries.

to do the job and is constrained in any case by the risk of high budget deficits or public sector debt undermining the credibility of the exchange rate peg.

#### **D. Modifying the Current Approach: Dropping the Anchor?**

Should CIS countries set aside their fear of floating and permit greater and perhaps much greater exchange rate flexibility despite the risks brought on by a high degree of dollarization? Or should they move towards the other extreme and actually forgo monetary policy altogether and formally peg their currencies, and, if so, to what currency? Or is there a viable middle ground where it is sufficient to only keep an eye on the exchange rate when conducting monetary policy?

After years of lip service to floating exchange rates while heavily managing exchange rates, it appears that CIS countries remain to be convinced that conducting monetary policy in a setting of more freely floating exchange rates would provide a superior approach. Also, intermediate solutions have gained substantial acceptance in some of the recent literature. (See Williamson (2000)) for a spirited defense of intermediate exchange rate regimes and also Frankel (1999).) And there are not many examples of freely floating exchange rates in the world, setting aside Canada, the United States, Euro zone, Japan and some other countries which are not particularly relevant examples. Moreover, the main reasons economists advocated floating exchange rates was a fear of rigid or managed exchange rates becoming increasingly overvalued, eventually leading to balance of payments crises and recession (Fischer, 2001). Balance of payments pressures, over-valued exchange rates and recession are not—at least not currently—major concerns for most CIS countries. On the other hand, given the progress already achieved in lowering inflation, the incentives for moving to hard pegs, crawling pegs, or preannounced devaluations are also not very strong.

Switching to one of the corner solutions of either a formal inflation targeting framework or hard peg as anchor would be a radical approach, while the middle ground has proven viable in many countries. In the CIS context, the latter approach would entail policymakers eschewing the corner solutions, while adjusting monetary policy frequently to maintain acceptable levels of price and exchange rate stability. Yet some observers judge that adoption of a formal inflation targeting framework could be a useful ultimate goal of monetary policymakers in some CIS countries, even if their institutions are not now adequate to the task. Barring large crises that would make radical changes in the monetary regime acceptable, an evolutionary approach may instead be called for. In current circumstances, it would seem desirable to encourage more limited exchange market interventions and the acceptance of (gradually) increased exchange rate flexibility to discourage even greater dollarization and gain better control over the money supply. Moreover, it will be important to demonstrate that lending or borrowing in foreign currency does not entail a one-way bet on the exchange rate. There are divergent views as to how much the high degree of dollarization and underdeveloped exchange markets in the CIS limit the exchange rate flexibility to less than would be needed in a direct inflation targeting framework. In our view, a substantial reduction in the dollarization of the financial sectors in the economies would be required

before the option of conducting monetary policy in the context of freely floating exchanges could be considered.

#### IV. RELATED ISSUES

##### A. What Should Be the Inflation Target?

Now that inflation rates have come down from very high levels in nearly all cases, and into the single digit range in many CIS countries, it will no longer be a case of just aiming at lowering inflation, per se, but at targeting a specific outcome or range. Studies of Central and Eastern European experience suggest that a reduction in inflation from the double- and triple-digit range was associated with very substantial output gains (Stavrev, 2003). Stavrev also finds that lowering inflation further to the low single-digit range would most likely be associated with some modest, short-term output losses. A target of near-zero inflation is not desirable, mainly because nominal interest rates cannot become negative and monetary policy would become unable to stem deflationary trends (e.g., Japan).

In recent years, transition economies in Eastern Europe have typically recorded inflation rates in the single digits, but substantially above the rate in the United States or the EU. With nominal wages and prices downward rigid—although to varying degrees and perhaps less than in industrial countries—it may be difficult for CIS countries to achieve both a fast transformation of the economy, entailing a large-scale reallocation of factor inputs, and a high degree of price stability. If the authorities are prepared to accept nominal appreciations of their currencies rate, **price stability can be “imported”** via falling prices of traded goods that would compensate for the unavoidable increases in the absolute and relative prices of nontraded goods (i.e., the service sector where productivity gains are slower) in a growing economy. For now, the political reality in CIS countries seems to be that officials find it easier to pursue a weak currency policy so as to be seen as supporting the export sector and import competing industries. Moreover, these industries seem to be able to generate more focused political pressure than the diffuse groups and broad population affected by higher inflation. In other words, there is not—or not yet—a strong enough lobby for price stability that would encourage politicians to allow inflation objectives to override exchange objectives.<sup>19</sup>

Gradualism in lowering inflation may be more desirable than a quick adjustment that cannot be sustained. Moreover, care needs to be taken to define the inflation target appropriately and realistically so as not to create obstacles to much-needed adjustments of prices, such as for

---

<sup>19</sup> Post-World War II Germany is an example of a country with strong export-led growth despite substantial nominal appreciation of the deutsche mark against the U.S. dollar (from DM 4.8 to about DM 2 to the dollar by the time of the introduction of the euro). Japan, Switzerland, and Austria are further examples.

example, utility tariffs. However, setting an inflation target net of administrative price adjustments could mean a less transparent target than headline inflation.

### **B. Should Price Stability Be the Only Objective?**

Central Banks generally have pursued financial stability with bank regulations and supervision, maintenance of a secure and efficient payment system, and creating sound macroeconomic fundamentals.<sup>20</sup> Central banks provide liquidity to banks, including as lenders of last resort. Even “inflation targeters” (such as the Bank of England and the Reserve Bank of New Zealand) have financial stability as an explicit objective. In addition, some central banks have a mandate also to promote economic growth or to sustain output.

In the CIS countries, there is so far little evidence of a business cycle or, at least, not one as it is understood in western economies. It may well be that business cycles have so far been masked by the more massive impact of transformation on CIS economies. For now, it would seem appropriate to use monetary policy not for anticyclical purposes, but instead to focus on the primary objectives of price and financial sector stability.<sup>21</sup>

### **C. The Issue of Dollarization**

Dollarization is a reality in the CIS countries. Dollarization reflects a choice by household and firms to protect themselves from a recurrence of high inflation by diversifying their assets. It also reflects the opening up of CIS economies to trade with the rest of the world. **Dollarization of assets** is particularly widespread, be it in the form of dollar-denominated bank deposits or dollar bills under the proverbial mattress. **Liabilities** have also been dollarized. In most CIS countries, more than half of bank loans or mortgages are typically extended in dollars, or indexed to the U.S. dollar, with dollarization highest for liabilities with longer maturities. **Payments dollarization** is prevalent for large household transactions involving apartments or cars or illegal and grey-market transactions (Oomes, 2003). Also intra-CIS trade is mostly invoiced, and paid for in U.S. dollars, including pipeline fees and similar charges. “**Real dollarization**,” defined as setting prices and wages in U.S. dollars also exist even when payments dollarization does not (legally) exist, e.g., prices for appliances, hotel services and some restaurants are often calculated in U.S. dollars, but settlement is typically required in local currency. If this were not required, it would perhaps be more convenient and entail lower transaction costs to settle directly in dollars. There is anecdotal evidence that enterprises are also frequently pricing in U.S. dollars when dealing

---

<sup>20</sup> This section draws in part on oral remarks made at the IMF in September 2002 by Roger Ferguson, Vice Chairman of the Board of Governors of the U.S. Federal Reserve System.

