IMF PAPER ON POLICY ANALYSIS AND ASSESSMENT

PPAA/92/3 INTERNATIONAL MONETARY FUND

The Operation of the Estonian Currency Board*

by

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December 1992

Abstract

This paper describes the operation of the Estonian currency board arrangement that has pegged the Estonian kroon to the deutschemark since June 20, 1992, when Estonia left the ruble zone and introduced its own currency. The paper describes the institutional arrangements that were chosen for Estonia and discusses the implications for policy, the markets and program design. After reviewing the performance of the system over the first months of its operation, the paper considers how the arrangement will function over the medium term.

JEL Classification Number:

F31

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*The views expressed in this paper are the sole responsibility of the author. The paper has benefited particularly from discussions with and comments from Charles Adams, David Burton, Adalbert Knöbl, Susan Schadler, Basil Zavoico and Tapio Saavalainen.

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I. Introduction

On June 20, 1992 Estonia left the ruble area and introduced its own national currency, the kroon. In doing so, Estonia not only became the first of the countries of the former Soviet Union to introduce an independent currency, but also joined a small number of countries operating a currency board.

The currency board was once a common arrangement to effect monetary stability in the colonial territories of European powers, but is now comparatively rare 1/. A currency board was reintroduced in Hong Kong in 1983 to forestall a general crisis of confidence in that economy and its currency 2/. This arrangement provides a convenient foil against which to compare the Estonian system. Currency boards can vary from the relatively pure system such as that of Hong Kong, where there is no central bank, to more hybrid schemes that retain some limited central bank functions.

A currency board is a relatively simple institution to set up and run -- an important consideration in countries where expertise in central banking is limited. Provided the rules of the game are followed, a currency board can also be considerably more robust than a conventional central bank arrangement, although this benefit brings with it certain costs in terms of the loss of policy flexibility. Finally, currency boards provide a convenient way of garnering seignorage.

1/ For an analytical discussion of currency boards see Osband and Villaneuva (1992). See also Hanke and Schuler (1991) for a proposal for currency boards in an Eastern European/FSU context. For a description of the last example of a currency board in a neighboring geographical area (North-West Russia) see Spring-Rice (1919).

2/ For an analysis of the Hong Kong system see Greenwood (1984a).

II. Operating Principles

Under a currency board arrangement, the currency board agrees to supply or redeem local currency bank notes and, if applicable, reserve deposits of commercial banks held with the currency board for another currency -- normally a widely traded currency -- at an established exchange rate and without limitation. It will exchange local currency on no other terms. In particular, local currency bank notes will not be exchanged for local currency claims on other institutions. The decision to set up a currency board involves four main issues: (i) what liabilities to back (ii) how much backing to provide (iii) what to back with and peg to and (iv) who should have access to the board.

- The simplest arrangement is to back only bank notes, as in Hong Kong, where the currency board had no role in commercial bank clearing operations. This is the purest arrangement. In Estonia, on the other hand, it was decided to maintain the existing regime of reserve deposits. This was done partly because there was no effective system of interbank clearing in place outside the central bank, but also to ensure that banks held precautionary balances, over and above till money, against unexpected outflows. Such deposits, by virtue of being the liabilities of the Bank of Estonia and interchangeable with cash, would have to be backed in the same way as cash. The Estonian system is therefore a hybrid.

- To instill confidence that it can honor the pledge of convertibility the currency board should start with sufficient foreign exchange reserves to back a substantial proportion of the outstanding value of the relevant liabilities at the chosen exchange rate. Where confidence is lacking, this

proportion needs to be 100 percent. The Hong Kong system began with full backing at the linked exchange rate with the Office of the Exchange Fund and Estonia was fortunate enough to start with 90 percent backing by virtue of the restitution of pre-war gold by the Bank of England (with full backing later following the reclamation of further gold).

- The choice of currency to peg to will depend, inter alia, on the character of the currency (strong/weak) as well as on prospective trading relationships. In Estonia, consideration was initially given to linking to the ECU. Such a link would not have been as transparent as a link with a single well known currency, however, and would have greatly complicated the task of reserve management and conditions of exchange. While the Finnish mark or Swedish krona might have recommended themselves from the point of view of trade, the deutschemark was ultimately chosen on account of its strength and respectability. As for the exchange rate, this was set close to the equivalent prevailing market rate for the ruble at the time of the reform, taking into account conversion terms.

- The final question concerns who has direct access to the currency board. In Hong Kong, only the banks with note issuing authority have right to convert cash into foreign exchange. Individuals and enterprises must rely on arbitrage and the competitiveness of the banking system to ensure that the rates offered them are equivalent. In Estonia, in order to demonstrate to the general public that this guaranteed exchange was genuine, it was felt appropriate for the Bank of Estonia to provide a window through which it would convert bank notes into deutschemark and vice versa to all comers. The Bank found that it was a net seller of deutschemark through

this window and that its customers tended to be banks. This may reflect the fact that this was the only channel through which the Bank provided deutschemark bank notes. All other transactions were settled via account.

