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Introduction of a New National Currency: Policy,  
Institutional, and Technical Issues

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Abstract

In the last few years, a number of countries in the Former Soviet Union and Eastern Europe have become independent or regained their independence. Many have chosen to issue their own currencies and more are likely to do so. This paper draws on these and earlier experiences in order to summarize the main policy and institutional arrangements necessary for the introduction of a new currency and to discuss the key features of, and procedures for, the conversion.

The paper is designed as a working document for those involved with currency reforms to help ensure that all the necessary steps are taken prior to, during, and immediately after the introduction of a new currency. The body of the paper is in four parts. First, the main macroeconomic and operational measures required to prepare for the orderly transition to the new currency are discussed, including decisions regarding the choice of exchange regime, the issuance of coupons and the costs and benefits of currency reforms. The next section covers issues relating to the production of the new currency bank notes. Next, the main features and terms of the conversion are discussed, as well as certain special issues such as speculative inflows and the treatment of banks' customers and old currency contracts. The last section covers the operation of the foreign exchange market and maintenance of exchange rate stability in the period immediately following the introduction of the new currency. The appendix covers the technical aspects of currency handling, accounting and management.

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### Summary

In the last few years, a number of countries in the former Soviet Union and Eastern Europe have become independent or have regained their independence. Many have chosen to issue their own currencies, and more are likely to do so. Drawing on these and earlier experiences, this paper summarizes the main policy and institutional arrangements necessary for the introduction of a new currency and discusses the key features of, and procedures for, the conversion.

The paper is designed as a working document for those involved with currency reforms to help ensure that all the necessary steps are taken before, during, and immediately after a new currency is introduced. It focuses on issues directly related to the introduction of a new currency. In many areas, checklists present the steps that must be taken and the most reasonable options. Other related issues, for example, supporting financial sector legislation, will arise whether or not a country remains in a wider currency area.

First, the paper discusses the main macroeconomic and operational measures required to prepare for the orderly transition to the new currency, including decisions regarding the choice of exchange regime, the issuance of coupons, and the costs and benefits of currency reforms. The next section covers issues relating to the production of the new currency bank notes. Next, the main features and terms of the conversion are discussed, as well as certain special issues, such as speculative inflows and the treatment of banks' customers and old currency contracts. The last section covers the operation of the foreign exchange market and maintenance of exchange rate stability in the period immediately following the introduction of the new currency. An appendix covers the technical aspects of currency handling, accounting, and management.

## I. Introduction

In the last few years, a number of countries in Central and Eastern Europe have become independent or have regained their independence. Many of these countries have decided to issue their own currencies and more are considering the possibility. As of this writing, Estonia, Latvia, Lithuania, Slovenia, and Ukraine, have issued their own currencies. The objective of this paper is to draw on these and earlier experiences to summarize the main policy and institutional arrangements necessary for the introduction of a new currency and to discuss the features of, and procedures for, the conversion.

Countries often wish to introduce their own separate currency either as a symbol of national independence or on other grounds that are not primarily economic. However, the principal economic benefit of a national currency is that it provides a country with a measure of independence in national monetary or exchange rate policies. Such a course of action is especially advantageous if the authorities are dissatisfied with the monetary or exchange rate policies being pursued within the single currency area, and they cannot separately control domestic credit within the currency area. While monetary independence may be the main "benefit" of introducing a new currency, this may not prove to be a benefit at all unless it is used to achieve a degree of financial stability. This can only be achieved if sound financial policies are in place at the time--or soon after--the new currency is introduced. Such a policy package should include a well-specified policy framework and quantified monetary and fiscal targets. The want of adequate supporting policies may lead to a loss of credibility in the new currency, and once lost it may be difficult and costly to restore.

It is important to keep the introduction of a new currency as simple as possible to minimize administration costs and to focus it on putting the new currency into circulation. Experience in other countries has shown that it is not advisable to use the conversion as an instrument for social or other policies. Judicial channels are the normal way of dealing with illegal profits, tax evasion, and related problems, and income distribution is normally handled through fiscal budgets.

The paper focuses on issues directly related to the introduction of a new currency. Certain other related issues such as requisite market-oriented financial sector legislation, sound monetary and fiscal policies, etc., are necessary for the successful introduction of a new currency, but they would still arise whether a country remains in a wider currency area or chooses to separate from it. As a consequence, these topics are only briefly noted in this paper.

The approach taken in this paper is pragmatic. It is designed as a working document for those involved directly with currency reforms to ensure that all the necessary steps are taken prior to, during, and immediately after the introduction of a new currency. In many areas, it provides a checklist of the steps that must be taken and the most reasonable options.

Strong positions are only taken when one option is seen as markedly superior to the others. While an attempt is made to make the paper as widely applicable as possible, special attention is given to considerations which apply to republics of the Former Soviet Union (FSU). Finally, this paper is a distillation of work by staff of the Monetary and Exchange Affairs Department over a period of years. Consequently, although it does reflect the authors' views, we disclaim originality.

The paper is organized as follows. Section II summarizes the main macroeconomic and operational measures required to establish an exchange regime and to prepare for the introduction of a new currency. It discusses the choice of the exchange regime, the changes necessary to prepare for an orderly transition to the new currency, and decisions on the issuance of coupons as substitutes for currency, as well as the costs and benefits of currency reforms. Section III discusses considerations regarding the production of the new currency bank notes, including such issues as the initial value of the currency, the amount of currency to be issued and details relating to the design, printing, and denomination of the new currency. Section IV deals with the conversion and certain considerations for the period immediately following the conversion and special issues such as speculative inflows, the treatment of bank's customers and the treatment of old currency contracts. Section V examines considerations regarding the operation of the foreign exchange market and maintenance of the stability of the value of the new currency following its introduction.

One appendix is also included. It covers the technical aspects of currency handling, accounting and management.

The main decisions to be taken for the introduction of a new national currency are also summarized in Table 1.

## II. Preparations for the Introduction of a New Currency

The likelihood of successfully introducing a new currency is directly related to the adequacy of the advance preparations. Issues that must be addressed include the choices of exchange rate regime and convertibility for the currency, supporting legislation for the introduction, progress toward developing a full-fledged central bank and, if necessary, negotiations with any remaining members of the old currency zone. Other considerations that often arise in association with a currency conversion are whether to introduce coupons as an intermediate step before issuing the "ultimate" currency or whether to use the currency conversion to accomplish other, unrelated objectives, e.g., to punish economic criminals.

Table 1. Main Decisions to be Taken for Introduction  
of a New National Currency

I. Preconditions

1. Sound monetary and fiscal policies.
2. Enactment of financial sector, including central bank legislation.

II. Preparations

1. Choice of exchange rate regime.
2. Decisions on unification of the exchange rate and on the degree of currency convertibility.
3. Simplification and modernization of the foreign exchange system.
4. Organization of Foreign Exchange Department at the central bank.
5. Licensing of nonbank dealers (if desired).
6. Central bank capable of carrying off monetary policy and implementing exchange rate policy.
7. Negotiations with the members of the old currency area.
8. Decisions on terms of currency conversion (see IV).

III. Production

1. Decision on the currency name and denominations.
2. Choice between own printing office and a private printer.
3. Decision on design and quality of bank notes.
4. Decision on initial value of the currency.
5. Decision on the denomination.
6. Decision on quantity to produce.

IV. Conversion

1. Announcement and publicity of the outline of plan.
2. Decision on date to begin conversion.
3. Choice of institutions to undertake conversion and currency handling.
4. Announcement of the date.
5. Distribution of the new currency.
6. Decisions regarding the conversion including
  - a. Conversion rate
  - b. Treatment of different financial assets
  - c. Treatment of resident/nonresident accounts
  - d. Treatment of old currency contracts
7. Disposal of old notes taken from circulation.