<sup>21</sup> Of course, many economists would argue that an active output-oriented monetary policy is also inappropriate in industrial countries and that central banks should instead only focus on the inflation objective.

with each other and that the private sector wages are at times set with an eye to the exchange rate to the dollar.

The origins of dollarization are twofold: First, in the Soviet Union days, dollars gave access to goods and services that were not otherwise available (e.g., dollar shops, travel to the west, imports of spare parts and machinery from outside the CIS) and the ruble was not easily converted into dollars. In the early years of transition, high inflation rates gave strong encouragement to the use of the dollars, including cash dollars. In addition, dollarization allowed the diversification of portfolios, including by investments into assets with longer maturities and into stocks, which were not available in domestic currency-denominated assets. More than a decade later, with inflation now under control in most CIS countries and currencies increasingly convertible, the portfolio choice argument still applies and the fear still lingers that governments and central banks may not be able or willing to pursue appropriately tight monetary policies if faced with adverse shocks. Even a remote possibility of a return to high inflation is sufficient to discourage holding of longer term financial assets denominated in domestic currencies. (The hysteresis of dollarization is a well-documented phenomenon also in developing countries.) This has led to a large share of time deposits being denominated in U.S. dollars and governments issuing domestic debt denominated in U.S. dollars that affords private savers and pension funds some protection and opportunities for diversification. Protection from inflation and exchange rate risk may, however, be an illusion in the case of very severe shocks, as dollarization increases the default risk for banks and the vulnerability of the financial sector and the economy as a whole.

Substantial denomination in dollars (or indexation to dollars) of banks' assets and liabilities makes exchange rate adjustments more costly. Knowing that the authorities might therefore be hesitant to adjust the exchange rate can create a moral hazard and encourage firms to borrow excessively and cheaply in foreign currencies rather than in domestic currency, adding to the fragility of the economy.

#### **D. Should Central Banks Fight Dollarization?**

With the expected accumulation of financial assets over time by households, pension funds, and other institutions, dollarization may become a more important issue in the CIS (as is already the case in Latin America). Reducing, or limiting the increase in, dollarization through appropriately tight monetary and fiscal policies is therefore desirable so as to reduce the future vulnerability of the economy and the banking system. Differentiated reserve requirements applied to stocks or increases in dollarized deposits could also be considered. Reduced dollarization would also create the necessary degrees of freedom for greater exchange rate flexibility and the option to pursue at some later stage direct inflation targeting, if so desired. This said, all these measures are unlikely to yield substantial progress in the short term, and there are only few examples of countries, such as Israel and Poland, succeeding in substantially lowering dollarization.

Taking recourse to more heavy-handed measures, such as outlawing foreign currency deposits in banks, or imposing surrender requirements on exporters, would, however, most

likely be counterproductive. Experience has shown that business and wealthy households can quickly find ways to build-up financial assets outside the country (even now payments are made between CIS firms through foreign banks that entirely bypass the domestic banking system). The result would be increased demonetization of the domestic banking system, capital flight, and tax losses.

## V. CONCLUSIONS

While there are important differences among CIS countries as regards financial sector developments, there are also very important similarities:

- Financial deepening is progressing, but its often substantial speed varies a great deal between countries and across time and remains difficult to predict. The size of the banking sector remains small compared with the Baltic and Eastern European countries. The nonbank financial sector is just emerging, even in the most advanced countries.
- Fiscal dominance has subsided in most countries, and this is permitting monetary policy to begin to play a more important role. Financial markets, however, remain seriously underdeveloped and interest rates or more sophisticated policy instruments play at best a secondary role. The principal instrument of monetary policy remains unsterilized exchange market interventions, even in the more advanced countries.
- Dollarization of banks' assets and liabilities (and other financial assets) is very high and not easily reversed. While dollarization was not an obstacle to the impressive reduction in inflation rates, it has increased the vulnerability of the financial system and the economy to large exchange rate changes and contributed to a fear of floating.
- Although protection against high inflation was the original motive for dollarization, portfolio diversification in the context of underdevelopment financial markets and relatively stable exchange rates have further reinforced dollarization.
- Exchange rates have fluctuated much less than international reserves, and recently a number of CIS countries have tried to prevent or slow a real appreciation of their currencies, potentially putting their inflation objectives at risk.
- All CIS countries target price stability—at times in conjunction with other objectives. As stable money-demand functions generally do not exist, monetary policy at this stage cannot easily be guided by the traditional financial programming tools or by formal, model-based and direct inflation targeting.
- Short time lags between changes in monetary and credit aggregates and inflation, the exchange rate or net international reserves, however, make “error correction” faster and easier than in countries with deeper financial markets and correspondingly longer time lags.

- Monetary policy and the frequent adjustments of intermediate targets typically take account of a number of considerations, which at times may be at odds with the inflation objective. Increasing the transparency of this decision-making process would foster trust in the central banks.
- The debate about how flexible exchange rates should be, given the high degree of dollarization, is unresolved. Greater exchange rate flexibility would certainly reduce the incentive for further dollarization, including by underscoring the risk of borrowing in foreign currencies. At the same time, dollarization brings significant risks if exchange rates were to become highly volatile. This said, the “fear of floating” does not justify overly rigid exchange rates, and in most countries the scope for greater exchange rate flexibility is probably not exhausted. In general, CIS countries should be urged to intervene less in foreign exchange markets, particularly if it were to conflict with the control over the monetary aggregates and the inflation or balance of payments objectives.
- Much has changed over the decade since the introduction of national currencies in the CIS. With continued development of short-term financial markets, sustained price stability, and accumulation of financial assets, monetary policy will become more important in the future and its impact on the economy more predictable. In perhaps another decade or so, several CIS countries may have reached a state of financial sector development close to the current situation in Eastern European countries.
- The choice of the relevant anchor for monetary policy will, however, remain an issue. Should some of the smaller CIS countries follow the example of the Baltic countries and EU accession countries—or the earlier examples of Austria and the Netherlands—and surrender their independent monetary and exchange rate policies by joining a larger currency bloc? Or will they develop the necessary skills and reduce the degree of dollarization sufficiently to make model-based direct inflation targeting a viable option? Or is there scope for adapting the current monetary policy approach based on open-loop-feedback processes without moving toward one of the corner solutions for the concomitant exchange rate choice?
- On the one hand, with inflation already much reduced, there does not seem to be a strong case for anchoring monetary policy with hard pegs by means of a currency union or currency board. Moreover, hard pegs to currencies of non-CIS countries, such as the euro and dollar, would not correspond to trade patterns, while a currency union among CIS countries would most likely be unworkable because of a lack of political will to subordinate national interests. On the other hand, a formal, empirical-model-based, and direct inflation-targeting framework as anchor would seem likely to be developed in the more distant future, as it, inter alia, would require more stable money-demand functions, deeper financial markets, a stable fiscal framework, and freely floating exchange rates. Concerns about financial vulnerabilities in the heavily dollarized economies and fears about competitiveness are serious obstacles to floating rates in most CIS countries. It may, therefore, be best

to gradually modify the current approach of relying on heavily managed exchange rates as anchor or co-anchor by moving toward greater exchange rate flexibility and keeping less of an eye on the exchange rate objective so as to gain better control over the monetary aggregates. The high frequency open-loop-feedback mechanism would then become increasingly the sole anchor. Barring a major crisis, CIS countries are likely to be more supportive of such evolution than of a revolutionary shift to new anchors.