III. Institutional Arrangements

1. The balance sheet

To maintain the integrity of the currency board it must be prohibited from general discretionary lending. This is not to preclude occasional intervention to offset exceptional fluctuations in liquidity or to provide temporary assistance to a commercial bank, but this activity should be confined to those resources available to the authorities that are in excess of the requirements of the currency board. For this reason, the Bank of Estonia was divided into two departments: (i) the Issue Department and (ii) the Banking Department. The Issue Department balance sheet is endogenous to the economy at large - it is not controlled by the authorities. The Banking Department, on the other hand, represents the exogenous, or policy side of the central bank and as such it is very important to be able to distinguish the these activities from those of the Issue Department.

The Issue Department operates the currency board. Its liabilities are those qualifying for the guarantee of exchange - bank notes and deposits in kroon placed with the Bank of Estonia - and its assets are the foreign exchange sufficient to match its liabilities. Seignorage, in the form of interest earned, is passed, as it accrues, to the Banking Department.

The Banking Department holds excess foreign exchange reserves (balances surplus to the Issue Department) and is responsible for any residual central

banking functions -- in particular in connection with payments arrangements with the FSU. If the need arises, the Banking Department will provide loans to the banking system for emergencies. All other outstanding commercial banking operations that were undertaken by the former central bank were transferred to the Northern Estonian Bank.

This division of responsibilities serves to ensure that, whatever assistance the Bank of Estonia chooses to give to the banking system, it cannot exceed its surplus foreign exchange reserves and therefore cannot compromise the currency board, provided the authorities play by the rules of the game. These rules require the Banking Department to "purchase" the kroon resources that it proposes to lend from the Issue Department, in exchange for its surplus foreign exchange reserves 1/.

2. Relations with the FSU

Ideally, financial transactions with states of the FSU would have been left to the commercial banks of the respective countries to settle themselves, but at the time of the monetary reform, the Russian authorities did not want any ruble transactions to take place on Estonian soil. As a result, they requested that all transactions be settled at the level of the central banks, and for this purpose the central bank of each country opened an account with the other. The account of the Central Bank of Russia with the Bank of Estonia was credited with EEK 50 million, while the reverse

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1/ Contrary to usual arrangements, reserves held by the Issue Department should not be diversified, but held entirely in the currency to which the kroon is pegged, lest exchange rate changes undermine the backing. Reserves held with the Banking Department, on the other hand, can be handled in a more conventional manner and diversified.

arrangement involved the credit of Rub 500 million. At the time of the currency reform, these were equivalent amounts.

The kroon balances were clearly a liability of the Bank of Estonia, but they were not automatically exchangeable into foreign exchange, being linked explicitly to the settlements for trade between the two countries. Reflecting this differentiated status, these liabilities were not incorporated into the Issue Department balance sheet, but featured instead in that of the Banking Department which, with restituted gold soon exceeding the requirements of the Issue Department, was more than able to back these claims 1/. As these kroon balances were run down, mostly to pay for Russian Army still in Estonia, the kroons showed up instead as cash liabilities of the Issue Department, and equivalent sums in foreign exchange were thereby transferred from the Banking Department to the Issue Department. Since this is a process which, if repeated, would rapidly exhaust the Banking Department's excess hard currency reserves, the Bank of Estonia is hoping to devolve responsibility for Estonia/Russia financial settlements to the commercial banking sector 2/.

3. Savings Bank

A special problem surrounded the Savings Bank, home of the majority of personal savings in Estonia and whose accounts had been frozen since January 1, 1992. This bank effectively had no assets, since the proceeds of all deposits were traditionally remitted to Moscow, and their settlement was

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1/ Nor did the ruble balance, which featured in the balance sheet of the Banking Department, qualify as reserve backing.

2/ To this end, commercial banks in Estonia are now permitted to hold correspondent accounts with commercial banks in Russia.

caught up in the negotiations between Russia and Estonia. With the high rate of inflation experienced in early 1992, however, the real value of these balances had, by the time of the monetary reform, shrunk substantially. Since the cost in terms of reserve backing was relatively small (EEK 230 million, or about US$ 20 million), it was decided to guarantee the conversion of these Savings Bank liabilities into cash. This meant that the Savings Bank was effectively 100 percent capitalized, and the Issue Department accordingly treated the liabilities of the Savings Bank as its own when drawing up the balance sheet.

The advantage of this treatment of the Savings Bank was twofold. First, some testing of the new system was expected and the backing of Savings Bank deposits meant that panic withdrawals could be met without closing its doors. Secondly, it meant that the economy had a reserve of liquidity which it could draw upon - if citizens could be persuaded to exchange the guarantee attached to Savings bank deposit for an interest bearing, but unguaranteed deposit with a commercial bank 1/. In the event, the feared withdrawals failed to materialize.

