

IMF WORKING PAPER

© 1993 International Monetary Fund

This is a Working Paper and the author would welcome any comments on the present text. Citations should refer to a Working Paper of the International Monetary Fund, mentioning the author, and the date of issuance. The views expressed are those of the author and do not necessarily represent those of the Fund.

WP/93/23

INTERNATIONAL MONETARY FUND

European II Department

Conducting Monetary and Credit Policy in Countries of the Former
Soviet Union: Some Issues and Options

Prepared by Hugh Bredenkamp*

Authorized for Distribution by Ernesto Hernández-Catá

March 1993

Abstract

This paper surveys some of the principal monetary policy issues facing countries of the former U.S.S.R. The emphasis is on the immediate problem of imposing financial discipline in these economies, to bring down inflation quickly and decisively. Possible options for the essential nominal anchor are considered, together with the problems of selecting appropriate targets and instruments for monetary policy needed to make that anchor effective. It is argued that, if the stabilization effort is to be sustained, discipline must be imposed at the micro- as well as the macro-level, and the paper suggests a second-best approach to the allocation of credit in the absence of well-functioning credit markets.

JEL Classification Numbers

E52

* The views expressed in this paper are those of the author and should in no way be interpreted as reflecting those of the International Monetary Fund. The author is grateful to colleagues in the Fund for many valuable comments and suggestions.

<u>Contents</u>	<u>Page</u>
I. Introduction	1
II. Choice of Intermediate Target	1
1. A fixed exchange rate	2
2. The choice of peg in a fixed rate regime	6
3. Money or credit targets with a floating rate	7
III. Implementing Monetary Control	9
1. Central bank independence	9
2. Controlling and distributing high-powered money	11
3. Interest rate policy	12
4. Reserve requirements	14
5. Bank-by-bank credit ceilings	15
6. Interenterprise arrears	17
IV. Allocating Credit to the Economy	17
V. Conclusions	20
References	23-24

I. Introduction

This paper surveys some of the principal monetary policy issues facing both policymakers in former Soviet Union (FSU) countries and Fund teams preparing programs with these countries. The scope of this subject is potentially enormous, given the important interrelationships between monetary, fiscal and external policies, between macroeconomic policymaking and the institutional environment, and between the economies of the FSU. We do not attempt to cover every aspect here, and indeed have consciously excluded, or treated only cursorily, some key subjects that would merit separate and more detailed studies of their own. Ruble area issues, as such, for example, are not discussed: the aim is, rather, to consider the options that might, in the immediate period ahead, face an FSU country with an independent monetary authority--this will include Russia (to the extent that monetary policy in the ruble area is determined by Russia) and any other country which elects to introduce its own independent currency. Equally, we do not claim to offer answers to the many structural and institutional problems of FSU economies, upon which the design and implementation of monetary policy will ultimately depend, but about which the available information is relatively limited.

The emphasis is, instead, on the immediate problem of imposing monetary discipline on FSU economies at the aggregate level, providing some nominal anchor for the system and selecting targets and instruments for monetary policy that can make this anchor effective. Thus, in the next section we review the relative merits, in the FSU context, of monetary aggregates and the exchange rate as nominal anchors, or intermediate targets, on the assumption that price stability is the ultimate objective of monetary policy. It is suggested that, with the possible exception of the smaller and very open economies, an exchange rate anchor will be neither feasible nor necessarily desirable for most FSU countries in the very short term. Of the candidates for a monetary target, it is argued that an M1 measure may bear a closer relation to aggregate demand under current circumstances than either the broader or narrower aggregates. The third section discusses the implementation of the nominal anchor--be it the exchange rate or a monetary aggregate--touching on the powers and operating procedures of the monetary authority, and considering the setting of the various instruments at its disposal. Without functioning credit markets, however, the sustainability of the policy will require that the authorities go beyond the imposition of limits on the total quantity of money or credit in the system and establish a rational framework for its allocation across competing demands in the economy. A possible approach to this problem is described in section IV. The conclusions of the paper are summarized in section V.

II. Choice of Intermediate Target

The framework for monetary policy requires a specific and verifiable target of some kind. In principle, a "final" target, such as inflation, could fill this role. But most final targets, among other drawbacks such as data lags, suffer from being only very indirectly influenced by government

policy in the short term. It is conventional, therefore, for the within-year conduct and monitoring of monetary policy to focus on intermediate targets, of which the most common are exchange rates and monetary aggregates.^{1/} We discuss in section III. a third tier, namely operating targets, that provide the basis for day-to-day policy decisions and which generally relate to some measure of central bank liabilities and/or the exchange rate.

In the discussion here of intermediate targets we concentrate on the choice of regime for the stabilization phase--that is, for the next one to two years--during which the elimination of inflation at minimum output cost is the overriding objective.^{2/} It is important to distinguish this from the longer term, where entirely different choices may be desirable. The standard textbook discussion of exchange rate regimes, for example, typically makes no reference to the policy horizon: the question posed is whether to fix or float for an indefinite period. Many of the factors raised (trade patterns, openness, the nature of the labor market, and so on) are therefore of a long-term, structural nature. We take it that these considerations are, for now, secondary, and they are not discussed in this paper.

It will be assumed in what follows that convertibility has been established for current account transactions, but that more or less effective capital controls are in place, at least for residents. The assumption of capital controls is intended to be positive rather than normative, though, on the basis of experience in other countries, some may reasonably dispute the likelihood of such controls being effectively enforced.

1. A fixed exchange rate

In the stabilization phase, following price liberalization, the three principal arguments for a fixed exchange rate target are:

- (i) it is a clear anchor for policy and guide for inflation expectations;
- (ii) when combined with trade liberalization and current account convertibility, it imports a stable set of prices (absolute, as well as

^{1/} Nominal GDP is a candidate, but may not be very helpful in situations of very high inflation, and where national accounts statistics are rudimentary at best.

^{2/} The assumption that inflation is the final target for monetary policy does not, of course, preclude the authorities from having other macroeconomic objectives, such as growth and external balance. But it is usual to think of fiscal, structural and (depending on the regime) exchange rate policies as being the relevant "weapons" to tackle these problems, given the nominal anchor provided by monetary policy.

relative) from the rest of the world, at least for the traded goods sector;

(iii) it reduces risks for enterprises engaged in foreign trade--risks which may be prohibitive to some, in the absence of hedging facilities--thereby improving supply performance.

The potential benefits will vary depending on the circumstances of the country, and in particular are likely to be greater for the smaller, very open FSU countries than, say, for Russia.