## DEVELOPMENTS IN MONETARY POLICY IN THE CIS

The institutions and objectives of monetary policy in the CIS countries have become substantially more sophisticated over the course of the transition. While domestic support for low and stable inflation was the key factor driving this development, there was also some support from abroad. Most of these 12 countries have had adjustment programs supported by the IMF, while a few are now seeking to tap international capital markets. In addition, a great deal of technical assistance from the IMF and from cooperating central banks has contributed to better institutions and more sustainable monetary policies in the CIS countries.

At the same time, many unresolved questions remain. Changes in money demand remain very difficult to predict. While indirect monetary policy instruments exist in most countries, their use is very limited. Dollarization is high and extremely persistent. This brief appendix provides a comparative progress report on the state of monetary policy formation in the twelve countries of the CIS.

### A. Monetary Policy Objectives

Price stability is a core objective in all CIS countries. Some, such as Armenia, are mandated by law to maintain inflation at low (but not negative) levels. In almost all cases, exchange rate stability is also very important to policymakers—at least judging by the policies pursued. The monetary authorities in several countries (e.g., Moldova) are obliged to strive for “stability of the national currency,” though against what (foreign exchange or domestic goods and services) is left unclear. In recent years, the Central Bank of Russia (CBR) has sought to slow a real appreciation of the ruble stemming from a reversal of the over-shooting of 1998 and the large terms-of-trade gains since then. Kazakhstan has aimed at preventing a real appreciation of the tenge, caused by rapidly rising export proceeds from oil, but has also sterilized most foreign exchange purchases and was broadly successful in controlling the money supply and keeping inflation low.<sup>22</sup>

In most cases, declared and revealed monetary policy objectives are thought to be consistent. However, if the often implicit goal of exchange rate stability were to come into conflict with the stated objective of price stability, it would appear that the former would prevail in most cases. Meanwhile, in Belarus monetary policy objectives are not consistent with the projected exchange rate path.

The conduct of monetary policy in the CIS is still hampered by a number of factors. Chief among these are (i) difficulties in forecasting money demand, due to rapid changes in financial markets, remonetization and dollarization, (ii) thin financial markets, (iii) banking sectors that are weak or in which public confidence is only gradually increasing, (iv) external

---

<sup>22</sup> The Balassa-Samuelson effect may be becoming significant in Kazakhstan and Russia, as is the danger of the Dutch disease, and this poses additional challenges for policymakers.

shocks (e.g., oil prices or weather/drought) and (v) unsatisfactory institutional arrangements (lack of central bank independence or poor coordination with other agencies). Nevertheless, most of these factors have become less important over the course of the transition.

### **B. Institutions and the Choice of a Nominal Anchor**

The CIS countries generally do not use the exchange rate as the declared nominal anchor. However, for a number, including Kazakhstan and Ukraine, the exchange rate has been a *de facto* anchor. Kazakhstan has until very recently engineered a nominal depreciation against the U.S. dollar to maintain the real effective exchange rate of the tenge broadly unchanged, but the outcome was close to a nominal peg to the Russian ruble. In the first half of 2003, the tenge appreciated with the Russian ruble against the U.S. dollar. In Belarus, the declared nominal anchor is the exchange rate vis-à-vis the Russian ruble, while in practice the authorities target the U.S. dollar.<sup>23</sup> (It is not clear why the dollar remains so important, given the significance of Euro-area trade.)

In most cases, exports are quite volatile and the source of most shocks would be external. Four energy exporting countries—Azerbaijan, Kazakhstan, Russia, and Turkmenistan—are particularly sensitive to energy price movements.<sup>24</sup> Energy price shocks affect the other eight CIS countries in more or less the opposite direction, but to a lesser extent.

With a few exceptions, capital controls remain in place. The main exceptions are Armenia, where minor restrictions for prudential reasons remain in place, Georgia and the Kyrgyz Republic. Elsewhere, restrictions usually take the form of administrative limits on the ability of residents to purchase non-resident securities. Even where they are in place, however, they are often less than fully effective (Kazakhstan, Russia).

Most of the CIS countries have relatively underdeveloped financial markets. For instance, treasury bill markets exist in most cases, but are usually very shallow. Stock markets are reasonably well-developed only in Russia. In Kazakhstan, establishment of a funded pillar in the pension system is helping to deepen financial markets. Real estate markets are developing in a number of countries, but problems with titling and the effectiveness of commercial courts limit the availability of mortgage finance.

Confidence in the banking system is growing in most countries, if slowly. Currency/deposit ratios are falling, in some cases rapidly (Kazakhstan, Russia, Tajikistan) and deposit growth has been very strong in Ukraine (over 60 percent in the first four months of 2003). In many cases, however, agents have not regained confidence in the banks (especially in Georgia,

---

<sup>23</sup> Moreover, the authorities feel constrained to engineer a real appreciation relative to the dollar in order to achieve politically-determined dollar wage targets.

<sup>24</sup> Cashin, et al. (2002), suggest that floating exchange rates may make the most sense for commodity exporters.

Kyrgyz Republic, and Moldova). Monetization is also surprisingly low in Azerbaijan, despite a very good record on price stability.

