Working Paper

INTERNATIONAL MONETARY FUND

WP/96/22

INTERNATIONAL MONETARY FUND

European II Department and Monetary and Exchange Affairs Department

Capital Inflows in the Baltic Countries, Russia, and Other Countries of the Former Soviet Union: Monetary and Prudential Issues

Prepared by Alain Ize 1/

Authorized for Distribution by Manuel Guitián and John Odling-Smee

February 1996

Abstract

Significant capital inflows were observed during the first half of 1995 in a number of FSU countries. This paper reviews the recent experience of those countries with significant inflows, examines policy responses in view of the current macroeconomic and institutional environment, discusses the use of monetary and prudential instruments to sterilize or discourage inflows, and reviews operational considerations for conducting sterilization operations.

JEL Classification Numbers:

E60, F32, G21

1/ This paper was prepared in cooperation with Henri R. Lorie and other EURII staff and has benefitted from comments received from Tomás J.T. Baliño, David Hoelscher, Alfred Kammer, Mohsin S. Khan, Arto T. Kovanen, John Odling-Smee, David E. Owen, Peter Quirk, Susan Schadler, Mohammad Shadman-Valavi, Eva Srejber, V. Sundararajan, and J. de Beaufort Wijnholds. Excellent research assistance from Kiran Sastry and Claudia Echeverria is gratefully acknowledged,

This page intentionally left blank

Table of Contents

Summary

This paper reviews the recent experience of a number of FSU countries with significant capital inflows during the first half of 1995, examines policy responses in view of the current macroeconomic and institutional environment, discusses the use of monetary and prudential instruments to sterilize or discourage inflows, and reviews operational considerations for conducting sterilization operations.

Unsterilized intervention was generally the preferred policy response to the inflows, as most central banks were concerned by the potential impact of exchange rate appreciation on competitiveness and because the scope for market-based sterilized intervention was constrained by concerns about its budgetary impact and the limited availability of instruments. Thus, the inflows appear to have had a significant inflationary impact.

In countries where the authorities continue to limit the flexibility of the exchange rate, the scope for postponing fiscal expenditures is limited and inflationary inertia is important, short-term sterilization with market-based instruments may be a useful part of a concentrated up-front effort to speed up stabilization. Although, initially, market-based monetary instruments were oriented mostly toward injecting liquidity, instruments to mop up liquidity were introduced recently in several countries and could be developed quickly in others, if needed, such as deposit auctions and central bank certificates of deposits.

However, until the factors underlying inflation in these countries are better understood, a cautious approach seems to be called for. The short time frame involved in stabilization efforts and the variability of inflation limit the scope for direct inflation targeting and argue in favor of maintaining an intermediate monetary target, to be flexibly revised in view of all available indicators. Further progress is also needed in improving the quality and timeliness of short-term information systems. In all cases, accelerated efforts to strengthen the microstructure of money markets would improve the effectiveness of monetary instruments.

In addition to complicating stabilization efforts, large sustained inflows could increase the fragility of financial systems and magnify the costs of bank restructuring in coming years. Given the poor financial situation and limited management capacity of most banks in the region, together with weak bank supervision, sustained capital inflows could boost the volume of bad loans. While improvements in supervisory capacity are urgently needed and comprehensive bank restructurings should be initiated as soon as possible, additional measures may be required during a period of transition. In particular, limits on deposit taking by problem banks may be established and appropriately designed reserve requirements may be used to limit the scope for an expansion of bad credit.

1. Introduction

As in the case of other countries that have implemented stabilization policies after periods of strong macroeconomic imbalances, several FSU countries have recently experienced sizeable short-term capital inflows or trade account improvements that have complicated monetary and exchange management during the initial phases of stabilization. Unsterilized intervention was generally the preferred policy response initially, as concerns for losses of competitiveness discouraged most countries from letting the exchange rate appreciate and the limited availability and high cost of market-based sterilization instruments constrained the scope for sterilization. After stabilization policies take hold, sustained capital inflows could also complicate macroeconomic management as rapid credit expansion, together with a narrowing of intermediation spreads, could undermine the soundness of financial systems.

This paper reviews recent experiences of FSU countries with capital inflows, examines policy responses in view of the current macroeconomic and institutional environment, discusses the use of monetary and prudential instruments to sterilize or discourage inflows, and reviews operational considerations for sterilization operations.

2. Foreign exchange inflows and macroeconomic background

Foreign exchange inflows were generally associated with a substantial tightening of monetary and fiscal policies. However, the nature of the inflows and their impact varied significantly across FSU countries, depending on country characteristics and the policy environment.

a. Belarus and Russia

In Belarus and Russia, net official international reserves grew significantly during the first half of 1995, mostly as a result of short-term capital inflows and improvements in the current account (see Statistical Appendix, Table 1). 1/ In both cases, the predominant policy response (until June 1995) was unsterilized intervention. In addition, the Central Bank of the Russian Federation (CBR) let the nominal exchange rate appreciate slightly during the second quarter of 1995. Although monthly inflation rates fell sharply from the extremely high levels reached at the end of 1994, they remained significant during the first semester of 1995 (Chart 1).

Capital flows were stimulated by a tightening of domestic credit that allowed the exchange rate to stabilize while inflationary expectations and inertia limited the decline of domestic interest rates (Charts 2 and 3). Thus, the differential between the local currency interest rate and the rate of depreciation increased sharply during the second quarter of 1995 (Chart 4).

1/ Most of the inflows took place during the second quarter of 1995.

Improving confidence, resulting from the strengthening macroeconomic environment, may also have contributed to an incipient remonetization and reverse currency substitution (Chart 5). As documented in the case of Belarus, inflows were associated with cash foreign exchange purchases by banks from individuals, most of which could reflect portfolio reallocations by residents of foreign currency cash hoardings into local currency deposits (Table 1). 1/ As hoarded foreign exchange cash was deposited in the banking system, its on-lending had a multiplier effect on monetary expansion. 2/ Although multipliers are, at present, rather small (less than 2 in Russia and about 3 in Belarus), they declined only moderately during the first half of 1995, which suggests that banks were able to channel inflows rapidly into loans.

While reverse currency substitution is likely to have been important in Russia also, foreign borrowing or repatriation of assets held abroad by residents was substantial as well. 3/ So far, there are no indications that movements of portfolio capital by non residents were significant in either country.

b. Kazakstan, Uzbekistan, and Turkmenistan

Capital inflows and international reserves gains were significant in Kazakstan, Uzbekistan, and Turkmenistan throughout the period 1993-1994, as a result of strong foreign investment, official borrowing, short-term flows, and, in some cases, favorable current account balances. During the first half of 1995, the increase in NIR reflected mainly trade balance developments (in Kazakstan and Turkmenistan), official capital (in Kazakstan) and short-term flows and government guaranteed loans (in Uzbekistan). In Kazakstan and Uzbekistan, the inflows took place in the context of a substantial tightening of monetary and fiscal policies. The nominal exchange rate stabilized in Uzbekistan and appreciated in Kazakstan as the authorities let the rate float to neutralize the monetary impact of the inflows. After increasing sharply during 1994 or early 1995, interest rates remained high in real or dollar terms during the first half of 1995. Inflation rates abated during the first half of 1995, after reaching very high levels during 1994. In Turkmenistan, the decline of inflation was only

---

1/ The prohibition to use foreign exchange for domestic transactions and tighter enforcement of repatriation requirements may also have contributed to the capital inflows.

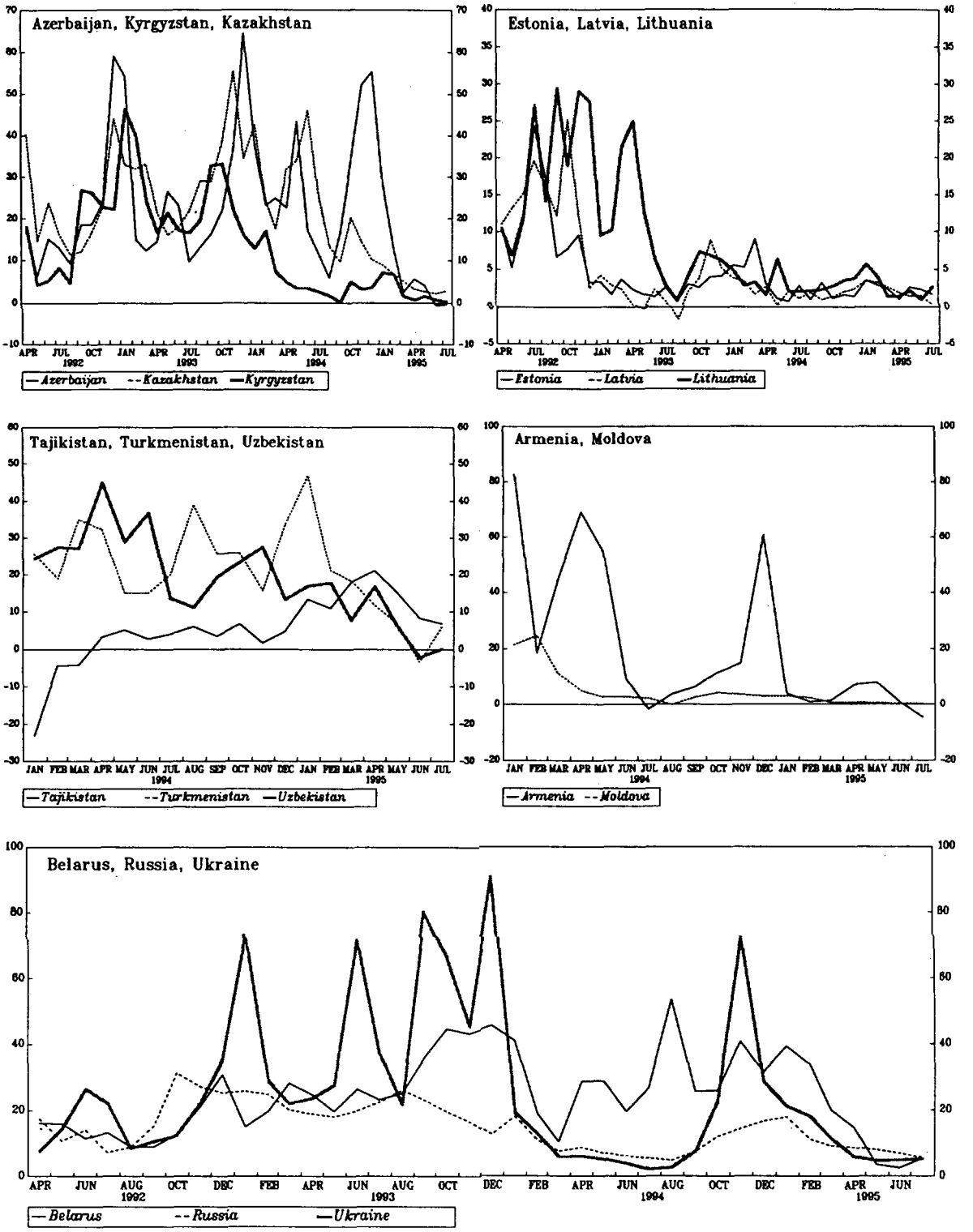
2/ A portfolio shift from hoarded foreign currency into domestic currency deposits is akin to a capital inflow. If such portfolio adjustment is triggered by an increase in the demand for domestic money holdings, the inflationary effect depends on whether money supply expands faster than money demand as funds enter into the banking system.