There are several possible problems to be considered, however (see IMF (1992)). First, the central bank will need foreign exchange reserves to cope with shifts in money demand. Second, the budget deficit will, as a general rule, have to be maintained approximately in line with the availability of external financing, assuming limited access to non-monetary domestic sources of finance.^{1/} It is often claimed that the fiscal instruments to achieve this--notably, an effective tax system--are not available in reforming CPEs. Third, fixing to a low-inflation currency may imply an excessive financial squeeze, with the real exchange rate appreciating (until inflation adjusts) and fiscal policy moving procyclically.^{2/} Fourth, choosing the rate at which to peg may be difficult, given a starting point with very high inflation, a dysfunctional foreign exchange market (if any), and few clues as to the underlying balance of payments position of the country. Finally, the attempt may in fact have counterproductive effects on credibility if the targeted exchange rate cannot be held. Moreover, as an exchange rate peg runs into difficulties, governments are tempted to intensify exchange controls to protect the rate.

Of these, the critical element is the budget. Tight control over the budget deficit is required whatever the exchange rate regime if inflation is to be brought down, but the room for maneuver is likely to be more restricted with a fixed exchange rate, particularly in the short run. Budgetary discipline is, to a considerable extent, a matter of political determination. The government must be prepared to face down special interest groups, impose its will on profligate local authorities, and resist

^{1/} There have been cases in Fund programs where a budget surplus has been required to reconcile the underlying balance of payments position with a fixed exchange rate objective, and this possibility cannot be ruled out in FSU countries. The existence of quasi-fiscal deficits at the central bank may also have a bearing on the sustainability of an exchange rate peg (as well as on the control of inflation more generally).

^{2/} The squeeze may be alleviated by starting out with a crawling peg arrangement, including regular pre-announced adjustments, that quickly converges to a fixed rate regime. However, the Latin American experience with crawling pegs (compare, for example, the successful Mexican version with the failure of the Argentinean "tablita") demonstrates that they do not avoid the need for tight fiscal policy.

pressures to "protect" the population from inevitable declines in living standards. Although the amount of tax revenue that can be raised may be limited by ineffective administration, a government with the will (and authority) could, in principle, tailor its expenditure plans accordingly. Shortcomings in budget planning could likewise be overcome through the use of contingency reserves and, at the margin, sequestering mechanisms. This said, there will be cases where governments do not have the power or legitimacy to maintain budgetary discipline; and there will be other cases where, despite the political will, the technical capacity to raise taxes is so weak as to be insufficient to finance even a bare minimum of government expenditures. In such circumstances, the fixed exchange rate option can almost certainly be ruled out for the near term.

Where a sufficiently tight budget is feasible--technically and politically--it may be possible to put together a Fund-supported program that is strong enough to make an exchange rate commitment credible. In principle, the need for reserves could then be met from foreign borrowing, including from the Fund, provided that conditionality is not so severe as to prevent the use of borrowed funds in short-term intervention. This will depend, however, on the size of the country's initial financing gap and on the availability of resources from actual or potential creditors, neither of which, in reality, depend solely on the strength of a country's domestic policies.

As for the degree of financial stringency imposed by a fixed exchange rate, this can be alleviated to some extent by program design. The idea should be to seek out the sources of adjustment costs--that is, of factors which prevent the (theoretically possible) smooth and costless transition from high to low inflation. One obvious source is inertia in wage inflation, which can, in principle, be tackled by temporary incomes policy. Another is a likely increase in real interest rates which, though necessary and desirable in itself, will imply a major resource shift from enterprises (as borrowers) to householders (as depositors).^{1/} This could, in principle at least, be anticipated and partially offset in the initial restructuring of the tax system--through adjustments to relative tax rates and allowances--as could the impact on sectoral tax burdens of the sharp slowdown in inflation (which will tend to affect enterprises more adversely, through a "reverse Tanzi" effect).

The problem of having to choose a rate at which to peg is tricky (a heavily distorted price structure effectively rules out PPP calculations), though it is not necessary, as sometimes claimed, to be able to identify the long-run equilibrium real exchange rate. It is the nominal rate which is being pegged, and, with flexible prices, there is an infinite number of long-run equilibrium nominal exchange rates. While it is true that price

^{1/} It will also generate a real income transfer from indebted enterprises to "surplus" enterprises, who are increasingly important holders of bank deposits.

flexibility is generally limited and asymmetrical, this requires only that the chosen nominal rate be in the ballpark. Moreover, once stabilization is achieved, the nominal exchange rate can be adjusted, either by floating or realignment, if it is felt that this will help achieve external balance.^{1/}

The crucial need for an FSU country attempting to peg its exchange rate is to avoid short-run disequilibrium, which would force damaging devaluations during the stabilization phase. For this, it may in many cases be sufficient to make a rough estimate of the rate necessary to avoid a deficit in the coming year or two, allowing for whatever external financing is available and assuming capital flows are blocked administratively. Targets for central bank net domestic assets would need to be devised accordingly. Some element of initial over-devaluation could be allowed for, recognizing the likelihood of inflation inertia, downward price rigidities, the need to accumulate reserves. If, relative to this starting point, the need for a real appreciation emerges, policies could be tightened and the nominal exchange rate revalued: in this way, rising inflation would be avoided and the government's credibility would, if anything, be strengthened by the adjustment to the peg.

Such an approach assumes, however, the existence of at least some basic information with which to assess the country's short-run external position. This would need to include reasonably reliable balance of payments data, some indicators of competitiveness and, preferably, a market-influenced (if not market-determined) exchange rate.^{2/} By contrast, in many FSU countries, statistical information is scanty, particularly on the balance of payments, and foreign currency markets, where they exist, are thin and probably not very representative. Thus, even if all other conditions for a credible fixed exchange rate are in place, it may be advisable to have a period of floating (perhaps three to six months from the start of the stabilization program) before settling on a particular exchange rate as the anchor for policy.

In addition, for countries whose external positions are highly vulnerable to adverse terms of trade shocks--and where there is a significant probability of such shocks occurring even during the stabilization phase--the fixed exchange rate option may be regarded as excessively risky. Such countries should almost certainly persist with a floating exchange rate regime, however strong their initial policy stance may be.

^{1/} Such a move would naturally have to be accompanied by a renewed commitment to stringent financial policies, to limit the potential loss of credibility.

^{2/} A black, or parallel, market rate may suffice for this purpose, provided that it can be measured systematically and with a reasonable degree of confidence.