Formal independence of central banks is mixed. It is very limited in Azerbaijan, Belarus, Kazakhstan and Turkmenistan. Moreover, a recent Safeguards Assessment suggested that central bank independence is insufficient in Moldova, and in Ukraine the reasons for the recent dismissal of senior NBU management are unclear. *De facto* the story is also mixed. Even in cases where *de jure* independence is unclear, central banks may have operational independence. On the other hand, in some cases of *de jure* independence, such as Georgia and the Kyrgyz Republic, there is political pressure on the authorities to lend or to politicize banking supervision.<sup>25</sup>

### C. Transmission Mechanism

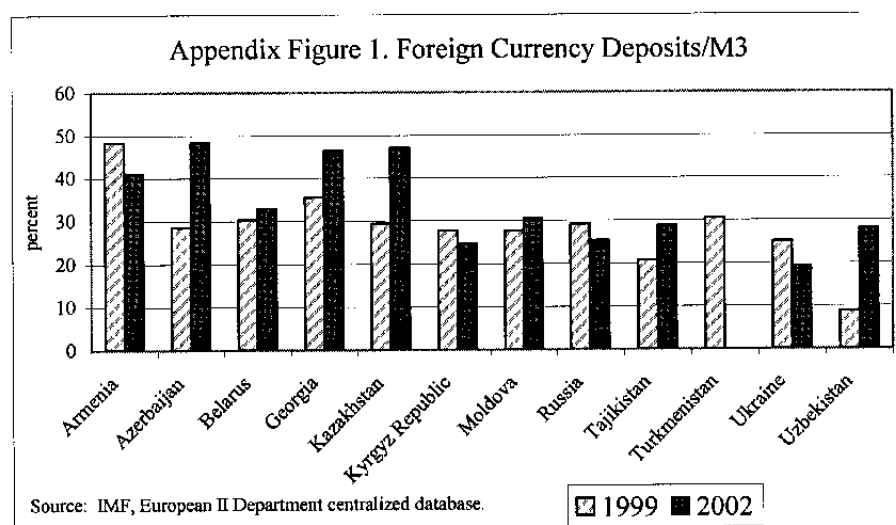
In most CIS countries, the relationship between monetary aggregates, the price level and output is poorly understood—except in the very broad sense that monetization of budget deficits is inconsistent with price stability. This is mainly because of the major structural changes that have taken place in these economies, and the high inflation experienced in the early stages of transition (which wiped out most financial savings). For most of the 1990s, these relationships were so unstable (or data deficiencies so overwhelming) that little analytical work could be done. However, in recent years, these processes seem to have stabilized somewhat. Money multipliers are generally more stable (or increasing more predictably), and velocity continues to decline in almost all cases. Money demand equations have been estimated in only a few countries (Armenia, the Kyrgyz Republic, Russia), but work is under way for others (Belarus, Ukraine). Food prices remain a key component of inflation equations in most CIS countries, as is the exchange rate. Lags are typically short—often 1–2 quarters. In Russia, the CBR has developed a measure of core inflation.

Barter is thought to affect money demand significantly in several countries, and dollarization is important everywhere.<sup>26</sup> While barter transactions have declined precipitously, in most countries, dollarization has been persistent. Indeed, in Azerbaijan, Belarus, Georgia, Kazakhstan, Moldova, Tajikistan, and Uzbekistan, it has grown in the past three years. In some countries (e.g., Kazakhstan), dollarization of bank deposits may have increased because of a shift from cash under the mattress to deposits in the banking system. Data on foreign currency cash holdings are spotty, however.

---

<sup>25</sup> In Uzbekistan, the CBU is formally independent “within the limits of its authority,” but these limits are not specified (or at least made public).

<sup>26</sup> Havrylyshyn and Beddies (2003).



### D. Other Policy Instruments

Monetary targets under IMF programs are quite standard in the CIS countries. Generally, performance criteria are set on net international reserves and net domestic assets, with indicative targets on base money and net credit to government. In all cases, the criteria are specified with an eye to achieving a certain rate of expansion of the money supply, and thereby a target for inflation. Mission teams pay close attention to credit to the economy, as evidenced perhaps by the fact that it far outweighs credit to government in most countries.<sup>27</sup>

**App. Table 1. Banking Sector Credit to Government, Net**  
(In percent of GDP)

	1999	2000	2001	2002
Armenia	1.6	0.9	0.8	1.2
Azerbaijan	-1.9	0.1	1.5	1.6
Belarus	4.9	2.4	1.6	1.0
Georgia	12.1	12.7	10.9	9.9
Kazakhstan	2.0	1.6	0.3	1.0
Kyrgyz Republic	8.1	6.2	4.5	7.5
Moldova	14.4	10.2	10.8	9.6
Russia	11.6	5.7	4.2	4.0
Tajikistan	6.2	2.1	-1.5	-0.5
Turkmenistan	-38.1	-35.1	-31.3	...
Ukraine	15.1	11.4	9.1	8.4
Uzbekistan	2.1	1.2	-0.2	0.2

Source: IMF, European II Department centralized database.

**App. Table 2. Banking Sector Credit to Economy, Net**  
(In percent of GDP)

	1999	2000	2001	2002
Armenia	8.6	9.5	8.0	7.2
Azerbaijan	11.9	9.4	6.9	7.2
Belarus	15.0	16.5	14.9	16.0
Georgia	7.0	8.6	8.6	9.8
Kazakhstan	8.2	11.6	16.7	19.5
Kyrgyz Republic	5.0	4.1	3.8	4.2
Moldova	13.3	14.3	16.3	18.9
Russia	12.2	13.1	16.5	18.4
Tajikistan	13.5	19.2	22.9	18.8
Turkmenistan	64.2	62.5	51.1	...
Ukraine	9.7	12.2	14.5	19.9
Uzbekistan	21.4	27.9	36.9	33.9

Source: IMF, European II Department centralized database.

<sup>27</sup> In Turkmenistan, the Presidential foreign exchange reserve fund is consolidated with the government accounts, and all foreign debt goes through the banking system, creating the impression that credit to government is low (negative) and credit to the economy is large.

Directed credits persist in a number of countries. While in most cases central banks are prohibited by law from lending to the government (exceptions include Belarus and Georgia), a few countries continue to resort to administrative credit allocation mechanisms. Although in some countries there are schemes for compensating banks (including from the budget) for quasi-fiscal lending, directed credits remain a problem in Armenia, Belarus, Tajikistan, Ukraine and Uzbekistan. There is also a problem with connected lending (between related parties) in Georgia and Russia; indeed this may be a problem in most CIS countries.

Real interest rates are still very high in some countries, but are apparently of limited importance for savings and investment decisions. Real interest rates of 20 percent or more are common in a number of countries, including Armenia and Belarus. Despite recent improvements, low levels of confidence in the banking system hinder intermediation everywhere.<sup>28</sup> Treasury bill markets are still nascent, meaning the scope for open market operations (OMOs) is limited. In a few countries—Kyrgyz Republic and (until 2003) Ukraine—restructured T-bills are available for OMOs. Many countries have repo and reverse repo facilities, credit and deposit auctions and central bank notes. But the volume of these interventions seems limited to date, perhaps because central banks feel their capital position remains too weak to permit operations on a significant scale. As a consequence, the most popular instrument for monetary policy on a day-to-day basis remains unsterilized foreign exchange sales or purchases.

Other exchange rate regimes have been considered, but for the most part rejected. The Kyrgyz Republic has considered a currency board (CBA) or dollarization and the authorities in Ukraine have discussed a CBA with the staff. (Belarus is considering a currency union with Russia, but that stems as much from political as economic imperatives.) Direct, model-based inflation targeting is thought to be premature in most countries, but a few—notably Armenia, Kazakhstan and Russia—are contemplating, or already doing, something that is arguably close to “inflation targeting lite.”<sup>29</sup>

---

<sup>28</sup> Indeed, volume and value of long term loans remain very low, and mainly denominated in dollars, as the exchange rate risk increases with the maturity.