V. Operation of the Foreign Exchange Market

1. Choice of initial exchange rate.
2. Development of institutions.

# 1. Choice of exchange regime and currency convertibility

Decisions regarding the choice of exchange regime and degree of currency convertibility need to be made before issuing a new national currency. This choice has a major impact on the degree to which the country controls its monetary and exchange rate policies, and thus the acceptability of the new currency. It also helps to determine both which macroeconomic variables will bear the burden of long-term adjustment (international reserves or exchange rates, price levels, and interest rates) and the extent of the short-run impact of exchange system developments on the real sector, e.g., output and employment.

When a country introduces a new currency, normally only one institution--generally the central bank--is given authority to issue of the currency. This, in effect, gives the central bank the power to set either the quantity or the price of the currency. 1/ Many consider the most important price to be that of domestic money in terms of foreign money: the exchange rate. 2/ That is, the central bank can control either the exchange rate or the money supply. Many countries wish, nevertheless, to control both the monetary supply and the exchange rate, and their search for partial control over both sometimes leads them to rely on exchange controls. The policy tradeoff, however, cannot be avoided.

Several exchange regimes are analyzed below, including the tradeoff in the degree of control of the money supply and the exchange rate implied by each regime. The focus is on purer, more transparent regimes where the policy tradeoffs and the constraints on the authorities are clearer than with hybrid systems. Relatively pure systems were chosen by the countries that abandoned the ruble area and introduced new currencies. Estonia established a currency board in June 1992 with the kroon pegged to the Deutsche mark; Latvia let the Latvian ruble float freely against other currencies in July 1992. Similarly, Lithuania floated its talonas against other currencies in October 1992. Finally, Ukraine adapted free floating of its Karbovanets in November 1992. The three countries that floated have issued transitional currencies pending the "introduction" of their national "real" currencies (lat in Latvia, litas in Lithuania, and grivna in Ukraine). However, as is discussed below, there appears to be little real benefit to introducing such transitional currencies (see subsection 3).

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1/ Monopolies are constrained by consumers' demand. If they set the price, demand will determine the quantity. If they set the quantity, demand will establish the price.

2/ Other relevant prices of money are in terms of goods (the reciprocal of the goods' price level) or in the terms of financial assets (the reciprocal of the interest rate).



a. Fixed or pegged currency system

A pegged currency system--with free capital movements--represents a pure case in which no independent monetary policy exists. Monetary policy is directed at maintaining exchange convertibility of the new currency at a fixed exchange rate, so monetary policy is forced to adapt to external conditions. In this system, a country pegs its currency to that of a larger country in the hope of importing the monetary stability of the larger country. Symmetrically, if the larger country's policies are unstable, the small country will import this instability and will lack instruments to isolate itself from this external instability. 1/

There are two variations for a pegged currency system. First, the currency of the larger country may be used, as in the case of countries from the FSU that use the Russian ruble. Such systems exist also in Panama and small states such as the Marshall Islands, where the U.S. dollar is used as the national currency. Second, a national currency can be used, linked rigidly to the currency of the foreign country. A particular form of fixed exchange rate system is one in which the domestic currency is backed 100 percent by the foreign currency: a currency board. At present, Brunei has a currency board, while Argentina, Estonia, Hong Kong, and Singapore use modified versions of currency boards. 2/

The currency board establishes a fixed exchange rate between the new currency and the chosen foreign currency, and international reserves in that foreign currency are used to back 100 percent of the domestic currency. 3/ This imposes strict financial discipline on the central bank, the government, and the banking system. With a currency board, the new national currency must be paid for with foreign exchange earnings, leaving no leeway for an independent monetary policy. 4/ This prevents the currency board from providing credit financing for either the government deficit or the banking system. Financial discipline is doubly strict, since the system also requires that international reserves be available to ensure full external convertibility of the currency board's liabilities on demand. A

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1/ For a more complete treatment of the issues relevant to a choice of exchange regime, see Guitián (1992).

2/ Further analysis of currency boards appears in Osband and Villanueva (1992), and Coats (1992). For discussion of the Estonian currency board, see Bennett (1993).

3/ In some cases, like Argentina, the backing is 100 percent of new issues of reserve money (but not in the initial stock).

4/ Except insofar as there are international reserves in excess of full coverage of the domestic currency. The Estonian central bank has recently used the margin provided by its excess reserves (above what is required to back the kroon) to finance some of the costs of commercial bank restructuring.

country introducing a new currency may decide that such a strict discipline is required and, therefore, adopt a currency board, as was the case of Estonia. By using a currency board to fix the exchange rate of the new currency to a major currency, the small country accepts the larger country's interest rate and price level; however, until--and perhaps even after--credibility is gained the smaller country may face higher interest rates.

For pegged currencies issued either through a central bank or currency board arrangements, as long as the foreign country to which the smaller country pegs its currency has sound monetary and fiscal policies then the financial stability of the larger country will be transmitted to the smaller country. A main consideration is, therefore, which currency to link to. In practice, considerations of direction of the countries' trade, geographic proximity, and noneconomic considerations may also influence their decision.

Countries introducing new currencies are usually in the early stages of wide-ranging structural reforms that will fundamentally alter the basic parameters of the economy, especially if domestic price liberalization has not been completed. During the transition period, the demand for and supply of foreign exchange is likely to fluctuate markedly. To fix an exchange rate in these circumstances is equivalent to fixing the price of any good without full knowledge of its supply and demand conditions. Severe disequilibria can develop if the exchange rate is inappropriate, while changing the exchange rate to cope with the problem may severely weaken the credibility of the new currency's exchange regime. Furthermore, the fixed-rate system also requires more complete information on the expected level of international reserves (i.e., projected balance of payments) than other exchange rate systems, since they are the main adjustment variable. Avoiding problems requires a strong international reserve position, and a bias toward some over-depreciation of the exchange rate may also be helpful to ensure confidence in the value of the new currency.

b. Freely floating exchange rates

At the other end of the spectrum, a freely floating exchange regime represents a pure case in which the authorities let the exchange rate freely adjust to variations in the supply and demand for the domestic currency without central bank intervention. <sup>1/</sup> In the extreme, the central bank does not need international reserves, since all adjustment takes place through the exchange rate.

In a freely floating exchange regime, there are several main adjustment variables: the domestic price level, the nominal domestic interest rates, and the exchange rate. A floating exchange rate regime allows the country to pursue an independent monetary policy and does not require an initial stock of international reserves--beyond working balances. It has the

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<sup>1/</sup> Intervention is the use of international reserves with the principal objective of changing or supporting the exchange rate.

flexibility to let the exchange rate find its equilibrium value--and to let the equilibrium value adjust--while structural reforms and relative price realignments are taking place. In this sense, a floating rate system is one in which the value of the new national currency tends to an equilibrium determined by its supply and demand. Furthermore, exchange rate fluctuations may have an important informational content, since they may reflect current and sometimes expected developments in the supply and demand for the currency and may therefore serve as an indicator of emerging problems, at a broad macroeconomic level.

c. Other exchange regimes

Other exchange regimes are variations of these two pure cases and exhibit the trade-off between monetary and exchange policies outlined above. As the exchange regime moves further away from freely floating rates there is less control over monetary policy and more control over the exchange rate is obtained, and vice-versa. It is beyond the purpose of this paper to analyze different exchange regimes, <sup>1/</sup> and, therefore, we shall illustrate the trade-off with examples of two widely used systems.