3/ In particular, net foreign borrowing by banks increased by US$2.4 billion during the first half of 1995. On the other hand, Russian enterprises stopped accumulating inter-enterprise inter-state arrears during this period, in contrast with large accumulations in previous years.

CHART 1

FSU COUNTRIES: INFLATION RATES 1/

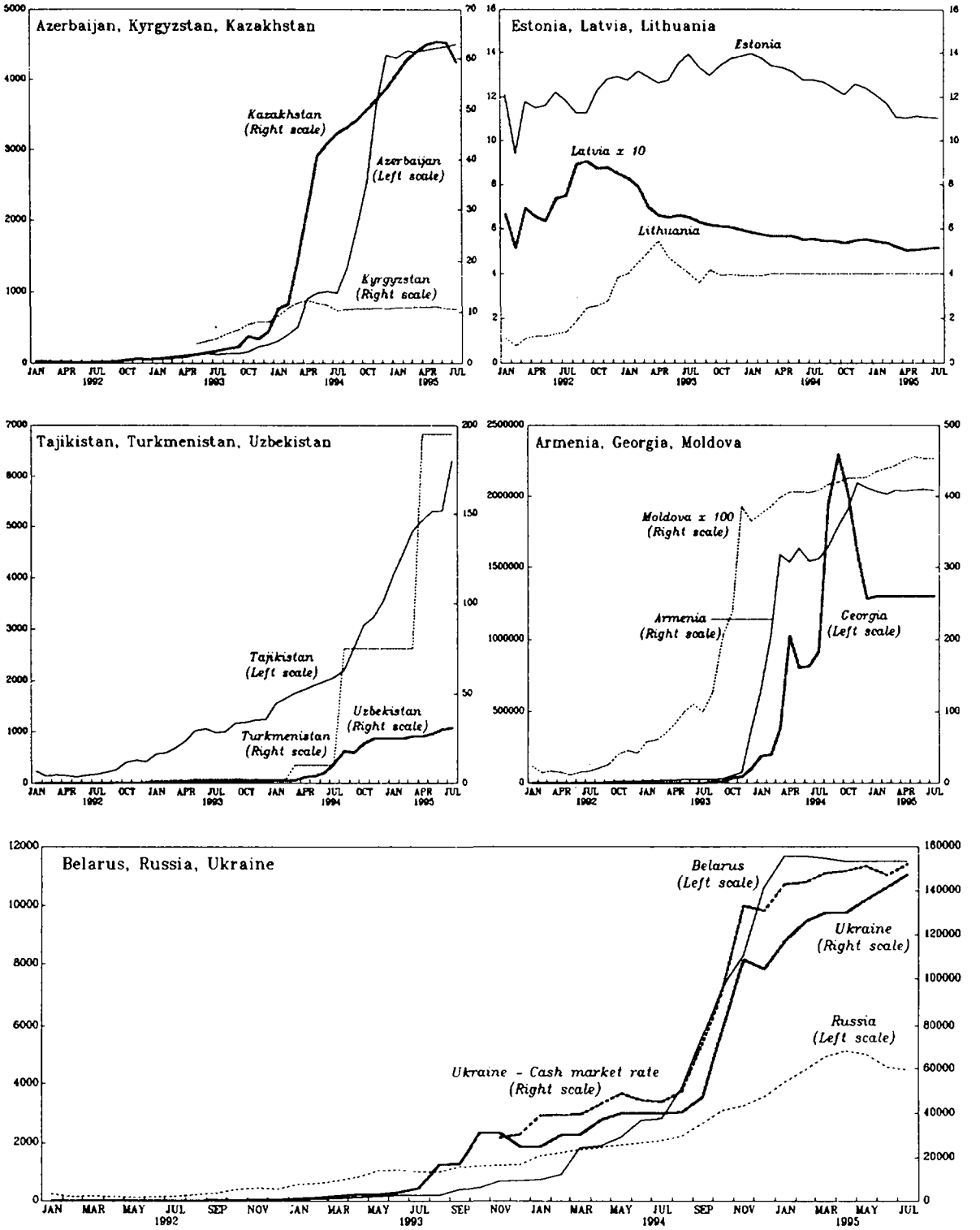
(In percent)



Source: European II Centralized Database.

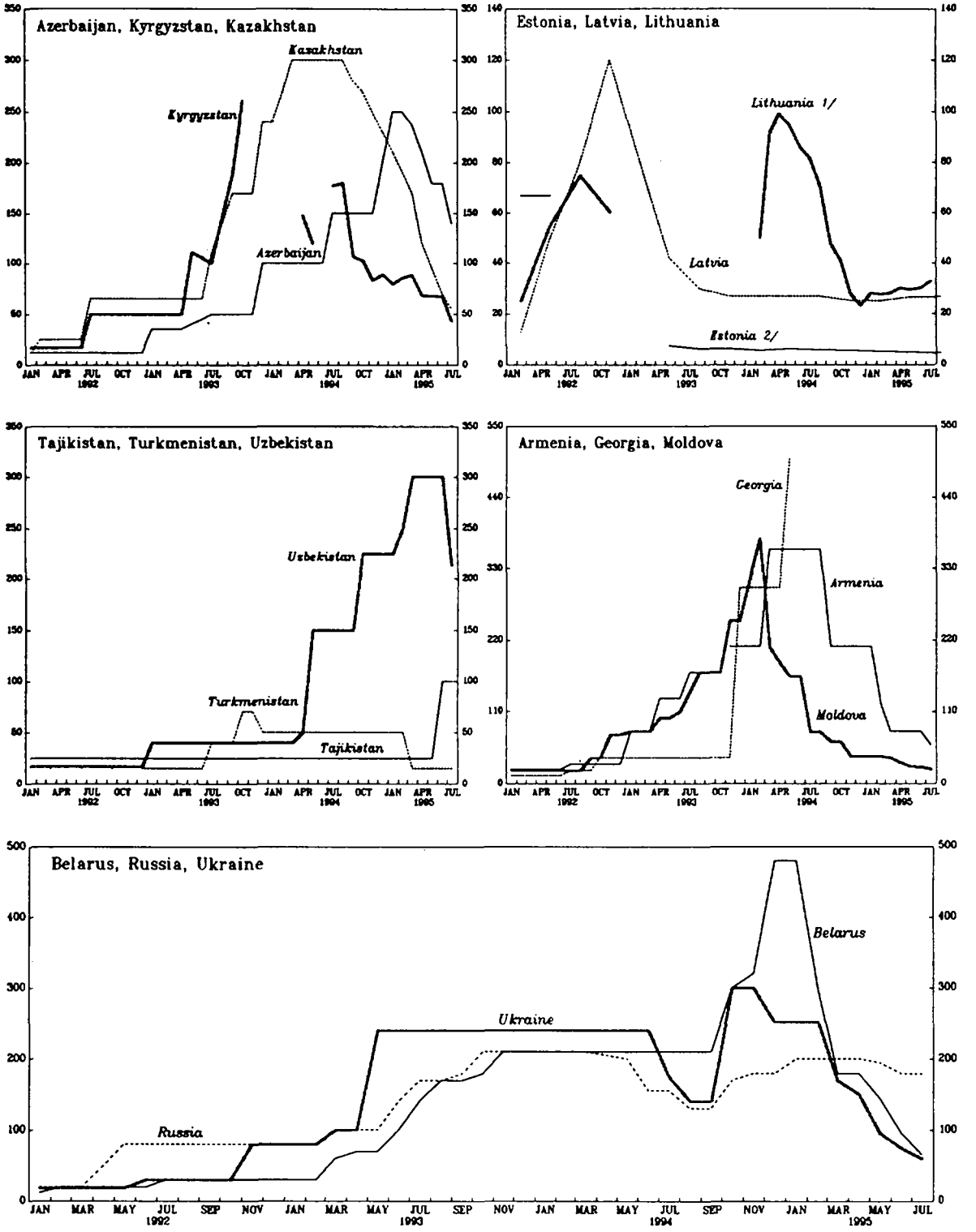
1/ Calculated as the month to month percentage change of CPI.

CHART 2
FSU COUNTRIES: EXCHANGE RATES
(Currency per U.S. dollar, end of period)



Source: European II Centralized Database.