<sup>29</sup> Stone (2003) and Banerji (2003).

Appendix Table 3. Monetary Policy Instruments

Country	Instruments
Armenia	Very limited; main instrument is foreign exchange sales/purchases (used mainly to smooth fluctuations. OMOs are limited by prohibition on lending to government (must be zero for each quarter); other instruments—repos, reverse repos—are very small.
Azerbaijan	Foreign exchange sales/purchases (though central bank net intervention has been zero when averaged over the past two years).
Belarus	Foreign exchange sales/purchases and limited OMOs; a number of other instruments exist on paper but are of limited use in practice.
Georgia	Very limited—there are credit auctions, but these are quite small.
Kazakhstan	Reasonably developed; there are central bank notes, repos, OMOs, as well as foreign exchange sales/purchases. However, large budget surpluses have limited the amount of government paper available for liquidity operations.
Kyrgyz Republic	Ministry of Finance has issued restructured T-bills (about 10–13 percent of GDP) for sterilization, but so far the central bank has resisted other instruments, such as NBK bills, owing to its weak capital position.
Moldova	Repos are the instrument of choice, as well as deposit auctions; central bank is reluctant to issue notes, wishing to avoid competition with government paper.
Russia	Deposit facility and repos; T-bill market has still not recovered from the 1998 crisis so OMOs are not available.
Tajikistan	Foreign exchange sales/purchases are the main tool, but NBT bills are also used, and credit auctions are in preparation.
Turkmenistan	N/A
Ukraine	Mainly foreign exchange sales/purchases, but also small amounts of NBU CDs and (until 2003) restructured T-bills.
Uzbekistan	Very limited, owing to the thin T-bill market; some NBU CDs are used.

Source: IMF country mission chiefs.

Appendix Table 4. Monetary Policy Objectives

	Main Objective	Nominal Anchor	Are Anchors and Objectives Consistent?	Is Counter-cyclical Policy Important?	Problems
Armenia	Price stability, including avoidance of deflation	NDA, but there is also a corridor for reserve money	Yes	No	Monetary policy is constrained by limited number of instruments (foreign exchange operations, repos, Lombard facility) and shallowness of financial markets
Azerbaijan	Price stability and the exchange rate	NDA, with reserve money indicative target		No	Thin financial markets; limited instruments; dollarization
Belarus	Price stability and exchange rate stability	Declared: BYR/RUR rate Actual: BYR/USD rate Implicit: USD wages	No – targets for credit to govt. and base money are not consistent with exchange rate path	No	Uncertainty regarding money demand; GDP growth (frequent data revisions); lack of coordination between MoF and NBB; ad hoc pressure for monetary financing (especially at end-year); use of refinance rate as cut-off rate in T-bill auctions
Georgia	Price stability and level of international reserves	No official anchor; IMF program targets NDA, NIR and has indicative target on reserve money	Yes	No	Low confidence in banking system; dollarization; volatility of money demand; low level of reserves; pressure on NBG to lend to government
Kazakhstan	Inflation reduction, preventing real appreciation of the tenge	None officially, but NBK has typically targeted reserve money in practice	No objectives are conflicting	No, though the oil fund is somewhat counter-cyclical	Uncertainty about money demand; thin financial markets; high level of dollarization
Kyrgyz Rep.	Price stability	None formally, but reserve money has an indicative target (through NIR and NDA)	Yes	No	Thin securities market; uncertainty about money demand
Moldova	Price stability	Reserve money previously, but now changing to NDA, with reserve money as an indicative target	Yes	No	External shocks (agriculture)

Appendix Table 4 (concluded). Monetary Policy Objectives

	Main Objective	Nominal Anchor	Are Anchors and Objectives Consistent?	Is Counter-cyclical Policy Important?	Problems
Russia	Price stability, limiting real appreciation	Money, though exchange rate is heavily managed	Ex ante, yes, but ex post the exchange rate objective has dominated the inflation goal	No	Uncertainty in money demand; lack of coordination between MOF and CBR; limited instruments (due to balance sheet constraints); ineffectiveness of refinance rate as signal
Tajikistan	Price and exchange rate stability	No formal anchor	Yes	No	Lack of central bank independence; underdeveloped financial markets; weakness of the banking sector
Turkmenistan 1/	Price stability	Reserve money			Political constraints on CBT; poor loan portfolio quality; political interference in reserve management
Ukraine	According to the NBU law, the main objective is stability of the monetary unit, which encompasses both exchange rate and price stability.	Explicit – money, Implicit – exchange rate	Yes, so far, but not clear in the NBU law whether external or domestic price stability would be given priority, in the event they diverge		Unstable money demand, thin financial markets, weak banking sector
Uzbekistan	Inflation control, finance the deficit and preferred sectors of the economy		Not necessarily – but consistency increased under 2002 SMP	No	Lack of central bank independence; thin financial markets that are suffocated by regulation; limited instruments for monetary operations

1/ Lack of Article IV since 1999 means these responses could be out of date.



Appendix Table 5. Choice of a Nominal Anchor

	Source of Shocks	Volatility of Exports	Capital Account Liberalization	Savings Vehicles	Depth of Financial Markets	Central Bank Independence	Confidence in Banking System
Armenia	External, anticipated (foreign exchange aid inflows and outflows related to debt)	Standard deviation of exports was 0.9% of exports in 1998–2001	Only minor capital account restrictions, for prudential reasons	Cash dollars; deposits in dram and USD	28 banks, all but 5 very small; T-bill market is very small; stock market capitalization is about 1 percent of GDP	<i>de jure:</i> independent <i>de facto:</i> largely independent	Gradually increasing, and currency/deposit ratio is falling
Azerbaijan	External (oil prices)	Highly volatile	Nonresidents may repatriate profits, but residents need ANB approval to buy foreign assets	Cash dollars; housing and land can be sold	Thin; T-bill market is small and stock market capitalization is negligible	<i>de jure:</i> Accounts to President <i>de facto:</i> fairly independent	
Belarus	Internal, real (both anticipated – administrative prices and unanticipated – Presidential whim)	Exports in USD terms varied about 10% around trend	Very broad restrictions; Belarus accepted Art. VIII obligations in 2001	Cash dollars; private plots (much housing has not been privatized)	Underdeveloped; T-bill market is fairly active at short end, but interbank market is mostly for overnight lending	<i>de jure:</i> not very independent; executive branch intervenes <i>de facto:</i> NBB has some operational independence	Low, but household deposits have been rising, including in rubles
Georgia	Internal, real (drought in agriculture) and external (trade partners – Russia, Turkey)		No significant current or capital account restrictions	Cash dollars; housing; land, but agricultural land cannot be used for collateral	Very thin; banking system assets are 12 percent of GDP	<i>de jure:</i> independent <i>de facto:</i> there is pressure to lend to government	Low
Kazakhstan	External, nominal, unanticipated (oil prices); Russia's near monopoly on oil transport could be a source of real shock, and agriculture is vulnerable to drought	Highly volatile	Capital controls remain, but are very leaky	Housing; urban land; cash dollars, dollar deposits	Stock market is thin, but corporate bond market is developing (pension fund assets are large), and bank deposit growth has been rapid (deposit insurance introduced for individuals in 2000).	<i>de jure:</i> not very <i>de facto:</i> NBK management serves at the pleasure of the head of state, as does everyone else in state bodies	Substantial deepening in recent years; deposits have grown very rapidly since 1999; bad loans remain a problem