The first case is the fixed exchange rate system, without a currency board. In this case, a new domestic currency can be issued without a corresponding purchase of the foreign currency by the currency board, permitting the central bank to finance the government, banks and other institutions. It implies a lesser degree of monetary and financial discipline than with a currency board. However, the lesser degree of financial discipline imposed by this system may lead, if a more expansive monetary policy is implemented, to inconsistency with the fixed exchange rate and eventually to a devaluation, and thus, make it more difficult for a central bank--particularly a new one--to gain credibility for the new national currency in the domestic and international markets.

The second case is where the country allows the exchange rate to float within a predetermined band against a foreign currency--or a basket of foreign currencies. In this case, the exchange rate is allowed to float freely until it hits the upper or lower band, at which time the central bank buys or sells foreign exchange, as necessary, to keep the rate within the bands. Once again, the trade-off is present. While the central bank can conduct monetary policy between the bands, it must work solely to protect the exchange rate when a band is touched. At this point, it must buy or sell international reserves in a quantity determined by the market and not the central bank.

As noted, a floating exchange rate system has several advantages in the introductory stage of the new currency. First, it is difficult to sustain a fixed exchange rate when international reserves are at a low level, as is

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<sup>1/</sup> For an extended analysis of the different kinds of exchange regimes, see Quirk (1989).

often the case for countries introducing a new currency. If reserves are run down, the fixed exchange rate must be changed or a parallel market will emerge, either of which is very damaging to the credibility of the new currency; a floating exchange rate does not have this disadvantage. Second, with a floating exchange rate regime, it is not necessary to predetermine the level for the exchange rate; an extremely difficult task in the early stages of important structural reforms. Third, insofar as the floating exchange rates may reflect expected or current developments in the supply or demand for one new national currency, they may have a higher informational content to the market participants. Fourth, a freely floating exchange rate with a convertible exchange system will preclude the emergence of a black market for the new currency; a black market undermines the credibility of a currency. For similar reasons, many Fund member countries undertaking economic reforms with low international reserves have initially adopted floating exchange rates with liberal exchange systems. 1/

d. Unification of the exchange rate and  
convertibility of the new currency

In order to ensure the credibility and strength of the new currency, as expressed by its exchange rate, arrangements regarding the operation of the foreign exchange market should be fully prepared before the introduction of the new currency. 2/ The likelihood of a successful transition will be enhanced if:

- The exchange rate system is unified, so that there will be a single exchange rate for the new currency at the time of its introduction. Dual or multiple exchange rates create confusion regarding the true value of the new currency, and work against inspiring confidence in the currency.
- The system gives the new currency maximum convertibility, or in other words, is as free of exchange controls as possible, in order to ensure maximum integration into international markets, thus investment in, and strengthening of, the new currency. As a minimum, full current account convertibility should be ensured. Again, exchange controls reduce confidence in the value of the new currency by opening up possibilities of system (sovereign) risk--that controls may be tightened or convertibility abandoned--and creating incentives for offshore currency holdings. Controls that are easily evaded, such as those relating to cash foreign exchange also weaken the credibility of government.

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1/ Russia, Albania, Bulgaria, and Romania are the other countries in Central and Eastern Europe that are also independently floating, but have not introduced new currencies.

2/ For a fuller presentation of these issues see Quirk (1992).

- All efforts are made to deepen and broaden the institutional arrangements in the system of foreign exchange dealers to ensure-- or encourage the development of--a competitive and efficient exchange market that directs foreign exchange to the most profitable uses. This will often involve the licensing of non-bank dealers in the new currency in addition to traditional and sometimes oligopolistic banking structure.
- The arrangements for the foreign exchange-related activities of the central bank are organized and streamlined in order to undertake efficiently government transactions (often a significant part of the market) including the functions and organization of the Foreign Exchange Department, the prudential monitoring and supervision of foreign exchange dealers at banks and elsewhere, and the principles and procedures for intervention and international reserves management in the foreign exchange operations of the central bank. Supporting foreign exchange legislation will also need to be in place, and may need to be quickly drafted in preparation.

(1) Unification of exchange rates

A single exchange rate is the most efficient way to transmit information on most profitable use of foreign exchange throughout the economy. It achieves a unique value for the new currency in terms of foreign exchange. Experience has shown that multiple exchange rates lead to inefficiency, confusion, and evasion. <sup>1/</sup> Laying the basis for an efficient, unified exchange system can be done by replacing official buying and selling rates by market rates determined competitively by commercial banks; eliminating all taxes on foreign exchange transactions, hard currency and barter transactions, and on exports; and by replacing special exchange rates for sales of property and shares to expatriates, by taxes on the use of the assets themselves. Any negative effects on fiscal revenues resulting from these measures can be offset by a small uniform customs tariff on imports. It is crucial that exchange rate unification is completed before issuance of the new currency in order to create the best possible environment.

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<sup>1/</sup> See Quirk (1984), particularly p. 25.

(2) Convertibility of the new currency

Countries in transition generally undertake economic reforms to replace a system of inefficient centralized controls by a more efficient system of market pricing and allocation. In the case of foreign exchange markets, such reforms are also important because exchange controls simply do not work in many countries. 1/ Exchange controls may also divert scarce managerial and financially skilled staff from productive uses to policing such controls.

Economies in transition from a centrally planned system implement comprehensive structural reforms to allow the private sector an important role in development, in a context of reduced government interference and widespread free markets. In this sense, a convertible currency implies eliminating controls over international transactions which will strengthen the integration of these economies in the international economy and the minimization of governmental interference in the exchange regime. 2/ This argues for the elimination of exchange controls--at least in trade in goods and services--on private sector transactions. In the transition, however, monitoring of state enterprises may be needed to ensure that they do not hoard foreign exchange. 3/ This monitoring would operate through the commercial banks rather than the central bank. As privatization progresses, the part of the economy working under full--or at least current account--convertibility would gradually increase. However, under any circumstances, a unified market exchange rate would be applied to all users of foreign exchange, public and private.

Further simplification and modernization of the exchange system usually should include the following measures:

Repatriation, domiciliation, and surrender requirements should generally not apply to enterprises in the private sector, except as a transitional arrangement at the first stages of the new exchange regime. These enterprises will respond to exchange rate and interest rate incentives in their economizing on use of foreign exchange.

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1/ Quirk (1984), p. 12, documents the ineffectiveness of exchange controls in a number of Fund member countries. In the 1980s, many developing countries with extensive capital controls found that they did not prevent massive capital flight. More recently, virtually all industrial countries have abandoned their sophisticated exchange control systems because they were evaded to the point that they became inoperable.

2/ See Guitián (1992), particularly Section V.

3/ The soft budget constraints on many state enterprises may allow them to hoard foreign exchange, while private enterprises would not.

- Enterprises under majority state control will often need to be constrained by foreign exchange budgets, in order to monitor their economizing of foreign exchange. To that effect, all of their foreign exchange receipts would be repatriated in domestic commercial banks through which all of their foreign exchange transactions would be channeled. Once the enterprises begin to behave as independent units, however, it may become appropriate to treat them in the same way as private enterprises.
- Bilateral or regional payments arrangements and or barter/ countertrade requirements with countries that have emerging market economies should be eliminated, and replaced by nonrestrictive systems of reciprocal credits, in order to simplify and streamline the system and avoid exchange restrictions implications.