IV. Policy Implications

1. Government finances

One of the primary conditions of the currency board is that the central bank, or currency board, cannot lend to the government. If this were to happen in Estonia, the currency board would find its kroon liabilities

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1/ In fact, Savings Bank accounts also pay interest, but the interest payable is low (some 3-4 percent per annum) compared to those available in the banks (20-30 percent).

backed by domestic claims, typically also kroon denominated, and this would rapidly undermine the viability of the peg.

Since the government cannot obtain finance from the central bank, this means that domestic financing, if needed, must be obtained instead from the commercial banks. Given the present difficulties faced by banks in Estonia, where there are few resources to lend even to the private sector, it was appropriate to marry the currency reform with a commitment by the government to balance the budget in 1992. This commitment was met.

A balanced budget is not a necessary corollary of the currency board, but the government must realize that any borrowing it undertakes will crowd out borrowing by the private sector, except insofar as it obtains additional foreign finance. The success of the Hong Kong system is not unrelated to the fact that the government traditionally runs a surplus.

2. Open market operations

Under a currency board, both the level of interest rates and the yield curve are genuinely market determined. In this sense, a currency board deprives the authorities of the degree of freedom that is retained, by sterilizing foreign exchange intervention, under an exchange rate peg. A currency board can, in essence, be viewed as a pegged exchange rate where open market operations, and thereby sterilization, are prohibited. This implies the complete loss of control over interest rates.

By foregoing the ability to control interest rates, however, the authorities gain a more robust exchange rate. This is because attempts to control interest rates through open market operations typically leak quickly into changes in the reserves. Under a currency board, open market

operations are not permitted, and this process of reserve hemorrhage is thereby ruled out.

Along with control over interest rates by means of open market operations, control through administrative action is also ruled out. Any attempt by the government to administratively control interest rates would lead to the early collapse of the system, since it interferes with the mechanism whereby banks bring equilibrium to the distribution of monetary assets and liabilities. If interest rates are set too low, for example, banks would be subject to excess withdrawals - leading ultimately to their collapse. For this reason, the Bank of Estonia makes no attempt to influence interest rates, either through open market operations, which are explicitly ruled out, or through administrative guidance, either on their level or spread. A corollary of this is the absence of any official "discount rate" or other statement of preferred interest rates 1/

3. Lender of last resort

The inability to influence interest rates also limits the Bank of Estonia's role as guarantor to the banking system. Any assistance that may be given to a weak bank must be confined in scale to the excess foreign exchange reserves held by the Banking Department. Such assistance would normally be available only on a case by case basis. With the finite resources available, this means that the central bank cannot act as "lender of last resort". It cannot underwrite the banking system.

In Estonia, the very tight monetary conditions that the currency board entails in present circumstances have combined with banks' weak balance

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1/ No interest is payable on banker's deposits with the Bank of Estonia.

sheets to render several banks illiquid (see below). This reflects to a large extent the poor quality of loans inherited from the Soviet past, as well as the freezing of dollar assets in Moscow, making some banks insolvent. The pressure to lend to these banks has unfortunately proved difficult to resist, although up to November the amounts were well within the resources of the Banking Department. While the limited provision of liquidity may be within the scope of the Bank of Estonia, however, the task of dealing with insolvency should ordinarily be a fiscal responsibility.

4. The scope for devaluation\revaluation

Although in principle, an exchange rate fixed by means of a currency board could be adjusted - upwards or downwards - this rarely occurs under the stricter currency board regimes. In Hong Kong, there has been periodic discussion over the possibility of realigning the Hong Kong dollar, but always the decision has been against 1/. The view taken is that once the certainty of the exchange rate is removed, some of the undoubted resilience of the exchange rate would in future be compromised. In addition, market interest rates would become even more variable, as participants speculated about the prospects for a future realignment.

In Estonia, the rising price level obviously implies a progressive loss of competitiveness. This loss of competitiveness has led some to expect that the kroon will at some point have to be devalued. It is important, however, for the authorities to discourage this assumption, since it is already having the adverse effect of propping up the long end of the interest rate yield curve.

1/ See, for example, Greenwood (1984b).

5. Exchange controls

One of the advantages of a currency board is that its robustness usually permits a very liberal structure of exchange arrangements. In fact it works most effectively under liberal conditions - the Hong Kong arrangements are probably amongst the most liberal in the world. However, there may still be a case for interim capital controls if the banking system, prior to restructuring, lacks viability and the full confidence of the public. For this reason, the Estonian currency board was set up with a system of capital controls. This system required the surrender of foreign exchange earnings to authorized commercial banks and precluded the purchase of foreign exchange with kroon for anything other than current transactions 1/. This would prevent the transfer of funds abroad, in the event of a bank run, thereby protecting the liquidity of the banking system as a whole, except to the extent that kroon cash was withdrawn from banks by the public.