Appendix Table 5 (continued). Choice of a Nominal Anchor

	Source of Shocks	Volatility of Exports	Capital Account Liberalization	Savings Vehicles	Depth of Financial Markets	Central Bank Independence	Confidence in Banking System
Kyrgyz Rep.	External (energy, commodity prices)	Very volatile	Free	Cash dollars; housing	Very thin (securities market is limited to a few instruments)	<i>de jure</i> : independent <i>de facto</i> : vested interests interfere in bank supervision	Weak, following banking crisis in 1998
Moldova	External (agriculture is very vulnerable to weather conditions)	Relatively volatile	NBM approval required for most capital account transactions	Cash dollars, real estate; banking system deposits	Very shallow	<i>de jure</i> : Insufficiently independent according to Safeguards Assessment <i>de facto</i> : Seemed to be operationally independent until recently, but difficult financing situation of the budget has put pressure on the NBU	Low, but growing
Russia	External, asymmetric (oil), and internal (administered price deregulation)	Exports in USD terms varied by 2% around trend since 1999	Broad range of restrictions, though these are not very effective in practice	Cash dollars (estimated at \$30–40 billion, or 75% of broad money); land; housing	Recovering since 1998: Banking sector assets are low by international standards; stock market capitalization is about 135% of broad money; T-bills are about 15% of broad money; corporate bonds are 4% and vekselns are 17% of broad money)	<i>de jure</i> : CBR law is appropriate, but recently created National Banking Council has raised some concerns <i>de facto</i> : CBR has operational independence	Increasing – as measured by increase in real value of ruble deposits in banking system

Appendix Table 5 (concluded). Choice of a Nominal Anchor

	Source of Shocks	Volatility of Exports	Capital Account Liberalization	Savings Vehicles	Depth of Financial Markets	Central Bank Independence	Confidence in Banking System
Tajikistan	External (commodity prices – cotton and aluminum) and internal (agriculture)	Standard deviation of exports around trend was 14% of average exports	Some restrictions remain	Cash dollars; land	Underdeveloped; there is no stock market and the securities market is limited to primary T-bill sales		Deposits doubled during 2001, 2/3 of which was in foreign exchange
Turkmenistan	External (gas export prices and transport disruptions)	High	Extensive restrictions	Cash dollars (households cannot have USD deposits)	Almost nil	<i>de jure</i> : limited <i>de facto</i> : negligible	Currency/deposit ratio averaged 110% during 1999–2001
Ukraine	Asymmetric, unanticipated shocks (Russia crisis, barriers to steel exports)	Somewhat volatile	Significant controls	Cash, deposits; housing sector is illiquid; land only recently privatized	Deposit growth was 46 percent in 2002 and net assets of the banking sector increased to about 30 percent of GDP by end-2002. The role of the non-bank financial sector is negligible, and the interbank market and domestic securities market are thin	<i>de jure</i> : There is a need to make more objective the reasons for dismissal of senior management <i>de facto</i> : Operationally independent	Slight increase in confidence
Uzbekistan	External (export prices for gold and cotton) and internal (agriculture)	Standard deviation of exports around trend was 22% of average exports from 97Q1 to 01Q4	Extensive controls	Cash dollars (real interest rates on savings deposits are negative, and restrictions on withdrawals make them unattractive)	Extensive use of government guarantees (75% of bank assets) give banking system a patina of solvency, but interest rates are negative in real terms and capital markets are nonexistent	<i>de jure</i> : CBU is legally independent “within the limits of its authority” (but these limits are not specified) <i>de facto</i> : Completely under sway of government and President	Minimal

Appendix Table 6. Transmission Mechanism

	Stability of Money Multiplier	Money Demand Equations	Importance of Barter/Dollarization for Money Demand	Inflation Equation	Core Inflation	Balassa—Samuelson Effect
Armenia	Stable	Real output and inflation are significant; interest and exchange rates are not; lag is about 2 quarters	Not important	Food prices, exchange rate, broad money; lag is about one quarter; seasonality is very important	No measure	Not significant
Azerbaijan	Fairly stable		Not important or no information	Lag between money and inflation is likely to be short	No measure; no big changes in administered prices recently	
Belarus	Stable (though chart of accounts changed in 2002, causing a break in series)	Not stable	Both are important (cash dollars in circulation could be \$2 billion – 17% of GDP)	NBB credit to government (until elimination of directed credit, NBB credit to economy was important); exchange rate, administered prices. Lags are 1–2 quarters.	A measure exists and is used by IMF staff	Does not appear to be important.
Georgia	Has increased overall since 1996, but fallen in Lari terms (though 80 percent of banking system assets and deposits are in foreign exchange)	Not stable	Important, but no data are available on barter (cash dollars in circulation could be \$120 – 150 million)	Food prices, exchange rate; output shocks; no data on lags is available	No measure; data on regulated prices is poor or unavailable	Not important
Kazakhstan	No, but the multiplier has been rising in past 3 years	No attempts have been made, but probably not stable		No attempts have been made, but lags seem likely to be very short	No measure, but administrative prices have not changed much in recent years	Probably significant, though very hard to measure sectoral productivity gains
Kyrgyz Rep.	Stable	NBKR estimates (and uses) a money demand function	Relevant, but not very important	Exchange rate, administered prices, money; lags seem to be about 1 quarter	No measure; administrative prices have accounted for about 2 percentage points of inflation per year	Not measured