2. The choice of peg in a fixed rate regime

Countries opting for a fixed exchange rate have a two-tier decision to make: (i) should they peg to a single currency, in which case, which one?; or (ii) if a basket is preferred, what weights should be used? 1/

The advantages of single-currency pegs (which, incidentally, are used by a little over half of all Fund members with pegged or quasi-pegged currencies) are transparency--there is no scope for fiddling with weights--and administrative simplicity. The main disadvantage is that movements in the target currency (in the "leader" country) may be inconsistent with external balance in the "follower" country. The result would be a more volatile balance of payments position in the short run, implying a need for more reserves, and possibly even persistent imbalances in the longer term.

If a single-currency peg is used, the choice of target currency may differ depending on the time horizon for policy. A long-term horizon would raise the standard optimum currency area arguments: with which economy does the "follower" country have a large volume of trade, common shocks, a high degree of cross-border factor mobility, and so on? On these arguments, some FSU countries might view the Russian ruble, if stabilized, as a good target currency, while others (for example, specialists in primary goods) should probably not fix at all in the medium term.

But if short-term stabilization is the dominant objective, as argued earlier, it may be more important to peg to a currency that is known and trusted. (Poland pegged to the dollar, and Estonia to the deutsche mark, partly on this reasoning). The ruble is not likely to fill this role in the foreseeable future, even if Russian policies were substantially strengthened. The U.S. dollar or the deutsche mark would appear more promising candidates from this perspective. If, in addition, a group of FSU countries constituted something approximating an optimum currency area, they could mimic one without formally fixing their cross rates by pegging to the same (third) currency.

For countries choosing instead to peg to a basket, the choice of weights would depend in part on whether the primary objective is micro- or macro-stability.^{2/} Micro-stability--defined as a stable environment for the average firm engaged in foreign trade--would be maximized by pegging to a basket with weights equal to the country's export-plus-import shares. Macro-stability--meaning stability of the aggregate external balance--would require modifications to these weights, to make allowance for the relevant balance-of-payments elasticities. Calculation of these, however, requires a general equilibrium model (of the MERM kind). It is probably not practical

^{1/} There is an extensive literature on these questions: see, for example, the papers in parts I and II of Connolly (1982).

^{2/} See Davenport (1992), who argues for an ECU peg for East European countries.

for FSU countries, where even the basic trade elasticities are unknown and are likely to be highly unstable for some time to come.

One factor which, somewhat counterintuitively, is not relevant in choosing exchange rate weights is the currency composition of the country's external debt. As Davenport (1992) notes, debt service has to be covered by the trade balance, whose stability is maximized by pegging to a basket with trade weights. If the currency in which most of the debt is denominated appreciates permanently vis-a-vis third currencies, the debtor will need to devalue or tighten fiscal policy, whatever basket it is pegging to.

3. Money or credit targets with a floating rate

Those countries that opt for a float--either because they cannot meet the conditions for an exchange rate anchor, or because they wish to allow the market a chance to indicate an appropriate rate--will need an alternative intermediate target for monetary policy.

Under a clean float, there is no difference in principle between a broad money target and an aggregate credit (NDC) target, assuming that the net foreign assets of the banking system and other items are then determined exogenously.^{1/} The familiar problem is that the demand functions for broad money/total credit in reforming CPEs are uncertain or likely to be unstable.

Might narrow aggregates be more stable? It can be assumed that M3 has a greater demand-for-wealth, and a smaller transactions demand, component than M1.^{2/} This suggests two possible reasons why M1 might be more stable than M3 in the near term. First, given the magnitude and frequency of possible shocks hitting the economy during the stabilization phase, enterprises and households may be less concerned with maintaining equilibrium wealth-income or wealth-expenditure ratios (whatever they may be) and more willing to use savings deposits as a buffer to replenish transactions balances. Second, in the next one to two years, FSU citizens will have unprecedented opportunities to hold wealth in forms other than money--being able to invest, for example, in consumer durables, housing, corporate equities, government bonds and even small businesses. Assets of

^{1/} Though they may not be, in which case the system could be left without a nominal anchor: see below.

^{2/} The definitions of M1 and M3 are not always identical across countries: we use the terms here as shorthand for "narrow money" (cash plus demand deposits) and "broad money" (cash plus demand and time deposits), respectively.

this kind will presumably be closer substitutes for savings deposits than for M1.^{1/}

The same factors might suggest that M0 (high powered money) will also be more stable than M3.^{2/} But M0 stability may suffer to a greater extent than other aggregates from radical changes in payments technology and the settlements system. The payments technology in the FSU (how wages are paid; how goods are purchased and bills settled) is notoriously primitive and may begin to change quickly. This could be expected to raise the demand for sight deposits and reduce demand for notes and coin, within M1. Demand for banks' reserves (the other component of M0) will be affected by continuing changes in the settlements system, which will make banks' liquidity needs less predictable, as well as by other factors already mentioned which make depositors' demand for cash less stable.

On these arguments, the relative positions of M3 and M0, ranked by stability, are unclear, but both are likely to be outperformed by M1. This is an issue on which some empirical comparisons with the experience of Eastern Europe (not attempted here) may prove useful. In absolute terms, of course, the behavior of all monetary aggregates may exhibit temporary instability, and the authorities should monitor a range of indicators and be prepared to recast their policy framework as circumstances change.

If policymakers are unwilling to nail their flag to a particular aggregate, some flexibility could be introduced by relaxing the assumption of a clean float. This could work as follows:

(i) a range of plausible growth rates in broad money demand could be estimated for the target period;

(ii) a target for NDC growth consistent with the lower end of this range could be set and actively pursued;

(iii) to the extent that money demand grew faster than implied by the NDC target, the exchange rate would begin to appreciate. Assuming that the stabilization of prices and output are both in the government's objective function, this "shock" should and could be accommodated by an accumulation of reserves at the central bank (leaning into the wind). In effect, the capacity of a fixed exchange rate regime to cope with money demand shocks would be partially exploited, but without having to

^{1/} Foreign currency deposits could become an increasingly important vehicle for saving too, in which case the demand for M3 is likely to be more stable if defined to include such deposits (depending, to some extent, on the behavior of the exchange rate). The question of whether, and under what conditions, the FSU authorities should attempt to restrict the creation and use of foreign currency deposits is one that would warrant a separate study.

^{2/} M0 has the additional advantage that data for it tend to be available more quickly and at a higher frequency than is the case with M3.

meet the strict conditions for a fully symmetric, rigid exchange rate peg.