The same principle applied to personal transactions, where purchases of foreign exchange required proof of travel or other current account need. As confidence in the kroon grew, however, the Bank of Estonia ceased to enforce these rules for individuals, although they remain in force for enterprises and institutions. Some liberalization, even in this area, was however, necessary, as enterprises that needed to turn around their funds relatively quickly found themselves hit by commissions both ways. Accordingly, enterprises that could prove a subsequent import requirement within 2 days, were freed from the surrender requirement. Meanwhile, enterprises which

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1/ This surrender had to be completed the day following repatriation for domestic accounts, and within thirty days for overseas accounts.

could demonstrate the need for working balances abroad could apply for a license to hold overseas accounts, for which the surrender requirement was waived. As confidence in the banking system recovers, it would be appropriate for the remaining capital controls to be relaxed in due course.

V. The Implications for the Foreign Exchange Market

While the currency board may fix the rate of exchange between cash and foreign currency, there may still be an active foreign exchange market - although rate movements will rarely be of any magnitude. Under a Hong Kong type arrangement, where the exchange rate is for notes only, the principal role for the market will be to allow banks to trade each other's deposits for foreign exchange. In the same way as the gold standard allowed for small deviations in exchange rates - the so called "gold points" - beyond which it became profitable to ship gold and arbitrage the deviations, so under a currency board small deviations can occur in the foreign exchange market (for bank deposits) from the currency board rate. If pressure exists on the currency, for whatever reason, the deviation from the currency board rate will never be large, because the incipient arbitrage (drawing down bank deposits in exchange for notes which can be exchanged at a favorable rate for hard currency) would induce banks to raise interest rates to whatever level was required to abort the arbitrage.

In Estonia, these deviations will typically be negligible -- for deutschemark transactions. This is because the Estonian currency board guarantees the exchange not just of bank notes, but also of deposits of commercial banks held with the central bank. Thus a bank wishing to

purchase deutschemark can present the central bank with a cheque drawn on another bank's account with the central bank. For other currencies, on the other hand, this guarantee does not hold, but the arbitrage process will instead operate through the cross rates.

This has prompted calls from the commercial banks for the central bank to guarantee exchange for other currencies too. It is not the job of the currency board to operate as a clearing house for foreign exchange transactions. However, recognition that banks running up against legal requirements concerning their "open positions" may be required to convert currencies other than deutschemark into kroon at short notice has led the Bank of Estonia to agree to convert other currencies for marginal transactions required by these regulations.

In the absence of an active interbank market in foreign exchange, competition considerations argued in favor of the retention of the less efficient auction market, which meets only periodically. Although enterprises were obliged to surrender foreign exchange to commercial banks, they were entitled to ask such banks to sell foreign exchange in the auction market, if they felt they were not being offered a sufficiently competitive rate. However, the deadline for surrender has proved too tight for the auction market to perform this competitive check on the banking system. Instead the auction market continues to perform its traditional forum for trading rubles, chiefly for dollars, but now also for deutschemark and kroon. In consequence of the lack of competition, enterprises have complained about the cost of buying and selling foreign exchange in dealing with the commercial banks. For this reason, the Bank of Estonia has set a

limit on the maximum spread, including commission, that banks may operate between buying and selling foreign exchange.

VI. The Implications for Program Design

The existence of the currency board arrangement in Estonia has necessitated some changes to the usual IMF performance criteria. In particular, the fact that the currency board's balance sheet is effectively determined by the demand for cash means that the reserves employed to back the note issue are not under the control of the authorities. It therefore makes no sense to set targets for such reserve holdings, as is customary in IMF programs, since the authorities cannot control the public's demand for cash. Targets can, however, be retained for those reserves that are surplus to the requirements of the currency board -- those of the Banking Department -- since these are under the direct control of the authorities. Since the exchange rate is preserved through the operation of the currency board and by virtue of the reserves of the Issue Department, these surplus reserves have no further role as regards conventional balance of payments considerations. This reflects the fact that, under a currency board, pressures that normally give rise to balance of payments problems and the loss of reserves give rise instead to pressures within the domestic banking system and rising interest rates. These excess reserves thereby rather serve as a means for supporting the banking system should the need arise.

Clearly, it would be appropriate for these reserves, finite in amount and not easily supplemented, to be used in a parsimonious and prudent manner. It therefore makes sense to set targets for these surplus reserves,

in other words to target total reserves less the currency board cover. Accordingly, the present standby arrangement employs (minimum) targets for such reserves. Since these reserves are to be used, in exceptional circumstances, for the purposes of supporting banks, a reserve target of this type doubles also as a ceiling on central bank net domestic assets. There is therefore no need for a separate performance criterion for net domestic assets. On the other hand, the requirement that government borrowing be kept to a minimum in the initial stages of the Estonian currency board arrangement leads naturally to a ceiling on net government borrowing from the banking system.