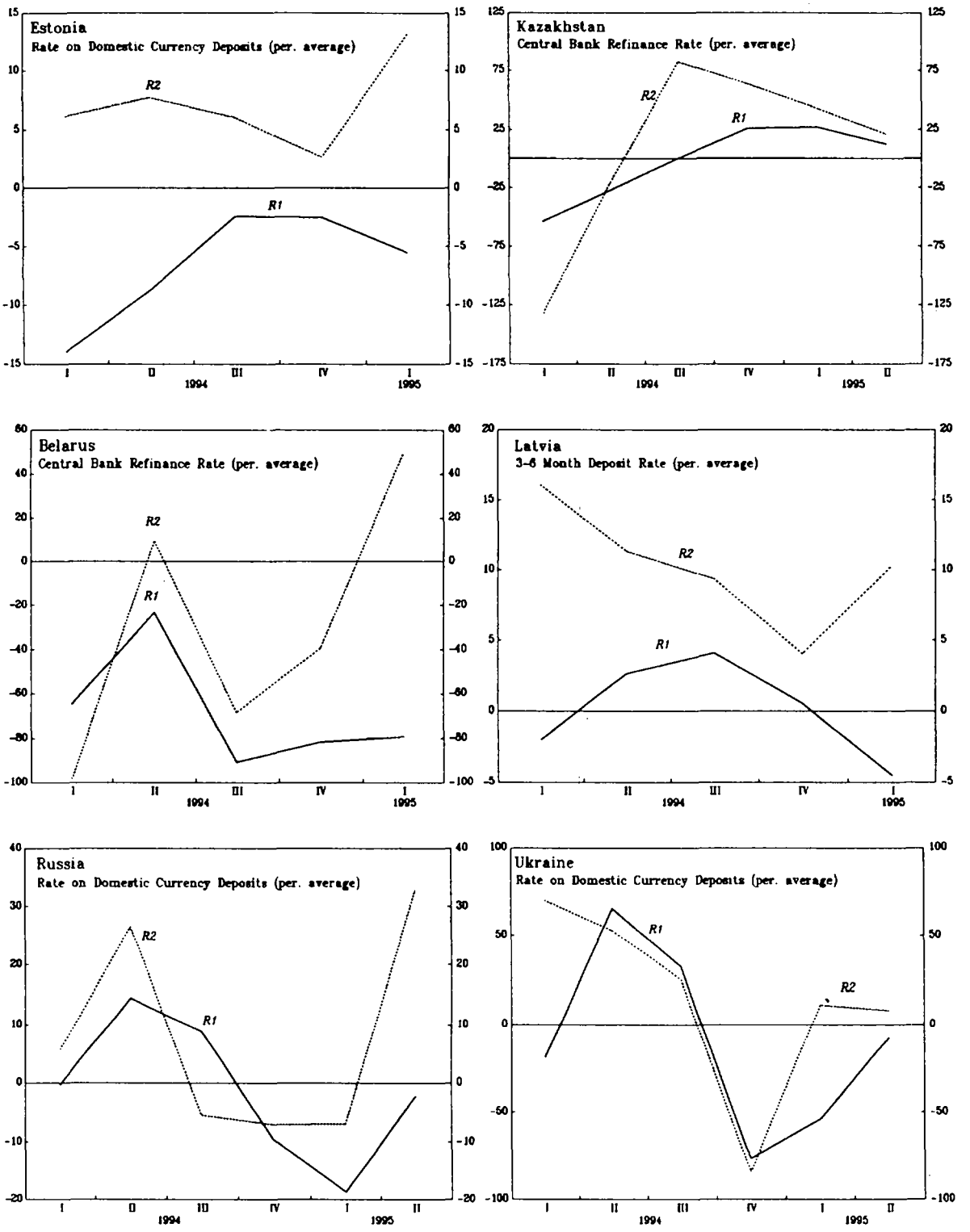
CHART 3
FSU COUNTRIES: REFINANCING RATES
(In percent, end of period)



Source: European II Centralized Database.

1/ As of April 1994, interbank rate.
2/ CD auction rate.

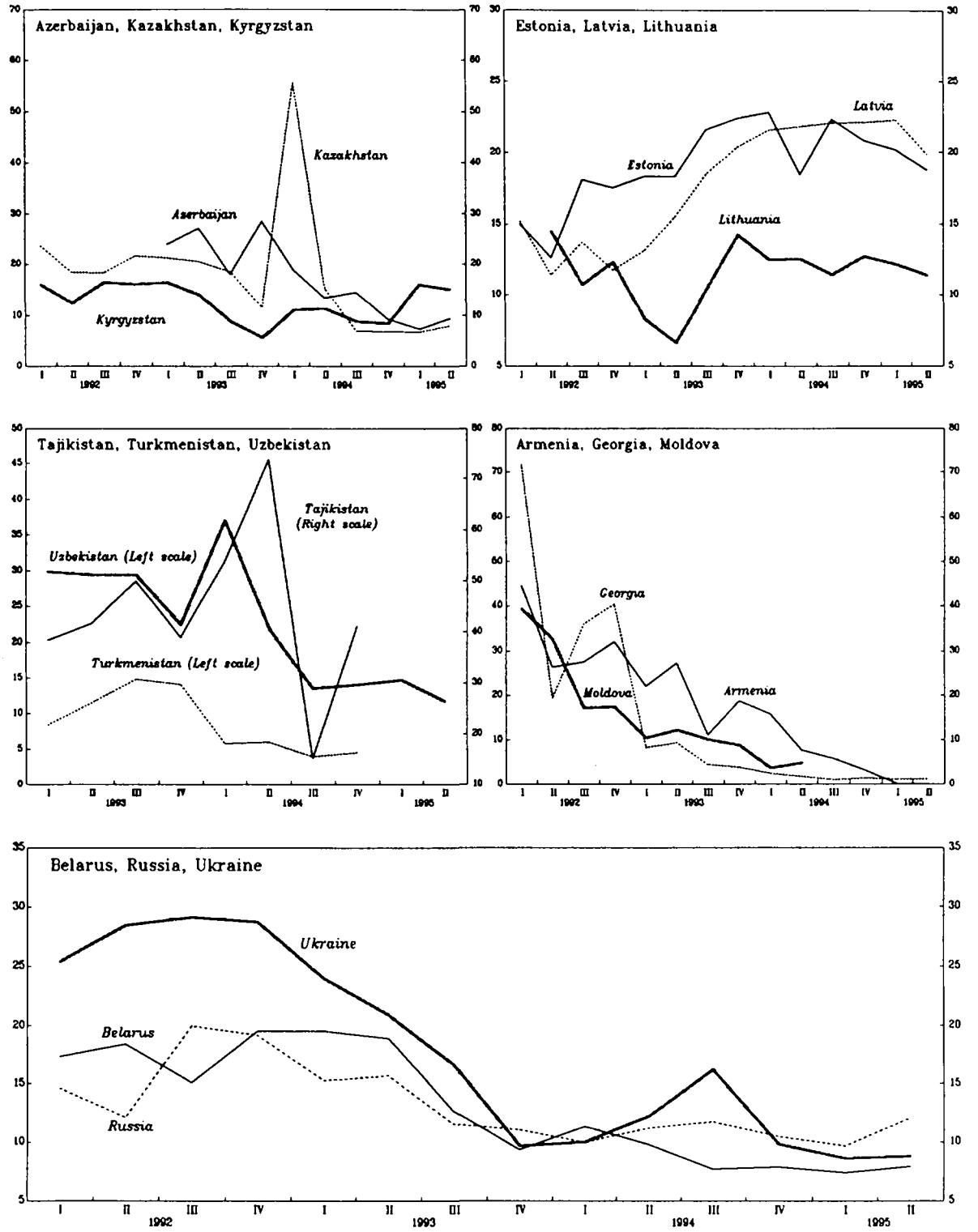
CHART 4
FSU COUNTRIES: REAL INTEREST RATES 1/
(In percent)



Source: European II Centralized Database.

1/ Quarterly rates; R1 is calculated as the interest rate minus the inflation rate. R2 is calculated as the interest rate minus the change in the U.S. dollar exchange rate.

CHART 5
FSU COUNTRIES: RATIO OF BROAD MONEY TO NOMINAL GDP
(In percent)



Source: European II Centralized Database.

temporary and the exchange rate failed to stabilize, as large cuasi-fiscal imbalances, together with increases in NIR, resulted in substantial monetary expansion during 1995.

Table 1. Belarus: Net Purchases of Foreign Exchange by Banking System, 1994 Q4 - 1995 Q2

(In millions of U.S. dollars)

	1994-Q4	1995-Q1	1995-Q2
Non Cash	3	5	-1
Cash	51	122	26
From households	51	121	26
From legal entities	--	1	--
Total	54	127	25

Source: National Bank of Belarus.

c. The Baltic countries

In all three Baltic countries, capital inflows and NIR increases were sizable during 1993-1994. Inflows were predominantly associated with direct foreign investment and official capital. Although not reflected in the capital account statistics, Latvia also appears to have experienced sizable private short-term inflows during this period. 1/ The latter were induced by a tight monetary policy accompanied, until February 1994, by some intervention in the foreign exchange market to limit exchange rate appreciation, and from February 1994 onward, by a fixed peg. This policy mix resulted in a combination of high interest rates and gradually appreciating exchange rates (during 1993) or stable exchange rates (during 1994) that translated in very high differentials between expected domestic

1/ Information on capital flows suggests that imports may be underestimated and that services data in the current account include some capital inflows.

and foreign returns. 1/ Instead, Estonia's policy response to the inflows--complete unsterilized intervention, in accordance with its currency board arrangement--resulted in much lower interest rates. 2/

During the first semester of 1995, capital inflows continued to be significant in Estonia (mainly in the form of direct investment). Instead, Latvia experienced a banking crisis, accompanied by large capital outflows and reserves losses. The banking crisis was at least partly induced by the inflows and ensuing rapid increase in bank deposits and loans during 1993-1994. While these inflows contributed to boost financial intermediation in Latvia much beyond the levels registered in any other FSU country, they also encouraged risky lending. 3/ Notwithstanding the different policy mixes, success in achieving stabilization was broadly similar across the three countries. Although their inflation rates continue to be higher than in industrial countries, they are quite low by FSU standards.

d. Other FSU countries

With the exception of Azerbaijan where NIR increased significantly during 1995 as a result of foreign direct investment and official capital, private capital inflows and NIR accumulation were insignificant in other FSU countries. Although Ukraine experienced substantial short-term inflows during the first quarter of 1995, their impact on NIR was mostly offset by large external debt payments. With the exception of Tajikistan, exchange rates stabilized. 4/ As nominal interest rates have generally remained high, substantial differentials between local currency and dollar returns prevailed in most countries during the first half of 1995. After being very high during the last quarter of 1994 in Azerbaijan, Armenia, Tajikistan and Ukraine, inflation abated during the first half of 1995. In Georgia, Moldova and the Kyrgyz Republic, inflation was already moderate during 1994.