## 2. New legislation and negotiations with the old currency area

Before the new currency can be introduced, certain key legislation will need to be enacted. A functioning central bank or currency board will also need to be in place. If the country had been part of a larger single currency area, it is also advisable for certain agreements with the other--former--members of that area to be concluded. Legislation is needed to:

- (a) make the new currency legal tender;
- (b) give the central bank the authority to issue the new currency;
- (c) specify the conditions for putting the new currency into circulation in place of the old currency, including the conversion rate between them during the initial conversion period and how long the conversion period will be;
- (d) govern foreign exchange transactions (conforming with the chosen exchange system) and empowering the central bank or some other governmental body to draft supporting regulations; and
- (e) specify the treatment of different types of financial assets and liabilities and financial contracts during and after the introduction of the new currency.

A full-fledged central bank or currency board will need to be in place and functioning. <sup>1/</sup> While either institution would need the legal authority to issue the currency, a central bank should also be capable of performing the whole range of functions including:

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<sup>1/</sup> A currency board system does not require the establishment of a central bank. Such is the case in Hong Kong.

(a) the capacity to formulate and conduct monetary policy and to conduct--and in cases formulate--exchange rate policy (these roles require adequate information systems and the ability to use the usual array of policy instruments);

(b) the legal authority and ability to regulate, supervise, license, and provide lender of last resort support to financial institutions (to promote and safeguard a sound financial system);

(c) the legal authority and ability to act as banker and fiscal agent to the government (preferably subject to the overall credit limitations as laid out in the law on central banking);

(d) any commercial banking operations taking place at the central bank should be moved to a separately capitalized and managed commercial bank; and

(e) responsibility for the management of the country's official foreign exchange reserves.

If a member of a single currency area, the country will need to negotiate with the member(s) of such area to settle the following issues that are likely to arise in the currency conversion process:

(a) whether nonresidents will be permitted to hold new currency deposits, including whether nonresidents may convert their existing deposits into the new currency;

(b) treatment of depositors, resident and nonresident, who wish to keep their deposits in the domestic banks but denominated in the old currency;

(c) treatment of depositors, resident and nonresident, who wish to convert their deposits into old currency bank notes;

(d) disposition of old currency notes taken out of circulation by issuing the new currency;

(e) payments, clearing, and settlement arrangements with the old currency zone; and

(f) disposition of the assets and liabilities of the central bank of the former currency area which inter alia include:

(i) official foreign exchange reserves;

(ii) bilateral clearing account balances; and



(iii) foreign debts of the old currency area's central bank that cannot be allocated to individual republics (these talks may spill over into discussions of the other external debts that cannot be attributed to individual republics).

### 3. The issuance of coupons

The issuance of coupons is not a necessary nor a desirable stage for the introduction of the new currency. Coupons are normally issued either as a statement of national sovereignty as an "intermediate" step ahead of issuing the new national currency or to alleviate a shortage of old currency bank notes. They are generally issued, initially, at par with the old currency and circulate at the same time with the old currency as legal tender. Subsequently, they may become the nation's sole legal tender, ahead of the ultimate issuance of the new national currency. 1/ As stated above, this was the case of Latvia, Lithuania, and Ukraine that floated their provisional currencies after declaring them the sole legal tender in their countries.

Any depreciation of the coupons would open up arbitrage possibilities between coupons and deposits, which are technically denominated in old currency. In this case, the country has, in effect, unilaterally withdrawn from the old currency zone. Banks in the old currency zone may then stop accepting bank transfers from the coupon-area since convertibility of deposits into old currency bank notes is no longer assured. (Of course it may not have been assured in the first place.) This in turn may cause problems in the payments system between the "coupon-area" and the old currency area.

The key question is whether a coupon issue is a good intermediate step. This does not seem to be the case. Since they are issued on a temporary basis, the coupon bank notes may be of relatively low quality and hence are easier and cheaper to produce but also to counterfeit.

If the country wishes to withdraw from the old currency area in an orderly manner, it might prefer to start by issuing its own currency. Issuing coupons at par with the old currency and then expanding the money supply in order to "dump" old currency-denominated deposits for goods produced elsewhere in the old currency area could result in retaliation. On

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1/ There is, however, little if any difference between issuing a transitional currency and introducing a new currency. Once the domestic currency is no longer fully fixed against the old national currency, the country has effectively left the old currency zone and gained monetary independence--whether it wishes to or not. The only benefit to a transitional currency appears to be the hope, on the part of the authorities, that any mistakes or problems associated with the transitional currency will be forgotten when the "real" currency is introduced.

the other hand, keeping the coupons at parity with the old currency gives the country no monetary freedom and it could result in large inflows of old currency if domestic monetary policy is tighter than elsewhere in the area. Issuing coupons may, nevertheless, be necessary if a shortage of bank notes develops before the country has time to plan its move to a new currency.

#### 4. Currency reform versus introducing a new currency

A currency reform involves some kind of expropriation of money and financial instruments at the time a new currency is introduced. This is normally done by exchanging selected old currency-denominated bank notes, deposits or financial instruments at less favorable conversion rates, which effectively taxes selected individuals or holders of selected financial instruments. 1/ While such measures are generally inadvisable, this discussion is included because the authorities in transitional economies are often encouraged to consider such strategies.

A currency reform is often seen as a way to absorb a buildup of excess liquidity--a "monetary overhang"--resulting from a rapid expansion of money and credit in the presence of price controls. However, even in this case, a more efficient way is to free prices and allow them to rise or to absorb excess liquidity with tight fiscal policy. 2/

The main problem of the expropriation feature of currency reform is that it results in the destruction of savings. The problems with currency reforms are compounded because correct conversion rates are difficult--or impossible--to calculate and multiple rates are by their nature arbitrary and discriminatory. People will also seek ways to avoid using the less

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1/ While a currency conversion converts all the financial assets and liabilities in the system at a single conversion--exchange--rate, a currency reform uses multiple conversion rates.

2/ A currency reform can be a noninflationary way to absorb a monetary overhang, particularly if it is associated with a large-scale default on public sector debt, as in Western Germany after World War II. It works by cutting the value of financial assets, without a corresponding decline in the prices of goods and current expenditures. However, it does result in a redistribution of wealth from financial creditors to financial debtors, which can be massive. The undesired redistributive effects must then be offset by taxes or subsidies, making successful currency reforms quite complex. See Mayer and Thumann (1990).

favorable rate. 1/ Multiple rates can also encourage cross-border currency flows and the dumping of "excess" old currency holdings for goods. Bribery and fraud commonly occurs to evade this form of taxation. 2/

### III. Issues Regarding the Production of the New Currency

#### 1. Designing and printing the bank notes

A new currency cannot be introduced until an adequate supply of new currency bank notes has been produced. The first decision in this process is whether the country will produce its own bank notes or whether it will use a printer. The bank notes must then be designed, which requires choosing the initial value of currency and the denomination of the bank notes. The quantity of notes to produce must also be decided before the printing can begin.

Time permitting, governments would generally prefer to turn over the naming, designing and, possibly, denominating the new currency to a special committee, made up of dignitaries, bankers, government officials, artists, etc. The highlight of the committee's work would be holding a competition to design the new bank notes and coins. By their nature, such commissions may take a long time to reach conclusions, causing long delays in the production process. These delays generally must be avoided when a new country is introducing a new national currency.

#### 2. Deciding whether to choose a printer

A country planning to introduce its own currency may wish to produce the bank notes itself. However, using a bank note printing company for the initial production run may avoid delays. Under any circumstances, producing quality bank notes takes time. It normally takes a bank note company 18 months to three years to design, proof, print, and deliver a new bank

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1/ For an example of the problems of using multiple rates, see Garber and Spencer (1992).