VII. Performance so far

1. The conversion

The first stage of Estonia's currency reform involved the conversion of ruble balances, in the form of both cash and deposits, into kroon. To avoid the conversion of unauthorized quantities of rubles, individuals wishing to convert rubles were required to register, with proof of residency, before the day of the reform. Those that did so were permitted to convert up to 1,500 rubles (about $12) in cash into kroon at the conversion rate of 10 rubles to 1 kroon. Cash balances in excess of this amount could be converted at the less favorable rate of 50 rubles per kroon. Household deposit accounts with the Savings Bank were converted at the same rate as for cash, with no upper limit. Cash balances held by enterprises and banks were collected by the Bank of Estonia and converted without limit at 10

rubles per kroon 1/. All rubles on account, as well as ruble borrowings, with regard to domestic banks, were redenominated into kroon at this rate, without limit 2/. Ruble correspondent balances with other states of the FSU were set aside under the aegis of the Bank of Estonia for subsequent settlement on terms that remain to be negotiated. Thus converted, the exchange rate for the kroon was set at EEK 8 per DM, equal to the equivalent prevailing market rate for the ruble (Rub 80 per DM). This was considered to be a very competitive level from which to launch the kroon.

2. The balance sheet

At the time the currency board was set up, the agreed conversion terms for outstanding rubles resulted in the currency board assuming kroon liabilities that were somewhat greater than the outstanding reserves available, although it was realized at the time that the deficiency would be made up. On June 20, kroon liabilities, including provision for the liabilities of the savings bank, amounted to EEK 754 million, whereas foreign exchange reserves (gold from the Bank of England) amounted to only EEK 685 million. This small deficiency was duly made up on July 8 by the timely arrival of funds in lieu of pre-war gold from Sweden (some US$ 31 million) and by July 17, the excess reserves held by the Banking Department stood at EEK 121 million (about US$ 10 million). This surplus position was supplemented later in July by the first tranche of pre-war gold owed to Estonia by the BIS. The second tranche of the BIS gold (those deposited in

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1/ Ruble cash balances collected by the Estonian authorities in this manner are to be returned to Russia in due course, on terms that remain to be agreed.

2/ Further details of the reform, with the associated decrees and other legislation, can be obtained from the report of the Bank of Estonia (1992).

the New York Federal Reserve) was not released until the end of September, by which time the surplus position of the banking department stood at the equivalent of some US$ 40 million.

The evolution of these excess reserves can be gauged from Chart 1, which shows how reserves have grown, both those accruing to the Issue Department and those of the Banking Department. Issue Department reserves were, as noted, insufficient to cover liabilities at the outset, so the balance sheet includes a temporary item denoted "capital" representing negative net worth. This was quickly eliminated as additional gold is restituted and thereafter the Issue Department was fully capitalized. The surplus foreign exchange then shows up in the Banking Department. In addition to this, the Banking Department features lending (initially advances of kroon bank notes to banks dating from the currency reform, later featuring loans to troubled banks 1/). The nature of the operation of the Banking Department means that the totality of reserves and loans should be broadly constant (apart from restitution of gold), but the mix between the two will reflect the use of reserves to finance lending. As can be seen, significant reserve use occurred during the September/October period, reflecting the problems brewing in the banking sector - problems which led ultimately to the Bank of Estonia closing three banks in November. Nonetheless it can be seen that as of end October, notwithstanding the loans

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1/ The interest rate on these loans varied, from a maximum of ten percent to zero, and were never punitive. The maturity was generally of one year. Some of these loans to banks have turned out to be covert loans to government agencies - with the National Grain Board featuring prominently.

made by the Banking Department, reserves remained substantially in excess of currency board liabilities.

Turning to the currency board (Issue Department) balance sheet, Chart 2 shows that the opening liabilities were approximately equally divided between kroon notes, Savings Bank deposits and commercial bank reserve deposits. As time passed, however, virtually all the growth was in kroon note issue. Outstanding kroon notes rose by 198 percent between June 20 and September 30, compared with an overall rise in the monetary base (the Issue Department liability) of 91 percent, and a growth in broad money in the three months to end September of only about 5 percent. By end September, kroon cash balances outside the banks represented some 22 percent of broad money, compared with only 7 percent at end June. Clearly, the prevalent distrust of the banking system was contributing to pronounced liquidity preference, limiting in turn the growth of broad money.