3. Policy responses to the inflows

a. Stabilization

Appropriate policy responses to help consolidate stabilization efforts could include fiscal tightening and some exchange rate appreciation, in

---

1/ Although the interest rate declined as a result of the capital inflows, it did so only gradually (see Chart 3).

2/ In Lithuania, interest rates declined sharply following the introduction of the currency board, in April 1994. However, interest rates rose again during the first half of 1995, following rumors of a devaluation.

3/ The collapse of the largest commercial bank followed a period during which the bank offered extremely high interest rates on deposits to finance ventures with questionable prospects.

4/ In the case of Georgia, the nominal exchange rate appreciated sharply before stabilizing.

addition to sterilization. The choice of a policy response depends on the nature of the inflows and the macroeconomic environment prevailing in each country. As these issues have already been discussed in a number of recent contributions, this note limits itself to summarizing briefly the conditions under which sterilization might serve a useful purpose, possibly as part of a broader set of policy responses. 1/

While a tight monetary policy combined with a floating exchange rate can effectively firm up the monetary anchor needed for stabilization, it is likely to lead to an overshooting of the real exchange rate, which may raise concerns for competitiveness. On the other hand, managed appreciation could exacerbate inflows, as in the case of Latvia. If the exchange rate is pegged, sterilization may be appropriate to help stabilize if, as a result of capital inflows, money supply expands faster than money demand. When feasible, fiscal adjustment (in particular a postponement of fiscal expenditures) would be the preferred policy response to capital inflows as it does not increase interest rates. 2/ However, when there is limited scope for short-term fiscal adjustment, monetary sterilization may be used as part of an up-front effort to stabilize rapidly, particularly in the larger countries where inflationary inertia is likely to be higher.

Money supply appears to have expanded faster than money demand in Belarus and Russia. Tables 2 and 3 decompose inflation in supply and demand factors, based on the monetary authorities' accounts and a simple multiplier analysis. 3/ Although the tables need to be interpreted with care, as they are based on accounting identities rather than econometric analysis, they provide a useful synthetic view of money and inflation developments. 4/

The tables suggest that the tightening of domestic credit during the first quarter of 1995 led to a sharp reduction of inflation, accompanied by a decline of real money balances. While inflation continued to fall during the second quarter of 1995, net official reserves increased substantially

---

1/ See in particular Schadler et al., Recent experiences with Surges in Capital Inflows IMF Occasional Paper No. 108, December 1993; Calvo, Leiderman, and Reinhart "The Capital Inflows Problem: Concepts and Issues," IMF Paper on Policy Analysis and Assessment, PPAA/93/10, July 1993; and the notes for Management on policy responses to capital inflows prepared during the summer 1995 by the Research Department and the Policy Development and Review Department.

2/ Such policy response was used in Armenia during the first half of 1995.

3/ The methodology used to decompose inflation is presented in Appendix I.

4/ The tables do not incorporate causal or temporal linkages. Money demand, as defined in this exercise (i.e., real money balances), corresponds to a short-term concept which does not incorporate lags or stock adjustments.

Table 2. Russia: Inflation Decomposition

(In logarithms)

	1992	1993	1994	1995-1	1995-2
Inflation	2.81	2.24	1.11	0.44	0.14
Supply	1.80	1.68	1.08	0.11	0.38
Base	2.47	1.66	1.00	0.02	0.41
Domestic Credit	2.72	1.24	1.43	0.08	0.03
NIR	0.17	0.48	-0.13	0.00	0.43
Other	-0.42	-0.06	-0.30	-0.05	-0.05
Multiplier	-0.66	0.02	0.08	0.08	-0.03
Demand	1.00	0.56	0.02	0.33	-0.24
Output	0.20	0.12	0.16	0.07	-0.04
Velocity	0.80	0.43	-0.18	0.26	-0.20

Source: Central Bank of Russia.

Table 3. Belarus: Inflation Decomposition

(In logarithms)

	1993	1994	1995-1	1995-2
Inflation	3.04	3.06	0.80	0.19
Supply	2.39	2.97	0.33	0.38
Base	1.96	2.87	0.45	0.58
Domestic credit	2.02	2.49	0.10	0.28
NIR	0.03	0.08	0.44	0.39
Other	-0.08	0.30	-0.09	-0.09
Multiplier	0.42	0.11	-0.13	-0.19
Demand	0.66	0.09	0.48	-0.19
Output	0.11	0.21	0.23	0.00
Velocity	0.55	-0.30	0.25	-0.19

Source: Central Bank of Belarus.

during this period. Although the inflows were accompanied by an increase in real broad money balances (i.e., a fall in the velocity of circulation), and a decline of the multiplier (base money increased in excess of broad money), these increases in short-term demand for money were not sufficient to offset the increases in money supply originating from the accumulation of official reserves. Thus, by offsetting the domestic money supply contraction, the external money supply expansion appears to have accommodated price increases and delayed stabilization.

Broadly similar patterns are observed in the case of Kazakstan and Uzbekistan (Tables 4 and 5). The continued rapid growth of international reserves sustained inflation while domestic credit growth was brought under control. Although some increases in money demand (or reductions in the multiplier) occurred in both cases during 1995, these were not sufficient to offset increases in money supply.

As long as the inflows correspond to a portfolio shift by residents (and the stock of hoarded cash or flight capital is of a moderate magnitude), the problems caused by offsetting inflows should be less severe than if the primary cause of the inflows was speculative portfolio investments by nonresidents. Thus, the effectiveness of sterilization should increase. In particular, the public could be induced to convert (at least part of) its excess foreign currency balances into T-bills (or similar instruments) rather than bank deposits (or banks may be induced to invest their free reserves into T-bills rather than loans). Similarly, one time inflows, such as unusually large official borrowings, could be in principle sterilized.

However, inflation may also be associated with supply factors that are difficult to control. In particular, although they may have played so far only a minor role, high rates of productivity growth in the tradable sector (possibly in conjunction with undervalued exchange rates) could also be at least partly responsible for residual inflation, as appears to have been the case in the Baltic countries. In this case, real exchange rate appreciation would be unavoidable and sterilization clearly inadvisable as it would have little or no impact on inflation. 1/ Caution seems, therefore, to be called for when implementing sterilization policies.

b. Medium term prudential concerns

As illustrated by the experience in other countries that have achieved stabilization after a period of strong macroeconomic imbalances, large and persistent capital inflows could become a problem for many FSU countries after they stabilize. In addition to creating inflationary pressure, sustained inflows could also worsen financial system difficulties, by inducing an

---

1/ Capital inflows would be induced in this case by liquidity shortages resulting from the inflationary erosion of real money balances.

Table 4. Kazakstan: Inflation Decomposition

(In logarithms)

	1994	1995-1	1995-2
Inflation	2.99	0.20	0.08
Supply	1.91	0.11	0.30
Base	2.06	0.06	0.28
Domestic credit	1.71	-0.07	-0.04
NIR	0.99	0.35	0.16
Other	-0.64	-0.22	0.15
Multiplier	-0.15	0.05	0.02
Demand	1.08	0.09	-0.22
Output	0.11	0.00	-0.05
Velocity	0.97	0.09	-0.17

Source: Central Bank of Kazakstan.

Table 5. Uzbekistan: Inflation Decomposition

(In logarithms)

	1993	1994	1995-1	1995-2
Inflation	4.43	0.48	0.45	0.29
Supply	2.37	1.85	0.20	0.26
Base	2.28	1.66	0.33	0.27
Domestic credit	2.65	1.58	0.07	-0.01
NIR	0.14	0.35	0.36	0.38
Other	-0.52	-0.27	-0.09	-0.10
Multiplier	0.09	0.19	-0.14	-0.01
Demand	2.07	-1.37	0.25	0.03
Output	n.a	n.a	n.a	n.a
Velocity	n.a	n.a	n.a	n.a

Source: Central Bank of Uzbekistan.

excessively rapid credit expansion. Thus, if and when such sustained inflows materialize, the authorities should be ready to take measures to slow them down or to limit adverse prudential implications.

Given the poor financial situation of many FSU banks, their limited capacity to appraise loans, high loan concentration and insider lending, weak bank supervision, and limited availability of collateral, a significant part of the inflows could be channeled into loans of questionable quality. Banks whose profit margins are being squeezed as a result of stabilization might be particularly tempted by an aggressive deposit taking and lending growth strategy. 1/ As the deposit base increases and some banks take advantage of it to expand their lending aggressively, more cautious banks may be carried along in the fight to preserve their market shares. In addition, as in many of the Latin American countries that have experienced large inflows, FSU financial systems may become vulnerable to a reversal of capital flows (induced, for example, by stabilization failures, excessive appreciation, or impending bank failures). 2/

As tight bank supervision and appropriate prudential requirements can help avoid a deterioration in bank portfolios, the immediate priority is to enforce compliance of sound prudential requirements. In particular, a strengthening and firm enforcement of well formulated capital adequacy rules, loan loss provisioning, and loan concentration limits can moderate credit expansion, improve loan quality, and complement monetary policy measures. Timely adjustments of sector specific loan loss provisions can also be used to slow down the growth of credit in specific sectors which are particularly prone to asset price bubbles such as real estate and construction. 3/

Measures may also be needed to increase banks' liquidity and improve their capacity to sustain a run, particularly in cases where extensive dollarization or the adoption of an exchange rate anchor would prevent using the exchange rate as a first line of defense. Thus, the scope of liquidity management may be adjusted to stress systemic liquidity risks, in addition

---

1/ Under high inflation, banks can obtain substantial revenues by lending unremunerated demand deposits at high nominal rates.

2/ The slower development of lending to the real estate and construction sectors would suggest that transition economies may not be as prone to financial crises caused by the collapse of an asset price bubble, as those in Latin America have been. The very short maturity of most FSU commercial bank loans could also limit the effects of a liquidity crisis. At the same time, however, the small size of the financial system and limited development of financial and capital markets could severely restrict the banking system's ability to cope with a sudden shortage of liquidity.

3/ In some cases, minimum capital requirements may also need to be increased to limit the growth in the number of banks and facilitate supervision.

to bank-specific risks. In particular, banks may be encouraged to lengthen the average maturity of their deposits and to hold part of their reserves abroad.