2/ Currency reforms may seem a conduit to help a disadvantaged group, such as pensioners, or to punish an unfavored group, such as criminals or profiteers. However, this is not the best way to address these problems. A subsidized conversion rate only gives the disadvantaged group a one-time transfer and does not confront their underlying problems, e.g., they cannot live on their income. On the other hand, an unfavorable rate is an inefficient way to seek out and punish criminals, which is better done on a case-by-case basis through the legal system. Rather, a temporary freeze of the accounts of those seeking to convert large amounts of funds with the police or the tax authorities examining the source of the funds can allow the prosecution of illegal activities to be handled through normal channels.

note series, although it can be done in as little as 6 to 10 months. If one also has to set up a bank note printing operation and train its staff in all stages of producing the new currency, the delay could run into years.

Bank note printing companies also argue that a country needs a rather large population to produce bank notes economically, because setting up a modern bank note printing operation is expensive. <sup>1/</sup> However, a number of smaller countries, e.g., Denmark, have expressed satisfaction with their own printing operations.

Bank note printing contracts tend to run three to five years and involve at least 50 million bank notes. Thus, starting with a printing contract can also give a country time to set up its own printing works, should it wish to do so. Should a country wish to take over the printing operation--or to change printers--after the contract has expired, it may be useful to arrange to take possession of the printing plates and to have access to the paper and dyes used in the printing operation. Companies often resist this proposal, but this, like everything else, is subject to negotiation and the bidding can be reopened if the favored bidder resists.

Printing quality bank notes is expensive. The main factors which influence the cost are the number of notes to be printed, the number and type of anti-forgery features, and the type of paper and inks. While costs are subject to negotiation--and are therefore a trade secret--they seem to vary between US\$25 and US\$60 per thousand bills, although producing superior quality notes can be considerably more expensive. Needless to say, bids should be requested from several companies. Some countries have also voiced satisfaction with using two or more companies to handle the printing.

### 3. Design and quality of bank notes

Bank notes should be designed both for ease of use and to minimize the risk--maximize the expense--of counterfeiting. Bank note users include the general public, cashiers, the central bank, and vending machines. <sup>2/</sup> The public's main interest is ease in checking the denomination of a bank note. This requires that its value be printed in large numerals on the front and back. Its value should also be spelled out on at least one side. Some countries also make each denomination to be a different length (for the visually impaired) and/or color (for rapid identification). The public also likes to be able to check for counterfeit bank notes. This is usually done by a combination of watermarks, see-through register marks, microlettering, intaglio relief print, variable color inks, and security threads (holograms

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<sup>1/</sup> Several bank note printing companies estimated minimum efficient scale for producing bank notes ranged from a population of about 20 million to a demand for bank notes of 250 million annually, while the cost of setting up a bank note printing operation was estimated at US\$35-45 million.

<sup>2/</sup> Although, in most countries issuing new currencies, vending machines probably would not warrant consideration on the short term.

are also likely to become popular). They also expect bills to have some identifying features such as a date, a serial number, selected signatures, and often some combination of portraits, pictures and images.

Cashiers and other individuals handling a large volume of currency may also want bank notes to have: conspicuously different designs on the front and back to speed the uniform sorting and stacking of notes, the main color running onto the edge of the bank note to determine denomination of a bundle from its side. They should also have extra security features such as:

(i) quality rag paper, perhaps with florescent fibers in the paper;  
(ii) florescent inks; (iii) inks with special colors not generally available; (iv) extra-fine detail visible only with a magnifying glass; and  
(v) multi-step lithograph printing or partial engraving that is expensive and difficult to duplicate.

Initially, the central bank will be satisfied with the features listed above. Later on, however, sorting machines may be installed that allow testing for special security features. All notes will then need to be the same height to take advantage of the machines' high-speed sorting features, although the length of notes can vary to help the visually impaired.

Bank notes wear out, but their useful life can be extended. <sup>1/</sup> This can be done by using special, long-life papers and by treating the paper with special inks and lacquers. In general, the higher the underlying cost of printing a bank note, the greater the return from extending its life. This implies that special care should be taken with higher value bank notes, which are often more expensive to print because they need to be more secure from forgery. However, the poorer the country, the lower the denomination of bank note counterfeiters tend to be willing to forge. Thus, poorer countries may need to take more steps to protect their lower value notes from forgery than richer ones.

#### 4. Initial value of the currency and the denomination of the bank notes

During the conversion period, the conversion rate(s) is the primary determinant of the initial value of units of the new currency for internal purposes. Whatever the planned relationship between the new and the old currency, the conversion process will be simpler if a simple conversion rate is used. The easiest solution is to have the new currency related to the old currency by a factor--preferably a power--of ten. It is also desirable for the new currency unit or its sub-unit (presumably one hundredth of the currency unit) to be roughly equal to the value of the smallest common

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<sup>1/</sup> Studies of the life expectancy of banknotes include Gillieson (1977) for Canada and den Butter and Coenen (1982) for the Netherlands.

purchase. 1/ For example, a country leaving the ruble zone may wish to float its currency against the ruble, but the conversion rate(s) against the ruble still must be fixed during the initial conversion period. Since inflation effectively eliminated the use of the kopek and 1 ruble is the lowest normal purchase, the authorities may wish to have the initial conversion value of the smallest new currency sub-unit be equivalent to 1 ruble and the initial conversion value of the main new currency unit at 100 rubles.

Decisions can then be made on the denominations for the coins and bank notes. 2/ One consideration is that cash boxes and sorting machines tend not to have more than seven slots. In addition, people tend not to use more than six or seven different units of coins or notes in circulation. If more are produced, certain of those units will normally become unpopular and fall out of general use. This can prove an expensive mistake.

The average day's wage appears to be a good deflator to determine the appropriate denominations for domestic bank notes and coins. 3/ While the choice of denominations is influenced by the level of financial development and access of alternative payments instruments, it appears that as a rule of thumb, the largest coin should be on the order of one fiftieth of a day's wage and the smallest bank note should be on the order of one twentieth of a day's wages.

One problem is that the public generally prefers bank notes to coins, so they will wish that the smallest note be of a relatively low value. However, lower value bank notes tend to wear out quickly, so the long-term cost of issuing them can be very expensive. 4/ While coins are costlier to produce, their lifetime may exceed 20 years. Thus, once inflation is under control, savings can be achieved by minting coins in somewhat larger denominations than the public might prefer.

Coin and bank note issues generally follow one of two patterns:

(i) 1, 2, 5, 10, 20, 50, 100, 200, 500; or

(ii) 1, (2.5), 5, 10, 25, 50, 100, 250, 500.

However, sometimes coins follow one pattern of denomination and bank notes another. Furthermore, as noted, there should be no more than six or seven types of coins and six or seven types of notes. In less developed

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1/ Payne and Morgan (pp. 45 and 47) estimate the ideal value of the smallest currency unit is between one two thousandth and one five thousandth of the average day's pay.

2/ See Payne and Morgan (1981) for a useful discussion on this topic.

3/ For example see Payne (1980).

4/ In some countries, the life of a low denomination note is as short as three to eight months, while in most cases it is under one year.

countries, the largest commonly circulated bank note tends to be in the range of 2-5 days' pay. Larger notes tend not to circulate and may be primarily used in association with illegal activities.

##### 5. Quantity of notes in circulation

Initially, sufficient new currency bank notes should be on hand to:

- (1) retire all of the bank notes outstanding in the country at the official conversion rate; plus
- (2) convert any likely illegal inflows of old currency notes less any old currency notes held by residents but not converted;
- (3) fulfill any rise in the demand for bank notes following the conversion; and
- (4) maintain sufficient inventories to handle the demand for new bank notes plus replacement notes pending the next printing of bank notes.