3. The involvement of foreign banks

Several banks in Finland and Sweden now quote exchange rates for kroon with Finnish banks holding kroon deposits in Estonia for this purpose. The respectability of the kroon was recently enhanced on December 1 when the Bank of Finland announced it would henceforth quote rates for the kroon (for information purposes). Thus far, one small American bank - the Baltic American Bank - has set up business in Estonia and on December 3 a large Finnish bank, Yhdyspankki, opened a representative office in Tallinn.

Bank of Estonia

Issue and Banking Departments

(June – November 1992)

Chart 1

Bank of Estonia Assets

Reserves and loans (EEK million)

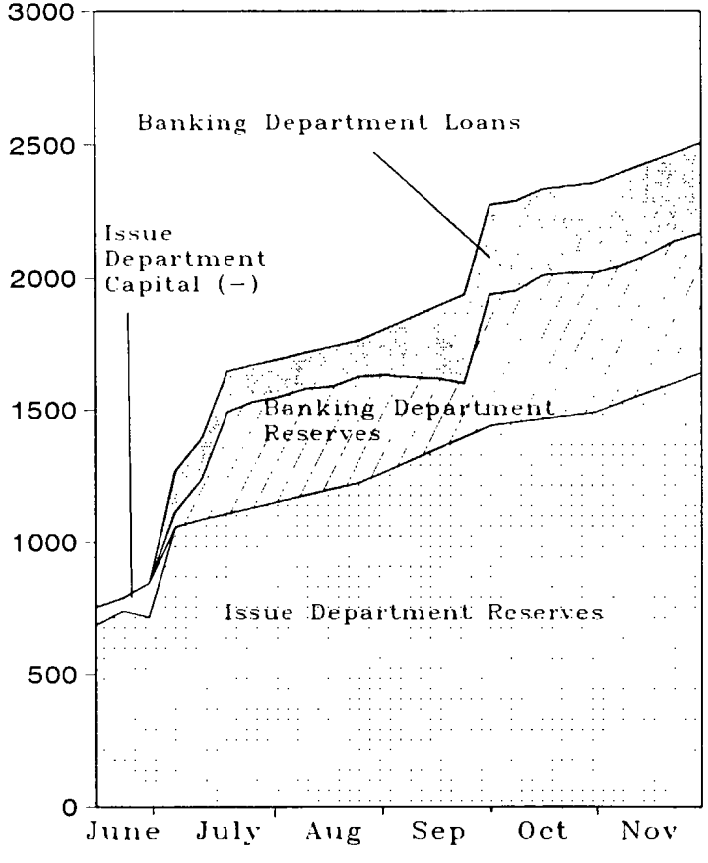
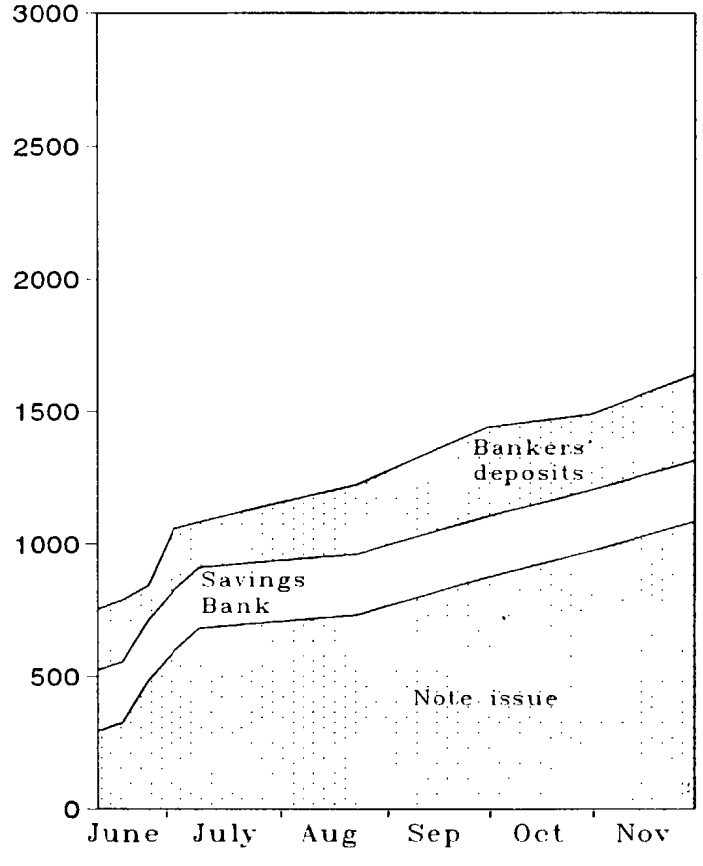


Chart 2

Issue Department Liabilities

Composition (EEK million)



Source: Bank of Estonia and staff estimates. Note that Bank of Estonia assets do not include those with FSU or other miscellaneous pre-reform assets.