The difficulty with this is that it assumes agents have access to foreign currency (loans or deposits), with which to buy domestic currency if the latter is in excess demand. The approach may therefore work better in some FSU countries than in others, particularly if the ability to build up foreign currency assets is blocked by capital controls. However, it also leaves open the risk that, if money demand were to fall below what has been projected, the NDC target would not prevent the emergence of inflationary pressure and/or balance of payments difficulties.

III. Implementing Monetary Control

1. Central bank independence

In the FSU, as in other contexts, it can be argued that good monetary policy is not politically feasible so long as central banks are under the more or less direct control of parliaments--which they are in those countries still operating with the 1991 Soviet-model banking laws.^{1/}

The theoretical question is: are there reasonably well defined (and hence exploitable) trade-offs in monetary policy, of the Phillips curve kind, that require a political input. If the answer is yes, there is a respectable, if not conclusive, case for making the central bank answerable to government. Government is in a position to make consistent judgments, incorporating fiscal, monetary, wage and other policies. Parliament should have an indirect influence, at most, to the extent that government is itself accountable to parliament.

If, instead, trade-offs in the conduct of monetary policy are too unreliable to be exploited, counterproductive beyond the short term, or--most importantly in the FSU case--subordinate to the need for financial stabilization, the central bank should be put beyond the reach of political temptation. This can be done in a number of ways, but there are two basic choices. On the one hand, an independent central bank can be given a fairly general mandate for price stability, with significant scope for making quasi-political judgments about the desirable output-inflation trade-offs in the short run (if they exist). In this case, democratic accountability requires that government or parliament retain some limited influence on central bank strategy, as is the case in the U.S. and, perhaps to a lesser extent, in Germany. In the FSU countries, however, it may be prudent to go beyond general directives and fairly subtle forms of accountability to a simple unambiguous constitutional mandate: low and stable inflation, or

^{1/} It needs to be acknowledged that this is only partly a legal question; it depends to a large degree also on how laws are interpreted by parliaments and governments, and on the relative political strengths of the various players.

maintenance of a fixed exchange rate vis-a-vis a low-inflation currency, with specified targets and pre-defined waivers along New Zealand lines. Under these conditions, it should be easier to keep government and parliament at arm's length from the central bank.

A currency board could be described as the limiting case of an independent monetary authority. It requires a rigid commitment on the exchange rate--either to a fixed level or to a pre-announced rate of continuous depreciation/appreciation (see Osband and Villanueva (1992)). There are two basic models of currency board. In Model I, only the cash component of base money is backed by foreign currency reserves; in this case, there is normally an additional, separate, "monetary agency" whose only liabilities are banks' reserve deposits and whose assets are a mixture of domestic currency, liquid foreign assets, and short-term loans to banks.^{1/} In Model II, banks cannot borrow reserves from the monetary authorities; hence, the issuing authority and the "monetary agency" can be collapsed into a single institution with full foreign-currency backing of the monetary base. The choice between these two approaches depends on the desired degree of discipline: Model II, especially in the short run, is stricter, but also less flexible in the face of temporary liquidity crises in the financial sector.

The currency board option obviously shares the same drawbacks as a fixed exchange rate policy in general, but also generates the same benefits. An additional advantage is that its ability to support the exchange rate commitment is indisputable and transparent--hence it is more credible. Corresponding drawbacks are (a) that it can be lender of last resort to the banking system (except partially in Model I) and to the government only to the extent that it has "free" reserves, over and above those required to back the monetary base, and (b) that it presupposes a larger amount of foreign exchange reserves than would typically be needed to defend a peg--assuming adequate supporting policies.

But these problems should not be exaggerated. The first simply requires that banks and government keep more liquid assets, tradable in a domestic interbank market or on foreign capital markets.^{2/} On the need for reserves, to give an example, a US\$6 billion stabilization fund would

^{1/} A bank in need of cash but without foreign currency can go to the monetary agency and borrow or draw on its deposits there. The monetary agency, in turn, either draws down its own domestic currency holdings or liquidates some of its foreign assets and buys domestic currency from the issuing authority. The separation of agencies ensures that, however large are banks' borrowed reserves at the monetary agency, the foreign assets of the two agencies combined is never less than the amount of domestic currency in existence.

^{2/} Safeguards may also be needed to prevent the government from coercing the commercial banks into a role of residual lender (Osband and Villanueva (1992)).

have been enough to back fully Russia's entire monetary base on June 1, 1992 at rub 180/\$--not much above the market rate at that time--and the currency issue alone could have been backed at rub 60/\$.^{1/} Also, significant savings on the start-up capital can be achieved with probably little loss of credibility by backing 100 percent of new domestic money but only, say, 50-75 percent of the initial stock.

Estonia has chosen a variant of Model II for its currency board, backing the deposit liabilities of the previously insolvent state-owned Savings Bank as well as the high-powered money stock. Though it is early days to judge the performance of the Estonian currency board, it has succeeded in delivering a significantly lower inflation rate than prevails in the other Baltic states (albeit at a higher level than had been expected). A corollary has been the rapid emergence of liquidity problems in the banking system. This has forced the authorities to tackle the fundamental weakness of the state-owned banks at an earlier stage than in other FSU countries, where easy access to central bank financing has effectively postponed the essential restructuring.^{2/}

2. Controlling and distributing high-powered money

Under a currency board, distribution of base money is straightforward: it is sold to anyone with foreign exchange for a fixed price, and there is no other way of obtaining it.

In the case of a more conventional central bank--that is, where banks are allowed to borrow base money--two questions arise: (i) should the amount of such borrowing be limited by price or quantity; and (ii) if there is no primary market, so that the central bank has to set both price and quantity, how does it ration base money among banks? These questions must be addressed whatever the intermediate target for monetary policy and whatever other instruments are deployed: even with a fixed exchange rate, in which case the monetary base is formally endogenous, the authorities must act to ensure that its rate of growth is consistent with the exchange rate target.

The price-versus-quantity dilemma is one faced by all central banks in a stochastic environment (with no shocks, there would be a continuous one-to-one mapping between interest rates and the quantity of money demanded, in which case there is no dilemma). The well-known Poole criterion states that

^{1/} Two caveats should be acknowledged here: first, one could reasonably argue that the market rate would have been much lower (more appreciated) had a currency board or some other credible monetary policy been implemented; second, there was widely believed to be a cash shortage (for technical reasons) in Russia in the summer of 1992. On both counts, the reserve cost of backing the monetary base might be somewhat understated in these simple calculations.