The amount of currency outstanding in the country can usually be estimated from the central bank's records on currency transactions. If this is not possible, information on currency outstanding in the old currency area may be used to estimate the stock of old currency bank notes within the country. The increase in the demand for the new currency coming from illegal inflows, unexchanged notes, and the change in the demand for currency is difficult to estimate and the authorities should take account of these considerations by holding a large inventory in bank notes (even though this may be risky if inflation is rapid).

There are a number of inventory models for bank notes. They are often complex, but they are generally built up from models of the demand for currency, and the expected life of the currency and inflation. 1/ The time until the next currency production run is also a key consideration. The central aspect of the model is the forecast of the demand for both the total quantity of bank notes and quantity of each denomination. Often the main variables in this part of the model are the average wage level 2/ and the currency structure, i.e., the denomination of notes and coins in circulation. While these models are generally stable for a given country, the coefficients of the model vary from country-to-country.

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1/ For studies on the demand for currency in a particular country see, Cramer (1983) for the Netherlands, Kimball (1981) for the United States, Manski and Goldin (1982) for Israel and Payne and Morgan (1981) for the United Kingdom. In addition, the impact of inflation is discussed in Chen, and Laurent (1974) and a planning model for central banks is presented in Fase, van der Hoeven and van Nieuwkerk.

2/ Although some models estimate currency deflated by either nominal GDP or total deposits.

#### IV. The Conversion

##### 1. Announcement and publicity

The public will need to know how to exchange old currency bank notes, deposits, and coupons for new currency bank notes and deposits during the conversion. The longer the period between the announcement and the introduction of the new currency, the easier it will be to explain the process to people and enterprises. As long as a single conversion rate is to be used and steps are taken to limit speculative inflows, there would not seem to be any particular risk in providing this information in advance, without specifying the date of the conversion. <sup>1/</sup> The announcement of the exact date when conversion is to take place can be withheld until just before its start. The advance notification would include the amounts of old currency bank notes and coupons that will be changed into new currency bank notes and encourage the public to deposit any additional cash holdings in accounts with other banks. This would relieve pressure during the actual conversion.

The shorter the lead time, the fewer the means of publicizing how individuals and enterprises are to convert their old currency holdings. With a very short lead time, reliance will have to be placed on intensive reporting by radio, television, and newspapers. A slightly longer lead time would also permit the use of pamphlets, perhaps in the form of simple questions and answers, and posters. In any case, officials will have to be made available for interviews with the media. The optimal lead time will depend on the attractiveness of the new currency vis-à-vis the old and the country's vulnerability to inflows from nonresidents.

The announcement of the currency conversion should explain:

(a) how residents and nonresidents are to convert old currency bank notes and coupons into new currency bank notes and how any bank note holdings in excess of the maximum to eligible for conversion into bank notes are to be treated;

(b) how residents' and nonresidents' old currency deposits and old currency obligations are to be converted;

(c) how residents' and nonresidents' nonbank financial assets/liabilities and other contracts denominated in the old currency are to be converted; and

(d) the regulations governing transactions in the old currency and other foreign currencies during and after the conversion period.

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<sup>1/</sup> Although Agénor and Lennblad (1992), p. 18, do warn that--extended--periods of uncertainty about the conversion date may have adverse effects on prices and distort the portfolio decisions of private agents.



It would also be useful for the government to discuss its plans regarding the currency conversion with the other members of the old currency zone before making public announcements about the conversion. Hopefully, these discussions would minimize the risk of the conversion causing inter-governmental disputes, which could result in retaliation.

2. Institutions to undertake conversion

The conversion need not take place only at banks. Post offices and enterprises with a large number of workers may also be suitable conversion points. The use of additional sites may be especially useful if the number and the scale of operations of bank branch offices is limited. Employees would bring old currency notes and coupons to their place of employment for conversion to new currency notes (assuming that the enterprise has skills in currency handling as in the FSU). Pensioners would go to the post office or branch of the bank or savings bank where they receive their pension payments. Others would go to banks or savings banks.

The activity of nonbank conversion points should, however, be limited to the conversion of old currency notes and coupons into new currency notes. Cash balances in excess of this conversion limit should be deposited directly by the holder into a bank account, possibly in the days before the conversion. This would simplify the operation at work places, reduce security problems, and minimize administrative errors. Even so, significant security problems would remain as the new currency would have to be delivered to the work places before the operation with no possibility to require collateral. Thus, one possibility would be to limit the work places that would do conversions to state enterprises over a certain size.

3. Date to begin introducing the new currency

The main precondition for introducing the new currency is that it be distributed to the exchange sites. Once this is done, the choice of conversion date will depend on the completion of the prior preparations and on political factors. One practical consideration is that the new currency should not be introduced during a period of the year when an unusual number of transactions take place (e.g., when tax or other payments are made by enterprises to the government; during holidays (Christmas and New Year)).

4. Immediate period of preparation

The announcement of the conversion dates should be made several days before it begins in order to prepare the central bank, commercial banks, and other conversion points to do the conversion. Banks could stay open while making the preparations. The public might be advised to hold a minimum amount of old currency notes and coupons, since this would be the only way to acquire new currency notes in the first few days of the conversion period. At the same time, the public should also be encouraged to deposit

with banks any old currency bank notes and coupons exceeding the amount that can be converted into new currency bank notes in order to relieve pressure on banks during the conversion period.

A short bank holiday might be declared, to allow preparations to be made by the central bank, other banks, and other exchange points. <sup>1/</sup> A bank holiday will not be necessary, however, if banks can make the preparations and continue to do business.

5. The conversion period

During the conversion period old currency bank notes will be converted into new currency bank notes at the conversion ratio specified in the announcement. After the conversion period, this rate would no longer be assured. It should, however, be possible to apply for conversion for a limited time after the normal conversion period for persons who could document that they had been ill, absent, etc.

The length of the conversion period needs to be chosen so that banks and other conversion points will not be overwhelmed by requests for conversions. The length of this period would depend on the number of conversion points as well as the estimated number of persons who would be entitled to convert. If people were put on lists (such as those compiled for elections) in order to acquire identification for the conversion, an accurate figure could be obtained for the number of persons who would be converting. The conversion period might be shorter at the nonbank conversion points. Of course, the longer the conversion period, the less pressure each day. However, a longer conversion period also poses some risk of speculative inflows, because the new currency/old currency conversion rate would remain fixed, offering the possibility for three-way arbitrage. It would seem that a conversion period of three to seven days would be adequate in most cases. During the conversion period, the central bank and perhaps commercial banks might need to be open for extended hours.

6. Legal tender during the conversion

The new currency should be legal tender from the first day of the conversion period, but it is less clear whether the old currency should also be legal tender during this period. Allowing the use of both the old and the new currency during the conversion would reduce pressure on residents to dispose of their old currency notes. It would also allow shops to help with

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<sup>1/</sup> For example, the announcement of the conversion could be made at close of business on a Thursday. Friday could be a bank holiday and the conversion could begin on the following Monday. This would give banks three uninterrupted days to prepare. The disadvantage of declaring a Friday to be a bank holiday is that some people might be caught without sufficient currency for the long weekend. Thus, the announcement might be made on Friday, with Monday declared to be a bank holiday.

the conversion process by having them exchange the old notes for new notes. On the other hand, allowing only the new currency to be legal tender would discourage nonresidents from entering the country with old currency notes to purchase goods during the conversion period. If there are two or more conversion rates, it would be necessary for the old currency to cease to be legal tender on the first day of the conversion.