4. The domestic banking system

Reflecting, in part, the constraint placed on the Bank of Estonia in its ability to provide liquidity to the banking system, the latent insolvency of a number of banks was rapidly translated into illiquidity. In November three banks, for which there was an ever growing queue of unpaid cheques drawn on their accounts, were subject to moratoria on the authority of the Bank of Estonia. Two of these banks, Union Baltic Bank and the Northern Estonian Bank (itself a spin-off from the pre-reform central bank), suffered from the freezing of foreign exchange deposits in Moscow (some $US 70 million) in January 1992, but of which the banks were only made aware three months later. All three banks suffered additionally from a portfolio of doubtful loans. In the case of Tartu Kommertspank, these reflected as much imprudent lending since the monetary reform as problems inherited from the past. Reflecting this apparent culpability, the authorities decided at the end of December to liquidate Tartu Kommertspank. The other two banks, on the other hand, were to be merged into a new bank, Union North Estonian Bank, for whose restructuring the Bank of Estonia was given responsibility. This potentially puts at risk the remaining surplus reserves of the Banking Department, but, at the time of writing, the details of the restructuring and recapitalization were not yet worked out.

These three banks might have survived longer if the central bank had been more liberal in supplying funds than was permitted by the currency board and the standby arrangement, but in the absence of their recapitalization, this could only have delayed the inevitable collapse. And the restoration of solvency is, on way or another, a fiscal responsibility.

5. Inflation and competitiveness

Inflation since the currency reform has been slower than in the neighboring Baltic states, as Chart 3 shows, where more conventional monetary arrangements are followed and the exchange rate allowed to float (see Chart 4). Inflation has nonetheless been higher than expected, and will soon erode Estonia's margin of competitiveness if it continues at its present rate 1/. Average wages, in dollar terms, moved up following the currency reform and are now significantly higher than those in Latvia or Lithuania (Chart 5). Trade with the industrialized countries of the West, however, doubled in the third quarter relative to the second and has therefore yet to be impeded by this erosion of competitiveness, presumably reflecting the very competitive starting position of the exchange rate.

VIII. The Medium Term

Over the medium term, it is reasonable to expect the Estonian economy to grow. As it grows, the requirements for liquidity will also grow. However, this does not mean that Estonia must run a current account surplus to generate the growth of money that would otherwise be supplied domestically. This is because liquidity can be supplied through the capital account as well as through the current account. For Hong Kong, one of the principal financial centers of the Pacific rim, capital is very mobile and the economy is thereby always assured a sufficiency of cash to service the

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1/ It should be cautioned that these recent price increases also partly reflect the liberalization of previously administered prices as well as distortions in the composition of the price indices that resulted from the monetary reform in June.

The Baltic States

Prices, Exchange Rates and Wages

(June - November 1992)

Chart 3

Consumer Price Index
(May 1992 = 100)

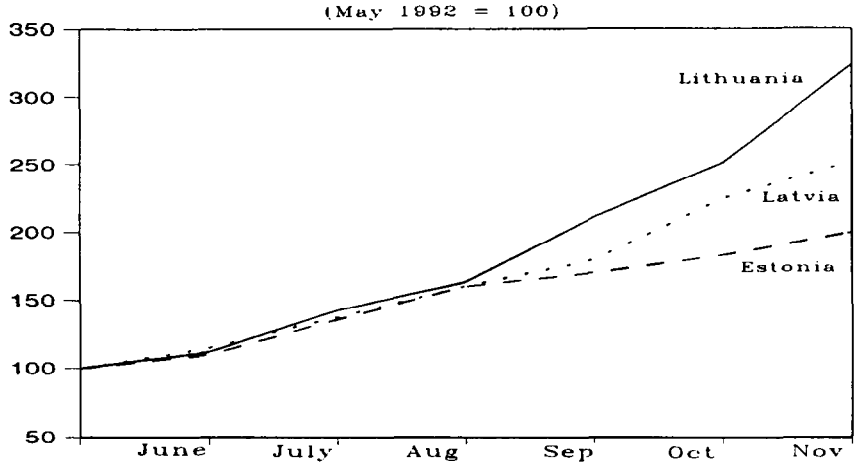


Chart 4

Market Exchange Rates
(Local currency per US dollar)