^{2/} See Bennett (1992) for a description of, and progress report on, the Estonian currency board.

interest rates should be set, and base money supplied on demand, if shocks to velocity predominate, since these should be accommodated. If, instead, shocks to aggregate demand predominate, these should be resisted by limiting the quantity of money supplied and allowing interest rates to adjust. For operational purposes, where the policy horizon is the very short term, it seems likely that velocity would be more volatile; this may explain why most major industrial countries--with the apparent exception of Japan and, from time to time, Germany--now set interest rates and supply base money on demand (see Batten et al. (1990)).^{1/}

But this assumes demand for bank reserves is (negatively) interest-sensitive, which in turn requires that banks are competing profit-maximizers. Banking in the FSU, by contrast, is dominated by state-owned banks, which, like other state enterprises, have objective functions and budget constraints that are unclear, and which may have negative net worth. Their response to interest rate changes is therefore difficult to predict and unreliable.

For this reason, pending the commercialization of banks, the aggregate supply of central bank credit should be quantity-constrained.^{2/} The best way to distribute this credit to the banks would be through auctions. Between auctions, banks could reallocate reserves amongst themselves in a simple market for cash balances, of the kind operating in some East European countries (for example, Poland).^{3/} If there were a concern that the large state banks, with their soft budget constraints, would bid in the auctions for all the new reserve money, a part could be allocated mechanically according, say, to the level of a bank's equity capital (as in Hungary)--provided that there is no large differential between the interest rate in the interbank market and the rate charged for these reserves by the central bank.

3. Interest rate policy

Even if, initially, interest rates are not seen as the primary instrument of monetary control, the central bank's refinancing rate should be set positive in real terms and adjusted flexibly as the outlook for inflation changes. If a fixed exchange rate is pursued, the refinancing rate should be not less than that in the "leader" country. There is no good argument for subsidized central bank lending (currently commonplace in the

^{1/} Relatively stable interest rates would also be helpful in encouraging the growth of money markets in the FSU countries.

^{2/} The amount should be determined by a conventional monetary programming exercise, and adjusted with a view to keeping central bank NDA and NFA within their program limits.

^{3/} There is already a large volume of interbank lending in FSU countries which could develop, or be encouraged to develop, into a more formal money market.

FSU), either to banks, the government or enterprises. If subsidies are needed, these should be provided and financed through the government budget.

Though it should be the objective, achieving positive real interest rates (either ex post or ex ante) is not straightforward, as the experience of some Eastern European countries has shown. This is not only a matter of difficulties in predicting inflation; as Bennett and Schadler (1992) show, there may, when financial discipline on enterprises is weak, be a systematic tendency for higher interest rates to feed into higher monetary growth (as firms borrow to pay interest) and hence into higher inflation. One can view this as part of the general problem that interest rate policy cannot be effective until budget constraints are hardened at the micro-level (see section 4.).

Transmission of changes in central bank interest rates to the rates charged/paid by commercial banks could in principle occur either through adjustment in administered floors and ceilings or through liberalization of interest rates. Three arguments are commonly made for retaining temporary administrative controls on interest rates:

(i) until competition in the financial system is effective, banks will charge excessive margins if allowed to do so (IMF (1983));

(ii) so long as banks believe there is a chance of government bail-outs, or can join deposit insurance schemes in which premiums are unrelated to portfolio risk, they have an incentive to lend at very high rates to excessively risky borrowers. Because of the moral hazard, adverse selection and adverse incentive problems,^{1/} the outcome is socially inefficient. A ceiling on lending rates would force banks to be more selective in granting credit;

(iii) if banks are free to do so, they will pass on the cost of the non-performing loans inherited from central planning to new borrowers, thereby discouraging some projects that would be viable at more "normal" interest rate mark-ups.

The first argument is weak: high margins encourage new entrants (including foreign banks) to enter a risky market and/or allow existing banks to contest new markets, breaking their existing specializations. Structural or administrative barriers to competition should be tackled at source. Administered rates (or margins) can take on a life of their own, as adjustments that may be necessary to balance demand and supply for funds are resisted for political reasons. The result would be forced credit rationing.

^{1/} "Adverse selection" because more creditworthy borrowers will tend to drop out as interest rates rise; "adverse incentive" because a given borrower will opt for riskier projects as rates rise (see Villanueva and Mirakhor (1990)).

In principle, the second argument is stronger (and there are several Latin American examples to support it). But many FSU countries have already liberalized interest rates, without rates rising to excessive levels (in fact, they are still mostly negative in real terms). Adequate supervision will be the key to suppressing moral hazard before it becomes a major problem. It should be possible--and is crucially important for various reasons--to tighten supervisory standards on banks quite quickly. A self-financing deposit insurance scheme, for which strong supervision is the main precondition, can be introduced in parallel. This would allow government to claim more credibly that it will not bail out the banks. And the implementation of a strong anti-inflation program will help to provide an anchor for expectations, thereby avoiding the very large risk premia that tends to push up interest rates in high-inflation economies.

As far as the third argument is concerned, this is also a case of applying the wrong solution to a genuine problem. An early resolution of the bad debt issue (see later) is the appropriate response, and governments should be discouraged from compounding one distortion by the creation of another.^{1/}

4. Reserve requirements

Though reserve requirements are retained by most industrial countries (the U.K. is a notable exception), they are not generally viewed as an instrument for short-term monetary control; interest rates have taken over this function. They serve mainly to enhance the central bank's influence over commercial bank interest rates, as well as having some prudential role.

But in FSU countries, so long as the influence of interest rates is highly uncertain, reserve requirements may be needed to establish a reasonably reliable link between creation of base money and the growth of broader-based aggregates.

FSU officials frequently ask: (i) at what level should reserve requirements be set; and (ii) should required reserves pay interest? The answer to the first question is that reserve requirements should be not so large as to distort the structure of banks' balance sheets; the absence of excess reserves over the cycle might be taken as prima facie evidence that the requirements were having this effect. Subject to this, the precise level is fairly unimportant from a monetary control perspective, though it can presumably be lower (the money multiplier can be higher) the more accurate the central bank is in controlling base money. Unduly severe reserve requirements, particularly if they are noninterest-bearing, will increase interest rate mark-ups, and so encourage disintermediation. There may be circumstances, however, in which the central bank has little alternative but to raise reserve requirements in order to tighten monetary

^{1/} The removal of inherited bad debts from banks' balance sheets is also essential before deposit insurance schemes are introduced.

conditions--for example, if the budget deficit is widening, bank refinancing is already depressed, and the state of financial markets do not permit open market operations.^{1/}

On the second question, reserve deposits should ideally earn a market-related return. While anything less generates seignorage (and an inflation tax) for the central bank, it does so by taxing the banks more heavily than the rest of the economy, and will therefore tend to increase interest spreads. If the central bank needs to cover the costs of services rendered to the banking system, it would be more efficient to charge user fees than to tax reserve deposits. This said, there may be circumstances in which other sources of revenue for the government (as owner of the central bank) are so unreliable that extra taxation through reserve requirements is a justifiable second best. Also, to the extent that a government relies on the inflation tax, noninterest-bearing reserve requirements broaden the base for this tax, and so allow a lower inflation rate for given "revenue."