If coupons have been issued, there is little reason not to allow them to remain legal tender during the conversion period. 1/ In fact, allowing coupons to circulate would allow people to continue to make transactions without having to first obtain new currency bank notes. It would also relieve pressure for conversions on the first day, thus reducing waiting lines and the immediate burden on institutions doing the conversion, without the risk of an inflow of old currency notes. After the conversion period, coupons could be withdrawn from circulation as they are turned in at banks. However, the authorities may wish to put a deadline on the use of coupons not only because circulating the two types of currency together could be confusing--particularly if the conversion rate is not one-to-one--but more importantly, because coupons are likely to be easier to counterfeit than new currency bank notes.

#### 7. Speculative inflows and limits on the conversion of bank notes

In some cases, the authorities may be concerned about the risk of speculative inflows of old currency bank notes from nonresidents during the conversion period. The likelihood of such inflows will depend on the attractiveness of the new currency relative to the old. After the conversion, the adoption of freely floating exchange rates will reduce the likelihood of such inflows.

To avoid converting large speculative inflows, the conversion of old currency notes may be limited to residents over a certain age. 2/ In that case, nonresidents would not be permitted to acquire new currency notes for old currency bank notes and coupons, perhaps with the exception of tourists who might be allowed to change a limited amount upon presentation of identification papers which would then be marked.

To relieve the administrative burden on conversion points a limit could be set on the amount of old currency notes and coupons that each resident may convert into new currency notes. Amounts in excess of the limit would

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1/ To minimize arbitrage possibilities, this would however require that the exchange value of the coupon would need to be restated in terms of the new currency from the start of the conversion period (presumably at the official conversion rate for old currency bank notes into new bank notes during the conversion period).

2/ Some countries have attempted to reduce this risk by closing their borders during the conversion period. However, such extreme actions are expensive, difficult, and may not work.

be deposited in existing bank accounts with withdrawal permitted shortly after the end of the conversion period. In two recent currency conversions (Estonia and Slovenia), citizens were initially allowed to convert the equivalent of two to three weeks of the average salary into new currency notes.

A system for identifying residents is required if (1) conversion is to be limited to residents; (2) limits are to be enforced on the conversion of old currency notes and coupons; or (3) each resident is to be permitted to convert old currency bank notes and coupons only once or at only one point. This may pose some problems since in many countries, notably the republics of the FSU, some people hold more than one passport or ID card. One possibility would be to enumerate people above a certain age, as for an election. Then, each person on these lists would be issued a card allowing him or her to convert old currency notes and coupons into new currency notes at the designated conversion rate, at a designated location.

#### 8. Treatment of banks' customers

All loans and deposits, etc., of customers in domestic banks (residents and nonresidents) denominated in the old currency should be converted into new currency on the first day of the conversion period to avoid forcing domestic banks to have open foreign currency positions on their balance sheets. 1/ Depositors wishing to keep their deposits denominated in the old currency should, however, be given the opportunity to do so by asking within a very short specified period to be paid off in old currency bank notes at the official conversion rate. This currency could be made available by the central bank or the government from the old currency notes acquired during the conversion, but the banks may need additional (new currency-denominated) credit from the central bank to meet such withdrawals.

In the recent case of Estonia, nonresidents' ruble accounts were not converted, but were repatriated with a corresponding reduction in Estonia's claims on Russia. This is another way that an FSU republic could treat nonresidents' deposits (without imposing a burden on its banks) if a similar agreement can be reached with Russia for reducing the republic's claims on it. 2/

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1/ Giving customers a choice of currency exposes the banks to foreign exchange risk. If the new currency were expected to appreciate against the old, banks' borrowers would wish to keep their loans denominated in the old currency and to have their deposits expressed in the new. If expectations were fulfilled, the banks would suffer foreign exchange translation losses.

2/ On the other hand, in the case of Ukraine, Russia agreed that all nonresident accounts would be converted into the new currency.

Following the conversion, nonresidents should be permitted to maintain or open bank deposits in the new currency at will. At this time, the central bank may wish to extend the rules on foreign currency denominated deposits to cover newly opened old currency-denominated deposits.

9. Treatment of other old currency contracts

All financial contracts between residents that are expressed in the old currency should be converted to new currency. Contracts between nonbanks, resident and nonresident, would be governed by the laws of the republic in which they were drawn up. Contracts between a resident and a nonresident contracted in the country undergoing the conversion could remain denominated old currency unless both parties consented for them to be converted to new currency.

10. Disposal of old notes taken from circulation

First, old currency notes acquired by the central bank in the conversion process should be used to repay any debts that had originated as a result of putting old currency notes in circulation domestically.

Second, as mentioned in Section 8, old currency notes could be used to pay those depositors--resident and nonresident--that wish to retain old currency assets. This should be done within a very short period immediately after the conversion period to avoid the misunderstanding that the country was dumping old currency it had acquired during the conversion. 1/

Any remaining old currency notes will be held by the authorities until the government has negotiated an agreement with the members of the old currency regime on how these bank notes are to be disposed of. 2/ These talks might be part of broader negotiations over their claims on each other. However, assurances from the remaining members of the old currency zone that the real value of these balances would not be allowed to diminish pending the outcome of the negotiations would need to be secured.

It is inadvisable that the central bank holds the old currency notes pending the outcome of inter-governmental negotiations because it would not earn any income from them. 3/ To avoid this problem the government could

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1/ Accusations of dumping arise occur during most currency conversions. This could occur in the ruble zone of the FSU, as non-ruble zone FSU importers pay in cash rubles for ruble zone imports because of the breakdown of the inter-republic payments system.

2/ It would be advisable that the disposition of the withdrawn currency be negotiated before the conversion.

3/ It should also not bear the risk of inflation cutting the value of the old currency notes, since this could impair the capital of the central bank. However, if the interest rate on old currency deposits abroad was considered "reasonable" the bank notes could also be redeposited.

issue the central bank an interest-bearing security to acquire the bank notes from the central bank and ask the central bank to hold the bank notes in safekeeping for the government. Once negotiations with the old currency zone are concluded, depending on the outcome, the government might retire the security (for instance, by passing a claim on the central bank of the old currency area to the domestic central bank). Alternatively, the government can provide the central bank with an agreed income. Over the longer run, however, it would not be desirable for the central bank to rely on the government for its income, and particularly to cover its operating expenses.

#### V. Operation of the Foreign Exchange Market for the New Currency

The smooth transition to a new currency will depend very much on the preparatory measures in the foreign exchange market outlined above being in place before the new currency is introduced. A number of other important decisions will also need to be made during and immediately after the introduction of the new currency.

##### 1. The initial exchange rate and early movements in the rate

The choice of an initial exchange rate for a new national currency depends on the choice of intervention currency (normally, the main currency in which foreign currency balances are held or denominated), arithmetic convenience (e.g., keeping the zeroes to a minimum) and to some degree political considerations. More important than the initial exchange rate chosen are the subsequent movements in the exchange rate, but it is also more conducive to credibility in the new currency if policies are in place to allow those movements to remain relatively small. 1/

Appropriate macroeconomic policies--especially monetary policy--are very important if the exchange rate is to be stable from the outset. In particular, interest rates need to reflect inflationary expectations. Such expectations will be heavily influenced by the introduction of the currency itself and the other macroeconomic policies in place at that time. The market-determined exchange rate for the new currency--or the level of foreign exchange reserves--is likely to move quickly to compensate for errors in the authorities' judgment of inflationary expectations.