Appendix Table 6 (concluded). Transmission Mechanism

	Stability of Money Multiplier	Money Demand Equations	Importance of Barter/Dollarization for Money Demand	Inflation Equation	Core Inflation	Balassa—Samuelson Effect
Moldova	Growing slowly	No formal estimates	Dollarization is very important	Food prices are important, which in turn are affected by supply shocks and import regimes in trading partners	No measure	No measure
Russia	Broadly unchanged since 1999	No stable estimates. Main channel is exchange rate; interest rates are not significant.	Both are important	30 percent of CPI basket is imports, so exchange rate is important, as are regulated prices. Lags are hard to measure, but full impact of a shock seems to wear off w/in 12 months (peaking at 6).	CBR has developed a measure	Has become important since 1999
Tajikistan		Too little data, but probably unstable	Both barter and dollarization are very significant	Exchange rate, with the impact of a shock felt within eight months (and most in 1–2 months), though this is lengthening of late	Work is underway	No estimate, but likely not significant
Turkmenistan	Relatively unstable (standard deviation as share of average was 15% over 1998–2001)	No measure, though velocity has declined recently	No data, but believed to be important	Not well understood – CPI is mismeasured due to extensive price controls		Data unavailable
Ukraine	Risen slightly since 1998; reserve requirements and currency-deposit ratio have declined, but excess liquidity has increased	No stable estimates; the fall in velocity in 2001 was underestimated	Barter has declined in past 3 years, but there is no data on cash foreign exchange holdings	Agricultural production is a key determinant (⅓ of CPI basket is food); exchange rate also plays a role	No measure	Lack sufficient data to estimate, but staff believes it is not a significant factor at this state
Uzbekistan	Stable until mid-2001, then jumped in late 2001 when foreign exchange market began to be liberalized	No estimates (official price and national account data are not reliable)	Barter is not important, but dollarization is	Exchange rate (curb market) and broad money. Exchange rate shocks are passed through almost immediately, but wage shocks take 1–2 months to be felt	No measure	Not likely to be important (tradable sector productivity has risen more slowly than nontradables – because the former is state controlled)

Appendix Table 7. Choice of Targets Under IMF Programs

	How Are Targets Derived?	Is the System Over-determined?	Implications for Credit to Nongovernment Sector
Armenia	NIR, NDA, with corridor around reserve money (size of corridor derived from standard deviation of previous year's excess reserves of commercial banks in central bank)	No	Has averaged zero in real terms since 1998
Azerbaijan	NIR, NDA, with indicative target on reserve money	No	
Belarus	Base money, NDC and NIR	No	Positive in real terms over 1999–2001
Georgia	NIR, NDA, NCG, with indicative target for reserve money	No	2002 program projects 8 percent real growth
Kazakhstan	Base money is operational target, but aim is exchange rate stability in practice	Not formally, but one could argue that exchange rate objective and base money targets are not consistent	Banking system credit to the economy grew in real terms by 30% in 1999 and by over 70% in 2000 and 2001.
Kyrgyz Rep.	NIR, NDA, reserve money is an indicative target	No	Taken into account
Moldova	NDA, NCG, NIR, with indicative target on reserve money	No	Residual, but taken into account in programming exercise
Russia	Base money, NDA, NIR	No	Nominal credit to private sector has grown by 51% per annum since 1999
Tajikistan	NIR, NDA, NCG and reserve money	Fully determined	
Turkmenistan			
Ukraine	NDA, NIR; base money is an indicative target	Not formally, but since exchange rate is implicitly targeted by the authorities, it may be so in practice	Credit growth has been rapid, averaging over 50 percent during 2000–02
Uzbekistan	NDA, then NIR, with indicative target on reserve money	No	Zero growth in real terms

Appendix Table 8. Other Questions

	Vestiges of Credit Allocation	Role of Interest Rates	Flexibility of Exchange Rates	Intervention Policy	Other Regimes Considered? (Inflation Targeting, CBA)
Armenia	Informally, especially to the energy sector, and maybe to some SOEs	Credit demand is influenced by interest rates, and real rates are very high (20–25%)	Freely adjusts, with CBA intervention only to smooth market.	Little sterilization.	No
Azerbaijan	None, though ANB always satisfies all qualifying bank demand for liquidity at weekly auctions (qualification depends on collateral, mainly real estate)	Limited importance (thus, ANB has not adjusted interest rates for 2 ½ years)	Flexible	Intervention only to smooth market, on both sides.	No
Belarus	Formally abolished (2001 SMP condition), but some credits for housing flowing through budget remain. In mid-2002, Decree 400 reintroduced directed credits for agriculture	Very high in real terms, suggesting they are important	Crawling band against Russian ruble	Authorities target the BYR/USD rate in practice, and intervene to prevent a nominal appreciation; little sterilization	Inflation targeting is not appropriate, but a hard peg is planned as stepping stone to “ruble-ization” in 2005
Georgia	No, though there is a problem with connected lending	Lari interest rates are not very important	Freely floating since 1999	Purchases of forex to build reserves only; no sterilization	No
Kazakhstan	No	Probably limited, though no attempts have been made to study transmission mechanism from interest rates to investment and output	Asymmetric heavily managed float (to prevent real appreciation)	Asymmetric; pressure to sterilize had been reduced significantly with creation of oil fund but resurfaced shortly in early 2003	Authorities are interested in moving to inflation targeting framework; but recognize that this is for the future
Kyrgyz Rep.	No	Less important than confidence in the banking system and exchange rate expectations	Managed float	Asymmetric, not fully sterilized	Authorities have considered, and rejected, CBA and full dollarization

Appendix Table 8 (concluded). Other Questions

	Vestiges of Credit Allocation	Role of Interest Rates	Flexibility of Exchange Rates	Intervention Policy	Other Regimes Considered? (Inflation Targeting, CBA)
Moldova	No	Limited importance	Managed float without a predetermined path	The NBM accumulates reserves when the leu is under pressure to appreciate	No
Russia	Yes, particularly in light of CBR ownership of 2 large banks	Limited importance (lending to the private nonbank sector in 2001 was only 13% of GDP)	Managed float ("in practice it doesn't move much")	Intervention aims to prevent real appreciation, generally not sterilized, except by fiscal surpluses	Authorities are interested in inflation targeting; no one is thinking about a CBA now
Tajikistan	NBT issued directed credits in Q4 2001, but these are now being eliminated	Unclear	Managed float	Smoothing of temporary fluctuations, but not symmetric (in 2001 NBT purchases of USD were six times larger than sales)	No
Turkmenistan	It's the <i>raison d'être</i> of the banking system	Very limited – all central bank lending is at 0% in fact			
Ukraine	Share of directed credit has been falling, though state banks still sometimes channel credit to SOEs (agriculture) and there is a government scheme whereby the NBU would provide long-term refinancing to banks that extend credit for "innovative projects"	Negligible	Flexible in theory, but in practice the dollar rate has been stable since the beginning of 2000, and effectively constant since March 2002	Aims at building up external reserves and preventing real appreciation	Both formal inflation targeting and a CBA have been considered, and rejected (staff feels that full fledged inflation targeting would not be feasible in the near future, but that the NBU should monitor inflation developments carefully)
Uzbekistan	Full blown system of directed credits, credit subsidies, cash rationing, though SMP began the process of dismantling it	Secondary role	Multiple exchange rate regime	Mainly to prevent undue depreciation in the over-the-counter rate; unsterilized	Premature at this point