A third issue with regard to reserve requirements is whether they should be uniform or differentiated across different types of bank liability. The latter is common, both in the FSU and elsewhere, but the rationale is unclear. If it is accepted that reserve requirements should not be used as a surrogate capital-adequacy device (prudential norms should be thought of, and implemented, separately), nor viewed primarily as a revenue-raiser for the government, then there would seem to be a case for uniform reserve requirements, since these would make for the most stable money multiplier in the face of shifts in the composition of banks' balance sheets. For the same reason, and to discourage cosmetic adjustments to balance sheets at the end of each month, reserve requirements should be expressed in terms of monthly averages.

5. Bank-by-bank credit ceilings

If the supply of base money is controlled, the cash-deposit ratio is stable, reserve requirements are enforced and there are no excess reserves, growth in total credit within a given period is fully determined.^{2/} A rationale for administrative credit ceilings, in addition to reserve requirements, arises only in the case where there are excess reserves in the system and the reserve money multiplier is unstable.

When banks are (approximately) profit maximizers, demand for excess reserves depends on the short-term variability of their settlement liabilities and of their depositors' demand for cash, as well as the cost of borrowing in the interbank market (if one exists). In developed market

^{1/} Equally, it is often the case that reserve requirements can safely be reduced only when accompanied by a tightening of fiscal policy.

^{2/} Assuming that, in the aggregate, banks have no significant sources of funds other than central bank credit and reservable liabilities (deposits).

economies with well functioning financial systems, these explanatory variables should be reasonably predictable.

In the FSU, however: (i) it is not clear what banks are trying to maximize (if anything); (ii) their settlement liabilities are subject to the vagaries of the payments system (which is sure to go through further modifications in the next one to two years); and (iii) depositors' demand for cash is unknown since, in the past, banks have apparently not been obliged to meet cash withdrawals on demand.

Faced with similar problems, a number of East European countries (Poland, Hungary, Romania, Czechoslovakia) have, in the initial stages of their stabilization programs, resorted to bank-by-bank credit ceilings in addition to tightening base money growth and raising interest rates. The effects have differed from country to country. In Poland, credit growth was reportedly limited in the early stages of stabilization (and also during 1992) by banks' perception that there were not enough creditworthy borrowers, and it fell short of the specified ceilings. In Czechoslovakia, the ceilings led to tighter credit conditions than planned, mainly because the slower-growing banks were not able to transfer their unused margins to faster-growing ones (Aghelvi et al. (1992)).

If a system of quantitative ceilings is implemented, it should permit banks to trade their entitlements freely (as in the Netherlands in the late 1980s; see Hilbers (1989)). This is not administratively difficult: bank A simply informs the central bank that it has obtained a margin of X from bank B, and the central bank adds X to A's ceiling and subtracts it from B's. Such transfers not only make the aggregate effect of credit ceilings more predictable, they also reduce (but do not eliminate) the distortionary costs of the system.

Credit ceilings can be specified to assist in controlling different monetary aggregates. If the authorities have an M1 target, for example, ceilings can be defined with respect to total credit minus growth in time deposits. They should be thought of, however, as a complement rather than a substitute for direct control of base money by the central bank. Such control will be essential to limit pressures for increased disintermediation, to discourage breaches of the credit ceilings, and to avoid the build-up of a "base-money overhang."

The possible advantages, in terms of additional monetary control, should be carefully weighed against the inevitable costs of credit ceilings. That they are distortionary and discouraging of competition is not in doubt. A judgment must also be made as to whether they are feasible, which will depend among other things on the size and concentration of the banking system. It may be necessary, and perhaps desirable, to apply controls only on the handful of large state banks--where government intervention is already endemic--leaving the small commercial banks to compete as best they can.

In sum, credit ceilings should be considered on a case-by-case basis (as they have been in Fund programs for FSU countries, being included in the case of Lithuania but not in the cases of Latvia and Russia), and should in any event be eliminated as soon as possible, generally after the first year of a stabilization program, assuming the relevant structural changes in the financial system come fairly early on.

6. Interenterprise arrears

Economic stabilization requires that financial discipline be applied at the micro- as well as the macro-level. When countries have proceeded to tighten monetary policy in the aggregate but have failed, for one reason or another, to convince enterprises that their individual budget constraints have hardened, the result has tended to be a dramatic increase in disintermediation, with enterprises, either actively or passively, using payments arrears as a substitute for bank credit. Romania since 1991 and Russia in early 1992 are notable examples. The phenomenon of interenterprise arrears impedes both inflation stabilization (at least in the short term) and economic restructuring.

The Romanian experience has shown that a relaxation of the macro-constraint--providing bank credit to clear the arrears--does not, on its own, provide a lasting solution. If the perception at the enterprise level of possible future bail-outs from the banking system or from government is unchanged (or even enhanced), new arrears quickly emerge.

Instead, firm monetary policy needs to be accompanied, first, by effective legal and administrative procedures enabling creditor enterprises to make good their claims--if necessary through bankruptcy courts--and, second, by a framework for allocating credit (and budgetary subsidies) at the enterprise level that is based on objective commercial or economic considerations rather than special pleading by well-connected enterprise managers.

IV. Allocating Credit to the Economy

It is clear that normal commercial criteria are currently playing only a minor role in credit allocation in most, if not all, FSU countries. Intervention by government and central banks is rife, and political decisions are being made to target credit at specific sectors or industries with little or no regard to creditworthiness or to the efficiency with which borrowed resources are being used. Moreover, explicit or implicit subsidization is so widespread as to render official interest rates almost meaningless as a measure of the cost of funds facing borrowers.