If at the outset there is evidence of considerable demonetization and dollarization in the economy, however, experience has shown that it may take some time--years rather than months--to reverse such developments. 2/

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1/ An initial exchange rate is not necessary with a free float; however, if any actions are taken to set a starting rate, even an indicative one that is not defended, large movements in the rate may be damaging to confidence.

2/ Dollarization makes the implementation of monetary policy less predictable, and thus more difficult.

Reversing these trends is likely to be difficult or impossible, unless the country maintains cautious monetary and fiscal policies. In the early period, as markets and prices adjust, a floating exchange rate would provide an important indicator (perhaps the only indicator) of the appropriateness of national policies.

If the new currency is introduced smoothly, in the sort of policy environment mentioned above, there could well be net demand for the new currency from the old currency area, causing the new currency to appreciate against the old currency. However, this should not present practical problems. In particular, it will not be possible to purchase domestic goods with "cheap" old currency, if the initial conversion into new currency is restricted to pre-existing balances. If this restriction is made effective (as discussed above), then subsequent nonresident demand for the new currency to purchase domestic goods will be reflected in the exchange rate by an appreciation of the new currency against the old. The goods in the country introducing the new currency would become increasingly more expensive to old currency area residents, choking off the demand. This occurred in the three Baltic countries during the period immediately after they withdrew from the ruble area.

## 2. Development of institutions

Under a new market-related exchange system, responsibility for foreign exchange allocation, and possibly exchange rate adjustment, would be transferred away from the government to the private sector. <sup>1/</sup> However, while the central bank would no longer be involved in commercial transactions, it would still retain a number of important functions which may foster the stability and efficiency of the foreign exchange market. It will conduct official purchase and sales operations in foreign exchange--unless the exchange regime is a clean float--for which it will need to be linked into the interbank market on the same basis as commercial dealers. Under these circumstances, the market will need complete and current information regarding government needs, so that the exchange rate can reflect the true state of the economy. (Otherwise, sharp adjustments and uncertainty will result.)

Regulatory and prudential functions of the central bank would include monitoring for "fair trading" (spreads, rates for small transactions, etc.), anti-monopoly and anti-collusion, and capital adequacy and dealer licensing arrangements. However, official controls and margin requirements need not be imposed on the spot and forward positions of market participants (except perhaps for government and government enterprises), because they are difficult to apply in a binding manner, while permitting dealers to hold sufficient working balances to conduct their business efficiently. Instead, the central bank should monitor the exposure of dealers relative to their capital as part of its prudential supervisory functions; consulting with the

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<sup>1/</sup> This could even be done before a country issues its own currency.

affected dealers, and the association of dealers, when necessary. The central bank can also forestall any monopolistic or collusive tendencies by licensing additional dealers, including nonbank dealers.

A primary objective should be to foster competition in the foreign exchange market. This can be done by allowing freedom of entry into the market for creditworthy applicants. If the foreign exchange market is initially limited to few state banks and commercial banks, the market can be deepened by extending participation to other banks, with the proviso that they are not experiencing financial difficulties that would call into question their ability to honor exchange contracts. In addition, bureaux de change could also be licensed in order to improve retail service, to head off any collusion between the banks and to tap into the parallel market. These would operate mainly in currency and travellers checks.

Consideration could also be given to delegating responsibility for ensuring compliance of state enterprises with any transitional repatriation/surrender requirements to the fully licensed dealers. The central bank would supervise the dealer's performance by spot checks, as well as by revising aggregative data.



Currency Handling and Management

1. Currency handling operations

a. Operations and organization

In most new countries, the central bank will have experience in issuing currency as a former branch in the old currency area. This experience will include putting notes and coins into circulation, receiving them back, and sorting and counting them to be reissued. By the time the new currency is introduced, it will also have received new bank notes from the printer, counted them, packed them in bundles of usable quantity, and distributed some of the stock of its branches. With the issuance of the new currency, however, its currency handling operations will also have to expand to cover certain tasks it may not have undertaken in the past. These include using detection techniques to discover counterfeit bank notes, checking the quality of the used bank notes it receives to see that they are fit to return to circulation, and participating in the destruction of unfit bank notes.

In many cases, this will require a reorganization of the central bank's currency operations. Responsibility for these operations could be divided in the following manner:

(1) Putting bank notes and coins into circulation and withdrawing them could be done by the Cashier's Department. The department should also be charged with detecting counterfeit currency, removing unfit currency from circulation, and the safekeeping of the gold and other valuables of the central bank (such as bearer securities) entrusted to it.

(2) For reasons of internal control and security, the receipt of new currency bank notes, counting them, and packing them for distribution should be done by a department other than the Cashier's Department, possibly an Issue Department. This department should also be the central bank's contact with the printer of bank notes and minter of coins, arranging to purchase paper for the bank notes and for their printing.

(3) The Issue Department and the Auditor should cooperate in the destruction of unfit bank notes.

(4) The currency transportation system for all users need not be operated by the central bank and could be converted into a separate company. Until then, it would be appropriate for the central bank to charge other users for this service, with the service being carried out by the Cashier's Department.

A central bank does not need many branches to carry out currency handling. For example, Denmark manages currency without any branches even though the country includes the Jutland Peninsula and many islands. 1/

The Cashier's Department will need modern, currency handling equipment for counting, detecting, and sorting. Before entering into a contract, proposals and references from several companies should be obtained by the central bank. On the basis of these references, it could contact major Western central banks to learn about their experiences with the equipment.

b. Bookkeeping, rules, and controls

Accurate and extensive bookkeeping and controls are needed on the stock of bank notes and procedures used in the currency handling. Bookkeeping should be done by pieces of currency, not by denomination. This is because the handling capacity of the Cashier's Department, as well as the number of bank notes handled by each staff member, the capacity of the vault and the speed of the counting machines all depend on the number of bank notes and not their value.

Rules and procedures for receiving, counting, sorting, packaging, storing, and destroying currency should be drawn up by the Chief Cashier in consultation with the Auditor and approved by the Board of Directors of the central bank. Such rules and procedures are important not only for security reasons but also so that groundless suspicion is not directed at the central bank's staff.

Staff members handling bank notes, including cashiers and administrators, should be held personally responsible for the quality of their work. Each transfer of bank notes and each administrative action should be fully documented to leave a clear audit trail. The Audit Department will employ audit trails to regularly check the functioning of the departments handling cash. These audit trails will also be useful in tracking errors in handling bank notes when they occur. The rules should also ensure that bank notes are never handled by one individual alone and that the combinations of people handling the currency are rotated frequently, at irregular intervals.

Rules should also be developed to standardize counting procedures. This might include limits on the minimum number of bank notes the central bank will handle in a single transaction, as well as formal descriptions of the number of bank notes in the various packages the central bank will handle. For example, a bundle may always contains 100 bank notes, a packet may always contain 10 bundles and a sack may always contain 20 packets.

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1/ To do this, the Central Bank of Denmark has established 17 "depot banks" in the outlying areas. Each is operated by a commercial bank branch on behalf of the central bank to deliver currency to and receive it from commercial banks' branches (including the branch operating the depot bank).

2. Management of the currency in circulation after the conversion

The central bank will have to manage the currency in circulation after the conversion. Unlike in a command economy, the central bank should not try to control the amount of currency in circulation. Money holders should determine for themselves what part of their balances to hold as currency and what part to hold as deposits. Allowing money holders to make this choice is part of the central bank's function to provide an efficient payments mechanism. In addition, the central bank should assure that the new currency bank notes in circulation are of acceptable or higher quality.

It should be pointed out that, while the central bank should not seek to control the amount of currency in circulation, it should control the amount of reserve money in order to influence the amount of money and credit.

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