## REFERENCES

- Banerji, A., 2003, "The Choice of Nominal Anchor: Is Russia Ready for Inflation Targeting?" Chapter IV of *Russian Federation: Selected Issues*, IMF Country Paper No. 03/146.
- Bassett, S., 2003, "The Feasibility of Inflation Targeting in Ukraine," Chapter IV of *Ukraine: Selected Issues*, IMF Country Paper No. 03/... (forthcoming).
- Berg, A., and E. Borensztein, "The Choice of Exchange Rate Regime and Monetary Targets in Highly Dollarized Economies," IMF Working Paper 00/29.
- Bernanke, B., and M. Gertler, "Inside the Black Box: The Credit Channel of Monetary Policy Transmission," *Journal of Economic Perspectives*, V9 (Fall 1995): 27–48.
- Buiter, W., and C. Grafe, 2002, "Anchor, Float or Abandon Ship: Exchange Rate Regimes for Accession Countries," CEPR Discussion Paper No. 3183, (London).
- Calvo, G., 1999, "On Dollarization," mimeo, University of Maryland, April.
- Calvo, G., and C. Reinhart, 2002, "Fear of Floating," *Quarterly Journal of Economics*, V117 N2 (May 2002): 379–408, and <http://www.puaf.umd.edu/papers/reinhart.htm>.
- Carare, A., A. Schaechter, M. Stone and M. Zelmer, "Establishing Initial Conditions in Support of Inflation Targeting," IMF Working Paper WP/02/102 (June 2002).
- Carare, A., and M. Stone, "Inflation Targeting Regimes," IMF Working Paper WP/03/9 (January 2003).
- Cashin, P., L. Cespedes, and R. Sahay, 2002, "Keynes, Cocoa and Copper: In Search of Commodity Currencies," IMF Working Paper 02/223.
- Dornbusch, R., 1976, "Expectations and Exchange Rate Dynamics," *Journal of Political Economy*, Vol. 84, pp. 1161–76.
- Fischer, S., 2001, "Exchange Rate Regimes: Is the Bipolar View Correct?," *Journal of Economic Perspectives*, Vol. 15, No. 3 (Spring), pp. 3–24.
- Fischer, S., R. Sahay, and C. Vegh, "Modern Hyper- and High Inflation," *Journal of Economic Literature*, V40 (September 2002): 837–80.
- Fleming, M., 1962, "Domestic Financial Policies under Fixed and Floating Exchange Rates," *Staff Papers*, International Monetary Fund, Vol. 9 (November).
- Frankel, J., 1999, "No Single Currency Regime is Right for All Countries or at All Times," *Essays in International Finance*, No. 215, Princeton University Press.

- Friedman, M., and A. Schwartz, 1963, *A Monetary History of the United States, 1867–1960* (Princeton: Princeton University Press).
- Gutián, M., 1973, “Credit versus Money as an Instrument of Control,” *Staff Papers*, International Monetary Fund, Vol. 20, pp. 785–800.
- Gulde-Wolf, A., and Peter Keller, 2002, Another Look at Currency Board Arrangements and Hard Exchange Rate Pegs for Advanced EU Accession Countries,” in *Alternative Monetary Regimes in Entry to EMU*, Bank of Estonia, Tallinn.
- Hausmann R., M. Gavin, C. Pages-Serra, and E. Stein, 1999, “Financial Turmoil and the Choice of Exchange Rate Regime, mimeo (Washington: Inter-American Development Bank).
- Hausmann R., U. Panizza, and E. Stein, 2001, “Why Do Countries Float the Way They Float?,” *Journal of Development Economics*, V66: 387–417.
- Havrylyshyn, O., and C. H. Beddies, 2003, “Dollarization in the Former Soviet Union: From Hysteria to Hysteresis” (Washington: International Monetary Fund).
- International Monetary Fund, 1977, “The Monetary Approach to the Balance of Payments (Washington).”
- International Monetary Fund, 2003, “Macroeconomic Policies in Dollarized Economies” (Washington: International Monetary Fund).
- Jonas, J., and F. Mishkin, 2003, “Inflation Targeting in Transition Economies: Experience and Prospects,” in *Inflation Targeting*, ed. By Michael Woodford, University of Chicago Press.
- Klein, M., and N. Marion, 1997, “Explaining the Duration of Exchange-Rate Pegs,” *Journal of Development Economics*, December, Vol. 54, No. 2, pp. 387–404.
- Lissovlik, B., 2003, “Determinants of Inflation in a Transition Economy: The Case of Ukraine,” IMF Working Paper 03/126.
- Mishkin, F., “The Transmission Mechanism and the Role of Asset Prices in Monetary Policy,” NBER Working Paper No. 8617 (December 2001).
- Morón, E. and D. Winkelried, 2003, “Monetary Policy Rules for Financially Vulnerable Economies,” IMF Working Paper 03/39.
- , “From Monetary Targeting to Inflation Targeting: Lessons from the Industrialized Countries,” unpublished, Columbia University (January 2000).

- Mundell, R., 1961, "A Theory of Optimum Currency Arrears," *American Economic Review*, November, 509–517.
- , 1962, "The Appropriate Use of Monetary and Fiscal Policy under Fixed Exchange rates," *IMF Staff Papers*, March 1962.
- Mussa, M., and M. Savastano, 1999, "The IMF Approach to Economic Stabilization," IMF Working Paper 99/104.
- Oomes, N., 2003, "Network Externalities and Dollarization Hysteresis: The Case of Russia," IMF Working Paper 03/96 (Washington: International Monetary Fund).
- Polak, J., 1957, "Monetary Analysis of Income Formation and Balance of Payments Problems," *Staff Papers*, International Monetary Fund, Vol. 6 (November), pp. 1–50.
- Polak, J., 1997, "The IMF Monetary Model at Forty," IMF Working Paper 97/49 (Washington: International Monetary Fund).
- Poole, W., 1970, "Optimal Choice of Monetary Policy Instruments in a Simple Stochastic Macro Model," *Quarterly Journal of Economics*, Vol. 84 (May), pp.197–216.
- Reinhart, C., 2000, "The Mirage of Floating Exchange Rates," *American Economic Review* 90, No. 2, May, 65–70.
- Rose, A., 2000, "One Money, One Market? The Effect of Common Currencies on International Trade," *Economic Policy*.
- Schaechter, A., M. Stone, and M. Zelmer, *Adopting Inflation Targeting: Practical Issues for Emerging Market Countries*, IMF Occasional Paper No. 202 (December 2000).
- Stavrev, E., 2003, "Speed of Disinflation and Output Costs in Russia: Implications from the Experience of European Transition Countries," Chapter I of *Russian Federation: Selected Issues*, IMF Country Paper No. 03/146.
- Stone, M., "Inflation Targeting Lite," IMF Working Paper WP/03/12 (January 2003).
- Williamson, J., 2000, "Exchange Rate Regimes for Emerging Markets: Reviving the Intermediate Option," *Policy Analysis in International Economics* No. 60, (Washington: Institute for International Economics).
- , 2002, "Intermediate Exchange Rate Regimes for East Asia," in *Monetary and Financial Management in Asia in the 21<sup>st</sup> Century*, edited by Augustine Tan, Singapore.