However, the weak regulatory and supervisory framework, the difficulties in assessing banks' loan portfolios, the lack of compliance with existing prudential requirements, and the poor financial situation of many banks limits the effectiveness of conventional prudential ratios under current circumstances (see Table 6). In cases where only a few banks fail to comply with existing prudential regulations and are perceived as problem banks, the best option would be to reorganize or close these banks, or to constrain the growth of their deposits (and other activities) until they meet minimum prudential requirements.

When the whole banking system is facing similar problems, a more comprehensive solution would be called for, in particular an acceleration of commercial banks' rehabilitation. While the shrinkage of banks' assets that resulted from high inflation would facilitate at present any needed absorption of bank losses by governments, delaying rehabilitation and letting bank assets grow again without suitable checks could substantially complicate this task in the future. However, in many cases, a comprehensive program of bank restructuring and rehabilitation cannot be implemented immediately and would have to be phased in over time.

When concerns for real appreciation discourage the authorities from letting the exchange rate float, alternative measures may be needed to slow down inflows and limit credit expansion. In such cases, the growth in deposits can be partly sterilized through an accumulation of liquid foreign assets. If these assets are held by the central bank (or the government), commercial banks must be induced to hold counterpart domestic claims, in the form of required reserves or interest bearing financial instruments (issued by the central bank or the government).

4. Scope for market-based sterilization

a. Instruments

Until recently, most FSU central banks were better equipped to inject liquidity (i.e., through refinancing facilities and credit auctions) than to withdraw liquidity, reflecting the substitution in recent years of directed credits by more efficient market mechanisms of credit allocation (see Table 7). Setting aside the Baltic states, the Kyrgyz Republic and Turkmenistan, all FSU countries have credit auctions. Six FSU countries use credit auctions as a main monetary instrument. On the other hand, while six countries (Belarus, Kazakstan, the Kyrgyz Republic, Russia, Latvia,

Table 6: FSU Countries: Basic Elements of Banking Supervision

BANKING SUPERVISION - BASIC ELEMENTS

Country	Banking Law				Sufficient Capital Requirements				Prudential Regulation Incl. Provisioning				On-Site Inspections				Off-Site Analysis				Sanctions				Restructuring Policy				Sufficient Qualified Staff		Total		
	In place		Implementation Satisfactory		In place		Implementation Satisfactory		In place		Implementation Satisfactory		In Place		Implementation Satisfactory		In Place		Implementation Satisfactory		In place		Implementation Satisfactory		In place		Implementation Satisfactory						
	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y/N
Armenia	♦			♦		♦		♦		♦		♦	♦			♦	♦			♦	♦			♦		♦		♦		♦	4	11	.36
Azerbaijan	♦			♦		♦		♦		♦		♦	♦			♦		♦		♦		♦		♦		♦		♦		♦	2	13	.15
Belarus	♦			♦	♦			♦	♦			♦	♦			♦	♦			♦	♦			♦		♦		♦		♦	6	9	.66
Estonia	♦		♦		♦		♦		♦			♦	♦			♦	♦		♦		♦		♦		♦			♦		♦	11	4	2.75
Georgia	♦		♦			♦		♦	♦			♦	♦			♦	♦			♦	♦			♦		♦		♦		♦	6	9	.66
Kazakhstan	♦			♦	♦			♦		♦		♦	♦			♦		♦		♦		♦		♦		♦		♦		♦	3	12	.25
Kyrgyzstan	♦		♦		♦			♦	♦		♦		♦		♦		♦		♦		♦		♦			♦		♦		♦	10	5	2.00
Latvia	♦		♦		♦			♦	♦			♦	♦		♦		♦		♦		♦			♦		♦		♦		♦	8	7	1.14
Lithuania	♦			♦	♦			♦	♦		♦		♦		♦		♦		♦		♦		♦			♦		♦		♦	10	5	2.00
Moldova	♦			♦		♦		♦	♦			♦	♦			♦	♦		♦			♦		♦		♦		♦		♦	4	11	.36
Russia	♦			♦		♦		♦	♦			♦	♦			♦	♦			♦	♦			♦		♦		♦		♦	5	10	.50
Tajikistan	♦			♦		♦		♦	♦			♦	♦			♦	♦			♦	♦			♦		♦		♦		♦	5	10	.50
Turkmenistan	♦			♦	♦			♦	♦			♦	♦		♦			♦		♦	♦			♦	♦		♦			♦	8	7	1.14
Ukraine	♦			♦		♦		♦		♦		♦	♦			♦		♦		♦	♦			♦		♦		♦		♦	3	12	.25
Uzbekistan	♦			♦		♦		♦	♦			♦	♦			♦	♦			♦	♦			♦		♦		♦		♦	5	10	.50
Total	15	0	4	11	7	8	1	14	11	4	2	13	15	0	4	11	11	4	5	10	12	3	3	12	2	13	1	14	0	15			

Source: Prepared by the Banking Supervision Division of the Monetary and Exchange Affiars Department on the basis of information obtained during the second half of 1994 and first half of 1995.

Table 7. FSU: Monetary Instruments 1/

Country	Reserve Requirement Ratio		FCD/Total Deposits	T-Bill Market 2/	Open Market Type Operations 3/	CB Bill Market 4/	Credit Auction 5/	Main Monetary Policy Instruments 6/
	Local Curr. Deps	Foreign Curr. Deps						
Armenia	15	15	46	Y	NR	N	Y	5.3.3
Azerbaijan	15	15	48	N	NR	N	Y	2.3
Belarus	6	6	60	Y	NR	N	Y	4.1; 5.3.3
Estonia	10	10	14	N	NR	Y	N	NR
Georgia	20	20	70	N	NR	N	Y	3
Kazakstan	20	20	50	Y	NR	Y	Y	3; 5.3.3; 4.1
Kyrgyz Republic	15	0	22	Y	Y	N	N	5.1.2; 5.3
Latvia	8	8	40	Y	Y	Y	Y	3; 4.1; 5.3
Lithuania	10	10	40	Y	NR	N	N	NR
Moldova	12	100	19	N	NR	N	Y	5.3.3
Russian Fed.	22	2	27	Y	NR	N	Y	3; 5.3
Tajikistan	20	0	50	N	NR	N	N	2.2
Turkmenistan	15	15	9	N	NR	N	N	2.3; 3
Ukraine	15	2	20	Y	NR	N	Y	3; 4.1
Uzbekistan	30	30	32	N	NR	Y	Y	5.3.3

Source: MAE information system on monetary instruments.

1/ The table reflects information collected during the first semester of 1995.

2/ Yes (Y); No (N).

3/ Yes (Y); Not relevant (NR).

4/ Yes (Y); No (N).

5/ Yes (Y); No (N).

6/ Interest rate controls (2.1); Bank-by-bank credit ceilings; Directed credits (2.3) Reserve requirements (3); Short-term credit facility (4.1); OMO-type with T-bills (5.1.2); Other instruments (5.3); Credit auctions (5.3.3.); Not relevant (NR).

and Lithuania) have T-bill markets, these markets are generally still small. 1/ Only four countries (Estonia, Latvia, Kazakstan, and Uzbekistan) have central bank bills.

The Kyrgyz Republic is the only country that has at present the potential to use open market-type operations with T-bills actively. The scope for secondary market operations (such as outright sales or repos of T-bills owned by central banks) is also limited by the stage of market development and the volume of T-bills in central banks' portfolios. In the case of Russia, while a liquid market for T-bills exist and the central bank has substantial volumes of T-bills in its portfolio, the ability to conduct repo operations is hindered by technical difficulties. 2/

Although it is in principle possible to withdraw liquidity by reducing the amount of credit being auctioned below the amount of credit being amortized, it is not clear that credit auctions have the flexibility needed for such operations. First, the volume of outstanding credit is generally insufficient to support large scale sterilization. In addition, the limited development of FSU money markets may hamper the rapid repayment of credits granted under the credit auction facility. Nevertheless, in cases like Georgia, Uzbekistan and Kazakstan, where central banks auction credit by participating in the interbank market in the same way as commercial banks, it may be possible for central banks to borrow in this market, as well as to lend, provided that the market is sufficiently deep.

When the central bank cannot borrow large volumes of funds directly in the interbank market, the T-bill market is small, and the scope for open market-type operations is limited, 3/ it may be desirable to develop central bank bills or to promote the use of deposit auctions. As the mechanics of deposit auctions are essentially similar to those of credit auctions, introducing deposit auctions is straightforward when experience on

---

1/ Armenia started issuing T-bills in the last quarter of 1995.

2/ The CBR may be able to start repo operations during the fourth quarter of 1995, after the procedures and software used by MICEX, the institution maintaining the book-entry records and trading software for T-bills, are reformed.

3/ In particular, the Ministry of Finance may object to paying market interest rates or to issuing T-bills in excess of its financing needs (as seems to be the case in most of the FSUs, including in the case of the Kyrgyz Republic where this possibility is formally recognized).

conducting credit auctions exists. 1/ Deposit auctions or sales of central bank CDs were recently introduced in Belarus, Kazakstan, Latvia, Russia, and Ukraine. 2/

Although swaps of domestic currency against foreign currency could perhaps be envisaged in some cases, the effectiveness of such operations would depend, inter alia, on the degree of substitutability of domestic currency liquidity against foreign currency liquidity, i.e., of whether overall liquidity would shrink as a result of the swap. Given the substantial currency substitution already present in most FSU countries, swaps could further promote dollarization or fail to curb the expansion of credit. Swaps could also be ineffective if a substantial part of the foreign currency injected in the spot market resurfaces in the exchange market as a capital inflow.