This situation needs to be remedied, and the market must be allowed to take over. The problem is that even the rudiments of a functioning credit market have yet to develop. No systematic allocation of credit--let alone an optimal allocation--is possible without financial information on enterprises. At a minimum, the necessary information base would include an

audited balance sheet, a current profit-and-loss statement, and a "business plan" of some kind. Thus, the first major obstacle to the establishment of a credit market is the absence of such a database.

A second obstacle is the existence of inappropriate incentives facing both lenders and, particularly, borrowers. The biggest banks are state-owned and saddled with large amounts of fundamentally bad debt. They may perceive that their deposits are implicitly guaranteed by the state, and are under little pressure to protect what may remain of their capital base. These factors are likely to encourage insufficiently cautious lending decisions, including the disguising of bad debts through automatic roll-overs. Many borrowing enterprises may have negative net worth (see Dooley and Isard (1991)), short-term horizons and managements dominated by workers' councils. Such enterprises, having little or nothing to lose, may try to borrow to cover wage bills or to finance extremely risky projects without due regard to the interest cost or their ability to repay.

The second obstacle is related to the first, since the lack of information (especially on the part of banks) contributes to the extreme adverse selection problem.

In the long run, privatization and a proper regulatory environment will cure (almost) all. But how is credit to be distributed in the interim? Without the market infrastructure, a laissez-faire approach will lead to serious misallocation of financial resources. This is a problem which no East European country has seriously addressed (see Bruno (1992)). Most have staked their hopes on rapid privatization, together with schemes to alleviate the bad-debt burden on the banks, and are otherwise leaving the banks to muddle through.

The information and incentive problems have the following implications for a credit strategy. First, without financial information, the state would be just as handicapped as the banks in influencing credit allocation (other things being equal). Second, under these conditions, in which credit could only be allocated randomly or on non-economic (e.g. political) criteria, there may be a case for some form of temporary credit moratorium (discussed below). Third, once the information base necessary for a centrally-guided credit strategy had been compiled, it would be more efficient to hand that information over to the banks and leave the state out of it, provided that the problem of inappropriate incentives had been addressed by this stage.

The first priority should therefore be the establishment of an enterprise-by-enterprise database, comprising basic financial statements and forward-looking business plans. Given the positive externalities from collecting this sort of information, the state could have a role in orchestrating and (where necessary) financing its compilation.

For the exercise to be effective and executed quickly, it would need a substantial amount of Western technical assistance. It could focus

initially on, say, the 50 or 100 largest enterprises (depending on the size of the country and the scale of available assistance). Western accountants, auditors and corporate strategists could, with over-the-shoulder participation from the relevant enterprise employees, put together crude financial statements and business plans for these enterprises. In doing so, they could produce a blueprint that could be distributed to all other enterprises, enabling them to begin work on their own accounts. The experiences in East Germany of the Treuhandanstalt--which gave business plans a prominent role in its restructuring and privatization strategy--and Slovenia could be drawn upon here.

From the outset, all (state and private) enterprises could be informed that they will not be eligible for new credit from state-owned banks until their accounts have been audited and they have a business plan that conforms to the basic model.^{1/} Existing debt would be rolled over, at the discretion of the lending bank, but could not be increased.^{2/} The purpose of this quasi-moratorium would be two-fold. First, it would prevent credit being granted "blindly" by the banks; this seems a reasonable requirement for the state, as shareholder, to place on the managers of the banks it owns.^{3/} Second, it would provide a strong incentive for enterprises to cooperate with the information-building exercise. Exceptions might be made for collateralized lending, particularly to small private enterprises--an approach that has been tried successfully in the former Czechoslovakia.

Enterprises that cannot survive unaided during the credit moratorium should be required to apply for budgetary subsidies, which may or may not be repayable.^{4/} Such applications should be carefully scrutinized, and the following conditions applied: (i) enterprises with negative value-added

^{1/} This seems a more relevant formulation in current circumstances than McKinnon's (1991) proposal for the U.S.S.R., which was to exclude all "liberalized" enterprises (those free to set their own prices, market their own output etc.) from bank credit. Such enterprises would be required to be self-financing in McKinnon's scheme. Only those remaining under strict state control would be eligible for credit, on the grounds that the state could then supposedly ensure that the credit was not frittered away in higher wages or on reckless investments.

^{2/} It may be necessary to allow some specified increase for inflation--despite the dangers of indexation--if a squeeze on working capital is to be avoided.

^{3/} The new commercial banks, which are more in the nature of credit cooperatives than deposit money banks, could be excluded from the moratorium, on the grounds, first, that they are not directly state-owned, and so should be allowed to take their own chances and, second, that enforcement on these banks would probably be extremely difficult.

^{4/} These enterprises will probably not be able to borrow from the banks even after meeting the provision-of-information requirement, since their financial position is presumably dismal.

should be required to shut down production immediately;^{1/} (ii) those paying wage rates above a specified proportion of the average wage should be required to implement wage cuts; (iii) all subsidies would be terminated after a specified period if the enterprise had not provided audited accounts and a business plan. Many business plans for these enterprises should be expected to involve liquidation. For others, if their plans for restructuring and recovery appeared plausible (those with the largest losses could have their plans sent for review by Western advisors), subsidies could be phased, subject to the implementation of the business plan, and eliminated after a specified date.

Until state-owned banks are privatized, or successfully commercialized--in the sense of operating with well-defined financial objectives, and with sound balance sheets of their own--they should continue to be prohibited from lending to any enterprise without up-to-date financial accounts and a current business plan. Otherwise, subject to their meeting normal prudential regulations, their lending decisions should be made without state intervention of any kind.

The resolution of the bad-debt problem is an issue beyond the scope of this paper. But, in order to minimize its impact on the current functioning of the credit system, a cut-off date for commercial bank loans should be set by the government. No lending made after this date would be eligible--now or in the future--for inclusion in a debt-relief or bail-out operation. The date can be announced without warning, and before a strategy for dealing with the stock of bad debts had been chosen. It cannot, however, be contemplated until the authorities have ceased to instruct or lean on the banks to make loans to particular enterprises or sectors, or to dictate the terms on which such loans are made.

V. Conclusions

The appropriate policy choices from among the options discussed in this paper will not necessarily be the same for every FSU country. Although these countries have, in many ways, a shared inheritance, their institutions are already beginning to develop along somewhat different lines and at different speeds. Economic objectives, the underlying political environments, and institutional capacities also differ, and these will have a bearing on what policies are feasible or optimal in specific countries. But a few main conclusions can be drawn:

^{1/} They should not, however, necessarily be liquidated, especially if the problem is mainly due to distorted relative prices. It may be that, on radical restructuring, or once the relative prices are rationalized, the firm can begin to produce profitably. But, in the interim, it would be better to have the workers paid to do nothing than to allow them to continue wasting valuable inputs.