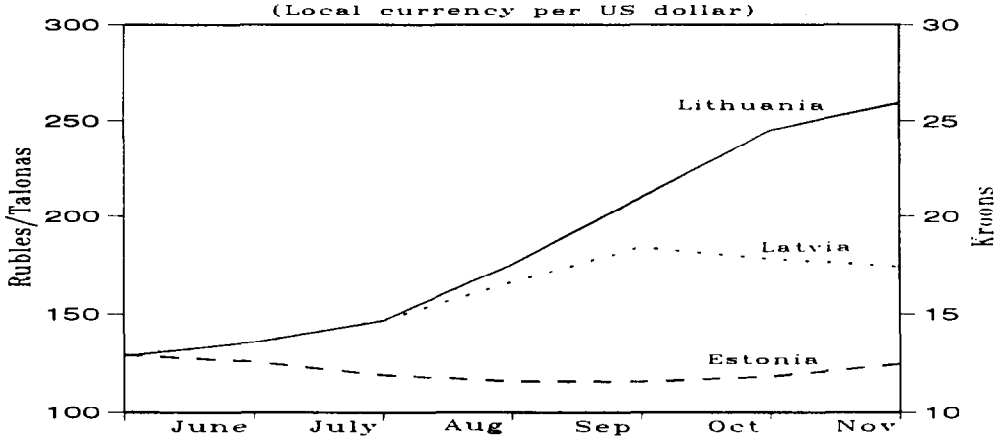
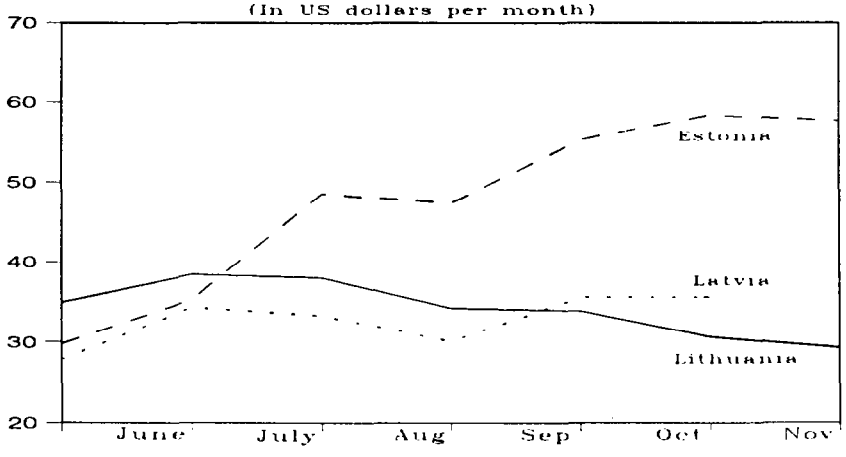


Chart 5

Average Wages
(In US dollars per month)



Source: Estonian, Latvian, Lithuanian authorities and staff estimates

economy. For Estonia, on the other hand, capital will not be anything like so mobile, and the first years of the arrangement are likely to be characterized by a fairly severe financial squeeze as the price level is forced to adjust to the note issue rather than the other way around.

However, it is only the growth of base money that is constrained by the rules of the currency board and cash is only one component of the money supply. Since the cash to money ratio is currently very high in Estonia, there is plenty of scope for the money multiplier to generate growth in broad money, as the cash to broad money ratio declines, which should occur as the banking system recovers its health and confidence is restored. In the short term, while the capital account can be expected to be rather less fluid than that, for example, of Hong Kong, this might be the primary manner in which broad money will grow. Clearly, this mechanism will be impeded if problems in the banking system remain unresolved.

In the medium term, however, the capital account should be the main channel through which base money will grow. This process should be facilitated by the entry of foreign banks into the domestic banking system. The existence of a branch banking network undoubtedly helped channel the required inflows and outflows of liquidity under the British colonial currency boards.

Initially interest rates can be expected to remain considerably higher than those prevailing on equivalent deutschemark assets because of (i) expectations of a future realignment (already discussed) and (ii) the problems, and thereby riskiness, of the Estonian banking system. As it becomes clear to market participants that the authorities will not

countenance a realignment, and as the banking system is overhauled and recapitalized, market interest rates in Estonia should steadily decline. Eventually, if the supply of liquidity through the capital account proves adequate, interest rates should converge towards those of the deutschemark.

While interest rates may converge on those of Germany, there is no reason to expect inflation to do so. Initially, the divergence can be expected to be large, reflecting the super-competitive level of the exchange rate at the time of the currency reform. Some upward move in the real exchange rate from this level is bound to occur, and is clearly reflected in recent monthly price increases in Estonia.

Quite apart from this initial rise in prices, inflation in Estonia might be expected to remain above that of Germany even over the medium term. This is because a developing economy such as that of Estonia, starting from a very low level of productivity on account of its inherited Soviet industrial capital base, may be expected to enjoy much faster productivity growth in manufacturing and other export oriented industries than that of more mature economies such as Germany. The rising incomes that this generates will translate into a rise in the Estonian real exchange rate over the medium term. With a fixed nominal exchange rate, this suggests that inflation will be comparatively fast in Estonia. This factor helps explain why inflation in Hong Kong, for example, is consistently higher than that of the United States, despite the peg of the Hong Kong dollar to the US dollar. To the extent that a higher rate of inflation derives from this source, there is no reason why it should impugn the viability of the peg. Inflation that was not matched by productivity growth, however, would be cause for concern.

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