Another option to capture savings by individuals directly (rather than through the banking system) would be to issue government savings bonds or similar retail debt instruments. 3/ This option has the advantage that the inflows would be sterilized before they are intermediated by the banking system.

b. Costs

The cost of market-based sterilization and its impact on central banks' balance sheets and on the fiscal position is a cause for concern, in view of the weak fiscal positions of most FSU treasuries, the limited independence of central banks, and the generally high interest rates on short-term bills. Thus, with current T-bill rates, the net yearly interest costs of sterilizing a one-time inflow equivalent to one percent of GDP would be 1.1 percent of GDP in Russia, 1.0 percent of GDP in Ukraine, and 0.9 percent in Belarus and Kazakstan. Such interest costs would be difficult to support by already overburdened budgets and can have adverse implications on central banks' balance sheets. Thus, in Russia the Central Bank has been reluctant, so far, to pay the rates and adopt the procedures needed to obtain large amounts of commercial bank deposits. In cases where the central bank does

---

1/ Deposit auctions are essentially reverse credit auctions. Moreover, deposit auctions are simpler than credit auctions, as the funds are all borrowed by a single risk-free entity (the central bank), instead of being lent to different entities (commercial banks) with different risks.

2/ Recognizing that the low stock of outstanding central bank credit limited the scope for sterilization, the Central Bank of Latvia started accepting term deposits from banks in March 1995.

3/ The treasury could deposit the proceeds at the central bank or use them to amortize its debt to the central bank.

not have large profits, suitable arrangements need to be in place to ensure that any large losses resulting from sterilization are entirely and rapidly absorbed by the budget. 1/

In addition to a tight monetary stance (which should be temporary), the high interest rates on short-term bills may reflect structural factors of a longer lasting nature, such as the limited development of financial markets and instruments, as well as high risk premia. Thus, sterilization costs could be reduced by rapid further progress in strengthening the operational arrangements of the money and securities markets, reducing segmentation, and improving market liquidity.

c. Maturity and backing of sterilization instruments

To discourage speculative short-term capital, medium-term bonds are preferable to short-term bills. Longer term bonds can also limit the vulnerability of the central bank (or the government) to capital outflows when there is no guarantee that the proceeds of the bonds will be fully sterilized in the form of international reserves (hence, that bonds could be repaid on short notice in the case of sudden shifts in confidence). However, interest rates on longer-term bonds may include a substantial risk premium, which could boost the cost of sterilization. In addition, longer term bonds could increase commercial banks' exposure to capital outflows if they are induced to hold a sizable share of their assets in such instruments. Thus, the maturity mix of the bonds can be chosen to reflect, in addition to fiscal considerations, factors such as the availability of foreign exchange backing, the need to strengthen the banking system, the duration of the inflows, and other factors affecting bank reserves.

To ensure that the counterpart of sterilization bonds issued by central banks is invested in liquid assets abroad, rather than on-lent to the governments, separate sterilization funds could be established in the balance sheets of central banks. The funds would have sterilization bonds as liabilities and would only be allowed to hold international reserves as assets. To further limit risks incurred by central banks, sterilization bonds could be issued directly by treasuries. In this case, central banks

---

1/ If sterilization bonds are issued by the central bank, the treasury should regularly make up for those losses by transferring cash or fully marketable bonds earning market interest rates.

could register the sales of bonds and the acquisition of foreign assets as off-balance sheet items in the sterilization fund which they could administer on account of the treasury. 1/

5. Non market-based approaches to sterilize or discourage inflows

a. Reserve requirements

Reserve requirements can play a useful role to complement market-based instruments, particularly in the case of sustained inflows. In the short-term, sterilization through market based instruments is clearly preferable to sterilization through reserve requirements (RR) or other nonmarket instruments. The flexibility of market instruments is essential when sterilization is expected to be of short duration or when there is considerable uncertainty about the extent and duration of sterilization. In particular, when liquidity is not evenly distributed among financial intermediaries, an active interbank market does not exist, and a sizable number of banks are in financial difficulties, increasing RR may cause excessive stress on some of the banks while failing to fully absorb the excess liquidity held by others. 2/ Over longer time horizons, the use of market instruments also has advantages as it does not introduce distortions and helps to promote the development of financial markets.

At the same time, however, the use of market based instruments may be hindered by a number of factors: (i) suitable market-based instruments may be unavailable as it takes time to organize the supporting institutional or market arrangements; (ii) sterilization costs with market-based instruments may be excessive in view of fiscal constraints; (iii) the use of market-based instruments may stimulate further inflows by maintaining local interest rates above foreign rates; or (iv) when the instruments have short maturities and are insufficiently backed by international reserves, sterilization with market-based instruments may expose central banks (or governments) to debt roll-over difficulties in the event of a sudden reversal of capital flows.

Thus, in many cases, nonmarket instruments may also be needed. When fiscal constraints are severely binding, the use of unremunerated RR for sterilization purposes has clear fiscal benefits. More importantly, unremunerated RR widen financial intermediation spreads, thereby encouraging

---

1/ Central banks could include in the primary auctions of T-bills special allotments of sterilization bills, would debit banks' reserve accounts by the amount of the sterilization bills sold, transfer the international reserves counterpart to the asset side of the sterilization fund and credit a frozen Government deposit account on the liability side of the fund.

2/ In particular, the increase in the deposit base resulting from capital inflows may be unevenly distributed among banks. The largest banks or the banks that are licensed to take deposits from the public may benefit initially the most from the growth of deposits.

depositors and borrowers to deposit and borrow abroad. Thus, unremunerated RR slow down domestic credit expansion by substituting required reserves for private credit as well as by channeling some intermediation through foreign banks. Even in extreme cases when unremunerated RR do not reduce net capital inflows (as loans by foreign banks substitute one-for-one loans by domestic banks), the absorption of a higher proportion of the total credit expansion by foreign intermediaries limits the risks of a banking crisis. In contrast, sterilization through market-based instruments is hindered by the fact that it attracts foreign funds that need to be rechanneled abroad by the central bank in the form of international reserves. Hence, it stimulates domestic financial intermediation, instead of discouraging it.

In addition, unlike sterilization bonds, which may be directly acquired by foreign residents and, hence, are exposed to direct interest arbitrage, RR target the banking sector, exclusively. Thus, RR are less likely to induce offsetting inflows. 1/ Unremunerated RR also limit the scope for an automatic capitalization of accrued interests on both sides of banks' balance sheets, as additional reserves must be deposited in cash against accrued interest credited to deposit accounts of customers. This allows supervisors to detect at an early stage difficulties experienced by banks in cashing in interest on outstanding credits.

Thus, a uniform increase in RR (or the introduction of foreign liquidity requirements, as suggested below) may be desirable to slow down credit expansion. As in the case of market-based sterilization instruments, it would be highly desirable that required reserves be fully backed by foreign exchange holdings and kept in a separate sterilization fund.

However, caution is needed in choosing the level and remuneration of RR. Very high unremunerated RR could undermine banks' profitability and soundness. 2/ They could also promote alternative domestic channels of intermediation, such as nonbank financial intermediaries. Although the banking system may continue accounting for most financial intermediation in the short or medium term, domestic banks may be induced to transfer some of their domestic activities offshore (or outside their balance sheet), thereby obscuring banking transactions and complicating banking supervision. Increases in RR would need to be introduced in a flexible manner and should be phased in gradually to prevent a further weakening of those banks that may not directly benefit from the inflows.

1/ Sterilization bonds could also, in principle, be targeted to the banking sector exclusively. However, this would stimulate the growth of banks' liabilities and raise the cost of sterilization.

2/ In cases where banks' solvency is at risk, unremunerated RR may worsen banks' financial position by encouraging risk taking. Given the reduction of interest rates that accompanied stabilization, the burden on FSU banks of unremunerated RR has fallen sharply. At the same time, however, banks' profitability may also have been compressed by the decline of nominal interest rates and intermediation spreads.

When RR are already high (as in Georgia, Kazakstan, Russia, and Uzbekistan) or compliance is poor, an increase in RR may be difficult to implement unless RR are remunerated or administration is improved. However, in other countries where RR are lower or compliance is better, it may be feasible to increase RR. 1/ In all cases, great caution should be exercised when envisaging a reduction of RR. In view of possible prudential implications, it may be preferable to delay reductions of RR, which would be otherwise desirable on efficiency grounds, until appropriate prudential requirements are met or the phase of rapid remonetization has passed. 2/

b. Other instruments

As another alternative to avoid a build-up of central banks' balance sheets, banks could be required to hold liquid deposits abroad. In particular, when the aim is to restrict the central bank's role of lender-of-last-resort and to protect its purely monetary function (as in the case of a currency board arrangement), foreign liquidity requirements (FLR) may be preferable to RR. However, FLR constrain the ability of the central bank to intervene by providing liquidity in the case of a crisis (as the foreign exchange counterpart is spread out as reserves holdings of individual banks abroad, instead of being pooled at the central bank). Moreover, unless they are only applied to foreign exchange deposits or the exchange rate is strongly anchored, FLR expose commercial banks to exchange risk.

In some cases, direct controls or taxes on capital inflows may be used to discourage inflows, as used recently by Chile, Colombia, and a few other Asian countries. In particular, high RR could be imposed on foreign borrowing by local firms or banks, when such borrowing is thought to be significant, as may be the case in Russia. 3/ However, such instruments also require that adequate administrative capacity and procedures be in place to ensure compliance. Moreover, a tightening of capital controls in

---

1/ In particular, in the case of the rigid monetary arrangements adopted by Estonia and Lithuania, RR may be the only available monetary sterilization instrument.

2/ A corollary of this proposition is that caution should be used in reducing RR when many banks are potentially insolvent. Banks that expect to be liquidated may divert the funds released by the reduction of RR to inappropriate uses, thereby limiting the implicit collateral that can be retained by central banks and increasing their exposure to losses in the case where central banks are compelled to provide liquidity support to the banks.

3/ To discourage speculative inflows, higher RR may be imposed on shorter term borrowing. To limit the scope for diverting inflows through alternative channels, RR can also be imposed on foreign direct investment. Another measure that may also be used to discourage very short-term speculative conversions of foreign currency into local currency consists in widening the bid-ask spread of the central bank in the foreign exchange market.

FSU countries would have undesirable signaling effects if it undermines confidence in the maintenance of liberalization policies. Large capital inflows may provide a good opportunity to dismantle remaining restrictions on capital outflows. However, caution is needed as the experience indicates that dismantling capital account restrictions could further stimulate inflows. 1/

In some (mostly Asian) countries, the transfer of public sector deposits at the central bank (or an increase of RR on deposits of the public sector in commercial banks) has also been used successfully to sterilize inflows, particularly when they are expected to be temporary. This measure can be more flexible and easier to implement than an increase in RR and less costly to the central bank than an open market operation. 2/ However, it could, in the case of the FSUs, penalize excessively the few ex-specialized banks that hold most of the deposits of public enterprises. Moreover, it could stifle the development of interbank markets.