(i) For some countries, an exchange rate peg may have merit as an intermediate target in the stabilization phase, even if long-term considerations would suggest a free float. But the requirements to make a peg to a low inflation currency feasible--the most important being a tight budget--are very stringent, and the costs of failure are potentially severe. Even if they are met, in most cases a period of floating will be required initially to identify a tenable rate.

(ii) Given the emphasis on short-term stabilization, the choice of peg for those pursuing a fixed exchange rate target should be based on the confidence factor rather than optimum currency area considerations.

(iii) Countries with a floating exchange rate will need a monetary aggregate of some kind as an intermediate target. It is suggested that M1 may prove more suitable for this purpose than M3 or M0, in the FSU context, though this is an area where some cross-country empirical work could give useful insights. A "leaning into the wind" approach is suggested as an alternative, but may be workable only in cases where nongovernment holdings of foreign exchange are substantial.

(iv) The operations of the central bank should be put beyond the reach of parliament. Given the emphasis on beating inflation, and given the low probability of there being any clear exploitable trade-offs in the conduct of monetary policy, the central bank should also be made independent of government. Its mandate should be clearly specified to prevent the managers of the central bank from making political judgments of their own.

(v) For those countries able and willing to adopt an exchange rate anchor, the possibility of a currency board arrangement could be considered. The start-up cost may be less daunting than is sometimes supposed, particularly given the degree of monetary and fiscal discipline that each dollar of financial assistance is "buying." If there is thought to be an overwhelming need to retain a lender of last resort in the system, a modified currency board can allow for this. But a requirement on banks and government to hold more liquid assets may be sufficient to avoid crises.

(vi) With non-commercialized commercial banks, FSU central banks will initially have to set a limit on the aggregate quantity of their credit to banks to ensure its effective control. Provided that reserves can be redistributed among banks in a simple cash market, and that the central bank keeps its interest rate in line with rates prevailing in this market, the initial allocation is in principle relatively unimportant. A combination of administrative allocation and auctions may be the preferred method of distributing the fixed amount of central bank credit, with the role of auctions increasing over time.

(vii) Interest rates should be liberalized. Incentive problems that can lead to excessive margins should be tackled at source, through the lifting of administrative barriers to competition, strong prudential supervision,

the resolution of inherited nonperforming loans and, possibly, self-financing deposit-insurance schemes.

(viii) Reserve requirements can help to establish a more reliable link between base money creation and the growth of broader monetary aggregates. They should ideally be uniform, interest-bearing (budgetary situation permitting) and set low enough to avoid distorting the structure of banks' balance sheets and encouraging disintermediation.

(ix) A case can be made for temporary bank-by-bank credit ceilings in circumstances where the demand for excess reserves is highly unpredictable. In order to minimize the distortions generated, unused margins should be freely tradable, and base money growth tightly controlled. They should be abolished as quickly as possible--generally within one year of the start of a financial stabilization program.

(x) Rational credit allocation is impossible--for banks or for the state--without basic financial information on enterprises. The state could play a role in instigating the collection of this information. In addition, to protect its rights as owner of the major banks, and to encourage enterprises to cooperate in the compilation of a financial database, it could bar state-owned banks from lending new money to any enterprise that does not have current audited accounts and a "model" business plan. On these conditions, however, banks should be free to allocate credit without state intervention. Under this scheme, the influence of non-performing loans on current bank behavior should be mitigated by the immediate announcement of a cut-off date, after which no loans will qualify for inclusion in any future bail-out or state-sponsored restructuring plan.

References

- Aghelvi, Bijan, Eduardo Borensztein and Tessa van der Willigen, "Stabilization and Structural Reform in the Czech and Slovak Federal Republic: First Stage," IMF Occasional Paper No. 92 (March 1992).
- Batten, Dallas, Michael Blackwell, In-Su Kim, Simon Nocera and Yuzuru Ozeki, "The Conduct of Monetary Policy in the Major Industrial Countries: Instruments and Operating Procedures," IMF Occasional Paper No. 70 (July 1990).
- Bennett, Adam, "The Operation of the Estonian Currency Board," IMF Paper on Policy Analysis and Assessment, PPAA/92/3 (December 1992).
- Bennett, Adam and Susan Schadler, "Interest Rate Policy in Central and Eastern Europe: The Influence of Monetary Overhangs and Weak Enterprise Discipline," IMF Working Paper, WP/92/68 (August 1992).
- Boote, Anthony and Janos Somogyi, "Economic Reform in Hungary Since 1968," IMF Occasional Paper No. 83 (July 1991).
- Bruno, Michael, "Stabilization and Reform in Eastern Europe: A Preliminary Evaluation," IMF Working Paper, WP/92/30 (May 1992).
- Collins, Charles, "Alternatives to the Central Bank in the Developing World," IMF Occasional Paper No. 20 (July 1983).
- Connolly, Michael B. (ed.), "The International Monetary System: Choices for the Future," Praeger Studies in International Monetary Economics and Finance (1982).
- Davenport, Michael, "Exchange Rate Policy for Eastern Europe and a Peg to the ECU," Commission of the European Communities, Economic Papers No. 90 (March 1992).
- Demekas, Dimitri and Mohsin Khan, "The Romanian Economic Reform Program," IMF Occasional Paper No. 89 (November 1991).
- Dooley, Michael and Peter Isard, "Establishing Incentive Structures and Planning Agencies That Support Market-Oriented Transformations," IMF Research Department Working Paper (November 1991).
- Hilbers, Paul, "Monetary Cash Reserve Arrangement," De Nederlandsche Bank, Quarterly Bulletin, Vol. 2, pp. 27-39. (June 1989).
- International Monetary Fund, "Interest Rate Policies in Developing Countries," IMF Occasional Papers No. 22 (October 1983).
- International Monetary Fund, "Exchange Arrangements of Formerly Centrally Planned Economies," Research Department Working Paper (January 1992).

McKinnon, Ronald, "Financial Control in the Transition to a Market Economy," Centre for Economic Performance, Discussion Paper No. 40 (July 1991).

Osband, Kent and Delano Villanueva, "Independent Currency Authorities: An Analytical Primer," IMF Working Paper, WP/92/50 (July 1992).

Villanueva, Delano and Abbas Mirakhor, "Strategies for Financial Reforms," IMF Staff Papers, Vol. 37, No. 3 (September 1990).