6. Some operational considerations for short-term sterilization

a. Targets

This section focuses on operational considerations when market-based sterilization is used to meet monetary targets, particularly in the context of short-term stabilization objectives. The ultimate proof of the effectiveness of sterilization is whether it allows the central bank to meet an inflation or money expansion objective at an acceptable cost to the treasury, given the difficulties in projecting money demand behavior. Thus, to assess whether a sterilization policy should be prolonged or discontinued, success in meeting a target in the short-run needs to be compared not only with sterilization costs incurred so far but also with the costs that are likely to arise in the future to remain on target.

Sterilization costs may soon exceed benefits if: (i) the conditions that gave rise to the inflows are expected to last; (ii) fiscal rigidities limit the scope for absorbing the costs associated with the issue of sterilization bonds or for offsetting the inflows through an improvement in the fiscal balance; (iii) the mix of monetary instruments used for sterilization or the existence of high risk premia result in high real interest rates (thereby boosting the fiscal cost of sterilization) or

---

1/ In most FSU countries, controls on capital flows have already been de facto or de jure liberalized. However, by reducing uncertainty, the formal removal of the remaining restrictions could encourage inflows.

2/ When deposits that are transferred to the central bank (or the RR on such deposits) are not remunerated, the transfer of deposits imposes a lump sum tax on the bank that was holding the deposit (if the deposit at the commercial bank was not remunerated) or on the enterprise that owned it (if the deposit was remunerated).

substantial differentials between domestic and foreign dollar returns (thereby attracting further capital inflows); and (iv) offset coefficients are high. 1/

Given the uncertainty concerning the duration and magnitude of the inflows, the need and instruments used for sterilization, its effectiveness, and its cost, a pragmatic learning-by-doing approach seems to be generally preferable to a strict rule-based approach. In particular, in the case of short-run stabilization objectives, a choice needs to be made between following initially a tighter monetary program and relaxing it later, if needed, or adopting initially a more passive monetary stance later followed by a monetary tightening, if clear indications of overheating are perceived. The choice needs to be based on relative preferences for achieving the inflation or money growth objective versus limiting costs. 2/

Adopting the inflation rate (or nominal income) as a direct target to guide monetary policy on a month-to-month or quarter-to-quarter basis appears impractical in view of the variability of inflation and variable lags, which could generate substantial instrument instability. 3/ In addition, the adoption of strict inflation targeting and the abandonment of an intermediate monetary target could result in weak nominal anchoring if the credibility of the inflation target is limited or expectations play only a secondary role in the inflationary process. Both caveats may apply to FSU countries. Moreover, the choice of an inflation target may be constrained by real sector developments. 4/

The abandonment of an intermediate monetary target would also require that monetary policy be implemented strictly on the basis of a short-term operational target, such as interest rates or excess reserves. However, the limited development of money markets and the difficulty of assessing the

---

1/ The offset coefficient is defined as the percent of sterilization operations that is directly offset by induced capital inflows.

2/ In the context of Fund programs, the emphasis on containing inflation would generally argue in favor of a cautious money demand projection and a later relaxation of monetary policy if targets are overrun without clear indications of overheating.

3/ Inflation targeting in industrial countries generally aims at influencing expectations over a multi-year horizon, rather than influencing short-term inflation rates.

4/ In particular, it may be difficult to assess whether the inflation target is consistent with productivity growth differentials under a pegged exchange rate.

expectational component of interest rates, particularly when the economy is starting to stabilize (as is currently the case of most FSU countries) hampers using interest rates as direct operational targets. 1/

Moreover, using interest rates as operational targets would require, in the absence of an intermediate target, that an interest rate path be established to link over time current monetary conditions to the medium term inflation target. This would appear to be generally beyond the reach (in terms of informational requirements, market development, or modeling capacity) of most FSU central banks. A similar difficulty would exist if the operational target was based on a quantitative variable (such as excess reserves), rather than interest rates. Thus, the use of an intermediate monetary target (M2, reserve money, or currency) may generally be unavoidable to close the gap between monetary instruments and final targets.

b. Indicators

Extensive use of all available indicators is needed to adjust the operating target and review the intermediate target flexibly as new information is acquired on the magnitude (or nature) of the monetary shocks, and the effectiveness of the monetary stance. In particular, actual inflation performance should be compared to projected inflation performance. If there are substantial overruns in intermediate targets without higher inflation, the presumption--notwithstanding the problem of lags--could be that money demand increase was underestimated in the first place; with the opposite conclusion reached otherwise.

Notwithstanding the difficulties cited above, interest rates, particularly short-term rates such as the money market rate, should provide essential guidance to gauge the rate of growth of the money base that is consistent with the expansion of money demand. 2/ Volume indicators, such as banks' free reserves at the central bank and net credit flows to the economy (net of interest payments), may be used when rapidly shifting expectations complicate the interpretation of interest rate signals. In the case of floating rate regimes, the exchange rate may be combined with the

---

1/ In particular, if inflationary expectations or expectations of a devaluation fell abruptly, interest rates that were initially perceived to be low could suddenly become high. Under such conditions, an attempt to maintain interest rates at their historical level would be self defeating (as it would induce strong inflows) and could be quite costly.

2/ When capital mobility is high and the exchange rate is pegged, the spread between domestic and foreign interest rates, in conjunction with information on short-term inflows, may be better indicators of the underlying monetary stance than the real interest rate. In particular, when measured ex-post, changes in real interest rates should mostly reflect changes in inflation. Under high rates of productivity growth, real interest rates may remain negative, as real exchange rates would appreciate systematically (as illustrated by the Baltic countries).

interest rate to establish a monetary conditions index (MCI), as in the case of Canada. 1/ In countries where market development is sufficient, asset prices (such as real estate prices) and the term structure of interest rates may also provide valuable indications on expectations and the underlying monetary stance. 2/

Although money demand in FSU countries is unlikely to be stable, due, inter alia, to currency substitution, shifts in perceived risk premia, and financial system reforms, econometric estimates of selected monetary aggregates, particularly narrow aggregates such as currency, may be used in conjunction with other indicators. Astructural estimates of inflation (such as VAR) should also provide useful additional indications to guide monetary policy.

The scope for implementing sterilization policies on a flexible basis is conditioned, in all cases, by the availability of an effective short-term information system. While short-term information systems for monetary policy have been established in most FSU countries, the quality and timeliness of some of the indicators--particularly money market rates--has to be improved and refined as markets further develop.

7. Conclusions

Significant foreign exchange inflows were observed in at least six FSU countries (Belarus, Estonia, Kazakstan, Russia, Turkmenistan, and Uzbekistan) during the first half of 1995. Except for Estonia, which had

---

1/ For example, an exchange rate appreciation combined with an increase in interest rates (as would be the case following a money demand shock) would reflect a tighter monetary stance as both the appreciation and the increase in interest rates would depress the demand for non tradables. On the other hand, a decline of interest rates (caused, for example, by an external money supply shock) may not require sterilization if it is accompanied by a significant exchange rate appreciation. However, the use of such index in FSU countries may be hampered by the difficulty of assessing expected inflation. Unlike in the case of Canada, where changes in expectations of inflation account for only a modest share of the overall movements of the index (thereby allowing a nominal MCI to be substituted for a real MCI), month-to-month changes in inflationary expectations could be substantial in those FSU countries that have not yet succeeded in establishing firm inflationary anchors.

2/ Tight (easy) monetary conditions would generally be reflected in declining (increasing) asset prices. In addition, rapid increases in asset prices can be early indicators of a forthcoming credit expansion, if banks use such assets as collateral for loans. However, it may often be difficult to isolate the impact on asset prices of changes in confidence and perceived growth potential from the impact of changes in monetary conditions. Moreover, data on real estate prices may be scarce in the FSUs and/or excessively localized.

already stabilized, most of these inflows took place in the context of strong stabilization efforts, in particular a tightening of monetary policy which led to trade account improvements or short-term private inflows (attracted by the yield differential between domestic and foreign returns). The return to the banking system of hoarded foreign exchange cash or capital deposited abroad appears to have been significant in Belarus and Russia.

As most central banks were concerned by the potential impact on competitiveness of exchange rate appreciation, unsterilized intervention was the preferred policy response. The scope for market-based sterilized intervention was constrained by concerns for its budgetary impact, in view of the high differential between domestic and foreign interest rates, and in some cases, by the limited availability of flexible monetary instruments to mop up liquidity. Thus, the inflows appear to have had significant inflationary impacts.

Short-term market-based monetary sterilization may be envisaged as part of a concentrated up-front effort to consolidate price stabilization in countries where the exchange rate policy remains uncommitted (i.e., where neither a free float nor a firm peg are adopted), inflationary inertia is important (probably the larger FSU countries), and the scope for short-term fiscal adjustment (i.e., for postponing expenditures) is limited. In particular, sterilization could be used to limit the liquidity expansion caused by portfolio shifts into domestic bank deposits by residents or when inflows are exogenous and non recurrent. In all cases, given the uncertainty as to the factors underlying inflation, the duration and magnitude of the inflows, the need for sterilization, its effectiveness, and its cost, a cautious approach seems to be called for.

A pragmatic and flexible approach seems to be generally preferable to an approach based on rigidly defined monetary targets. The short time frame involved in rapid stabilization, the variability of inflation, and the shortcomings of operating targets currently available in FSU countries limit the scope for direct inflation targeting and argue in favor of maintaining an intermediate monetary target such as M2 or the monetary base. At the same time, however, monetary targets need to be revised flexibly in view of all available indicators, particularly interest rates. The scope for implementing sterilization policies is conditioned by the availability of an effective short-term information system. Further progress is required to improve the quality and timeliness of the indicators, particularly money market rates.

Market-based instruments would be the preferred means of sterilizing inflows in the short-run. Although market-based monetary instruments have been, until now, oriented mostly toward injecting liquidity (rather than mopping up liquidity), new instruments to mop up liquidity can be introduced quickly and without much difficulties, based on the experience already acquired with market-based instruments. In particular, deposit auctions and sales of central bank CDs, which have been recently introduced in some FSU countries, could be readily implemented in nearly all countries.

However, weak fiscal conditions and the high cost of sterilization may continue to restrict in practice the scope for market-based sterilization. Sterilization costs could be reduced by rapid further progress in strengthening the operational arrangements of the money and securities markets, reducing segmentation, and improving market liquidity. Adequate arrangements need also to be in place to ensure that sterilization costs are rapidly transferred to the budget. The introduction of sterilization funds as separate components of central banks' balance sheets (or outside central banks' balance sheets) could limit the risks incurred in sterilization, particularly if the funds are fully backed by liquid foreign assets.

As in other countries that have undergone rapid stabilization after a period of acute macroeconomic imbalances, excessively large and sustained capital inflows could become an important threat for the soundness and resilience of financial systems in FSU countries. The poor financial situation and limited management capacity of most banks in the region, together with weak banking supervision, are a particular source of concern, as inadequate lending practices could boost the volume of bad loans. In addition to increasing the odds for bank crises (as has already happened in Latvia), such inflows, if left unchecked, could greatly magnify the magnitude (and hence the cost) of bank restructuring in forthcoming years.

Although the growth of bad credit can in principle be checked through close bank supervision and appropriate prudential requirements, improvements in supervisory capacity are urgently needed to monitor and enforce existing prudential requirements. Given current limitations in bank supervision, limits on deposit taking by problem banks should be established, whenever possible as part of a more comprehensive restructuring and rehabilitation program to deal with financial system difficulties.

Systematic sterilization may also be used to slow down the expansion of domestic credit deriving from capital inflows. Appropriately designed RR can provide a simple and systematic sterilization mechanism to limit the multiplier impact of capital inflows and the scope for an expansion of bad credit. In contrast with market-based sterilization, which tends to stimulate the intermediation by domestic banks of foreign funds, RR-based sterilization would moderate the growth of domestic financial intermediation.

Inflation Decomposition

If P is the price level, and M and m are nominal and real broad money balances:

$$P = M/m \tag{1}$$

If B is base money and k the money multiplier, this expression may be written:

$$P = \frac{k\,B}{m} \tag{2}$$

or, in rates of change:

$$\frac{\dot{P}}{P} = \frac{\dot{B}}{B} + \frac{\dot{k}}{k} - \frac{\dot{m}}{m} \tag{3}$$

If NDC denotes net domestic credit, NIR net international reserves, OIN other items net, and E the exchange rate, the central bank's balance sheet can be written:

$$B = NDC + E\,NIR + OIN \tag{4}$$

or in rates of growth:

$$\frac{\dot{B}}{B} = \alpha \frac{\dot{NDC}}{NDC} + \beta \frac{\dot{NIR}}{NIR} + \gamma \tag{5}$$

Where $\alpha = NDC/B$

$\beta = ENIR/B$

$$\gamma = \frac{OIN}{B}\frac{\dot{OIN}}{OIN} - \frac{ENIR}{B}\frac{\dot{E}}{E}$$

Finally, if Y is real output and v is the velocity of circulation:

$$\frac{\dot{m}}{m} = \frac{\dot{y}}{y} + \frac{\dot{v}}{v} \tag{6}$$

Substituting (5) and (6) into (3):

$$\frac{\dot{P}}{P} = \left(\alpha \frac{\dot{NDC}}{NDC} + \beta \frac{\dot{NIR}}{NIR} + \frac{\dot{k}}{k} \right) - \left(\frac{\dot{y}}{y} + \frac{\dot{v}}{v} \right) \tag{7}$$

The first group of terms on the right hand side of (7) corresponds to the main money supply components of inflation, i.e., the expansion of domestic credit, the accumulation of net international reserves, increases in the money multiplier, and a residual term (as valuation changes should cancel out, this residual term should generally be small). The second group of terms represents short term changes in money demand, which may be decomposed into changes in output and changes in velocity.

With high inflation or data with a relatively long periodicity (quarterly or yearly), (7) needs to be approximated using logs.

Table 1. FSU Countries-Balance of Payments; Selected Items, 1993-1995

(In million of dollars)

	1993	1994	1995 1/
ARMENIA			
Current account balance	n.a.	-231	-353
Of which: Imports	(-470)	(-507)	(-680)
Foreign direct investment	n.a.	3	19
Short-term flows 2/	n.a.	-16	5
Other 3/	n.a.	275	340
Of which official capital	n.a.	279	394
Change in NIR, increase (-)		-31	-11
AZERBAIJAN			
Current account balance	-160	-121	-305
Of which: Imports	(-925)	(-847)	(-949)
Foreign direct investment	--	22	206
Short term flows 2/	87	-43	26
Other 3/	73	143	213
Of which official capital	73	54	163
Change in NIR, increase (-)	--	-2	-140
BELARUS			
Current account balance	-338	-524	-296
Of which: Imports	(-3,847)	(-3,884)	(-3,737)
Foreign direct investment	17	11	20
Short-term flows 2/	-182	53	380
Other 3/	655	515	276
Of which official capital	389	105	194
Change in NIR, increase (-)	-152	-55	-380

Table 1. FSU Countries-Balance of Payments; Selected Items, 1993-1995

(In million of dollars)

	1993	1994	1995 1/
ESTONIA			
Current account balance	23	-171	-286
Of which: Imports	(-1,226)	(-2,002)	(-2,465)
Foreign direct investment	154	212	188
Short-term flows 2/	-133	-14	94
Other 3/	151	4	104
Of which official capital	66	29	48
Change in NIR, increase (-)	-195	-31	-100
GEORGIA			
Current account balance	-485	-446	-410
Of which: Imports	(-833)	(-898)	(-1,470)
Foreign direct investment	--	--	--
Short-term flows 2/	-91	4	-112
Other 3/	576	445	462
Of which official capital	514	147	200
official transfers	131	170	286
Change in NIR, increase(-)	--	-3	60
KAZAKSTAN			
Current account balance	-438	-905	-448
Of which: Imports	(-5,759)	(-4,506)	(-4,721)
Foreign direct investment	473	635	538
Short-term flows 2/	-427	-119	-286
Other 3/	685	758	632
Of which official capital	699	697	478
Capital transfers	--	-1,065	-730
Change in NIR, increase(-)	-293	-176	-436

Table 1. FSU Countries-Balance of Payments; Selected Items, 1993-1995

(In million of dollars)

	1993	1994	1995 1/
KYRGYZ REPUBLIC			
Current account balance	n.a.	-114	-116
Of which: Imports	(-509)	(-496)	(-578)
Foreign direct investment	n.a.	45	88
Short-term flows 2/	n.a.	14	-67
Other 3/	n.a.	73	43
Of which official capital	n.a.	111	71
Change in NIR, increase (-)	n.a.	-18	52
LATVIA			
Current account balance	151	-86	-156
Of which: Imports	(-1,464)	(-1.784)	(-1,916)
Foreign direct investment	51	155	153
Short-term flows 2/	22	-17	-254
Other 3/	58	11	233
Of which official capital	98	87	162
Change in NIR, increase(-)	-282	-63	24
LITHUANIA			
Current account balance	-239	-238	-273
Of which: Imports	(-2,232)	(-2,426)	(-2,904)
Foreign direct investment	23	60	55
Short-term flows 2/	-5	44	12
Other 3/	525	394	355
Of which official capital	97	17	173
Change in NIR, increase(-)	-304	-260	-149

Table 1. FSU Countries-Balance of Payments; Selected Items, 1993-1995

(In million of dollars)

	1993	1994	1995 1/
MOLDOVA			
Current account balance	-182	-94	-62
Of which: Imports	(-745)	(-945)	(-946)
Foreign direct investment	14	18	61
Short-term flows 2/	75	-62	-62
Other 3/	81	169	63
Of which official capital	80	172	56
Change in NIR, increase(-)	12	-31	0
RUSSIAN FEDERATION			
Current account balance	5,400	3,400	5,800
Of which: Imports	(-57,567)	(-69,409)	(-79,955)
Foreign direct investment	700	-200	--
Short-term flows 2/	-7,400	-5,700	5,600
Inter-enterprise arrears	-2,400	-3,000	-400
Other 3/	7,100	1,600	-2,400
Of which official capital	-16,300	-13,000	-13,800
Change in NIR, increase(-)	-3,400	3,900	-8,600
TAJIKISTAN			
Current account balance	-91	-99	8
Of which: Imports	(-752)	(-847)	(-2,209)
Foreign direct investment	--		--
Short-term flows 2/	-156	--	-9
Other 3/	246	-130	9
Of which official capital	58	230	-11
Change in NIR, increase(-)	--	-3	-8

Table 1. FSU Countries-Balance of Payments; Selected Items, 1993-1995

(In million of dollars)

	1993	1994	1995 1/
TURKMENISTAN			
Current account balance	776	84	55
Of which: Imports	(-2,089)	(-2,043)	(-2,278)
Foreign direct investment	79	103	64
Short-term flows 2/	250	219	53
Other 3/	-630	-311	-15
Of which official capital	-630	-311	-15
Change in NIR, increase(-)	-475	-95	-157
UKRAINE			
Current account balance	849	-1,396	-1,372
Of which: Imports	(-16,755)	(-15,750)	(-16,187)
Foreign direct investment	200	91	120
Short-term flows 2/	-1,092	-615	551
Other 3/	3,179	1,872	60
of which inter-enterprise arrears	n.a.	1,293	-278
Official capital	644	-1,133	95
Change in NIR, increase(-)	-1,438	48	641
UZBEKISTAN			
Current account balance	-429	117	-208
Of which: Imports	(-3,414)	(-3,317)	(-4,120)
Foreign direct investment	n.a.	73	85
Short-term flows 2/	n.a.	121	348
Other 3/	n.a.	-2	261
of which official capital	801	61	163
Change in NIR, increase(-)	-492	-309	-486

Source: FSU Central Bank and Ministries of Finance; and Fund Staff estimates.

1/ Estimated on the basis of first semester flows.

2/ Includes errors and omissions.

3/ Includes, in addition to official capital, exceptional financing (i.e., arrears and debt relief).