

Der Open-Access-Publikationsserver der ZBW – Leibniz-Informationzentrum Wirtschaft
The Open Access Publication Server of the ZBW – Leibniz Information Centre for Economics

Buch, Claudia M.

Working Paper

Dealing with bad debt: Lessons from Eastern Europe

Kiel Working Papers, No. 642

Provided in cooperation with:
Institut für Weltwirtschaft (IfW)

Suggested citation: Buch, Claudia M. (1994) : Dealing with bad debt: Lessons from Eastern Europe, Kiel Working Papers, No. 642, <http://hdl.handle.net/10419/47021>

Nutzungsbedingungen:

Die ZBW räumt Ihnen als Nutzerin/Nutzer das unentgeltliche, räumlich unbeschränkte und zeitlich auf die Dauer des Schutzrechts beschränkte einfache Recht ein, das ausgewählte Werk im Rahmen der unter

→ <http://www.econstor.eu/dspace/Nutzungsbedingungen> nachzulesenden vollständigen Nutzungsbedingungen zu vervielfältigen, mit denen die Nutzerin/der Nutzer sich durch die erste Nutzung einverstanden erklärt.

Terms of use:

The ZBW grants you, the user, the non-exclusive right to use the selected work free of charge, territorially unrestricted and within the time limit of the term of the property rights according to the terms specified at

→ <http://www.econstor.eu/dspace/Nutzungsbedingungen>
By the first use of the selected work the user agrees and declares to comply with these terms of use.

Kieler Arbeitspapiere

Kiel Working Papers

Kiel Working Paper No. 642

**Dealing With Bad Debt –
Lessons From Eastern Europe**

by
Claudia M. Buch

July 1994



Institut für Weltwirtschaft an der Universität Kiel
The Kiel Institute of World Economics

ISSN 0342 - 0787

Kiel Institute of World Economics
Düsternbrooker Weg 120, D-24105 Kiel

Kiel Working Paper No. 642

**Dealing With Bad Debt –
Lessons From Eastern Europe**

by
Claudia M. Buch

July 1994

554805

The authors themselves, not the Kiel Institute of World Economics, are responsible for the contents and distribution of Kiel Working Papers.

Since the series involves manuscripts in a preliminary form, interested readers are requested to direct criticisms and suggestions directly to the authors and to clear any quotations with them.

Dealing With Bad Debt – Lessons From Eastern Europe*

Table of Contents

I. Introduction	3
II. Banking Crisis vs. Banking Distress	4
1. Conceptual Notes	4
2. Empirical Evidence from Eastern Europe.....	10
Non-Performing Loans	10
Money Multiplier.....	14
III. Policies to Prevent the Crisis	16
1. Restoring Solvency	16
2. Containing the Flow of Bad Debt.....	21
3. First Solutions.....	24
The Czech Republic.....	24
Estonia	26
Hungary.....	28
Poland	31
IV. Outlook.....	33

Graphs and Tables

Table 1: Classified Loans as a Percentage of Total Loans, Domestic Credit, and GDP, 1990 - 1993.....	14
Table 2: Potential Interest Costs of Bank Recapitalization, 1991 - 1993.....	18
Table 3: Participation in Hungarian Loan Consolidation Scheme.....	30
Table 4: Classification of Loan and Bank Consolidation Programs	39
Graph 1: Indicators of Financial Crisis.....	42
1. <i>Czech Republic, 1990-1993.</i>	
a) Currency as a share of M2 [in percent]	
b) Money Multiplier, 1993	
2. <i>Estonia, 1992-1994.</i>	
a) Money Multiplier	
b) Monthly Growth Rate of Reserve Money [in percent]	
3. <i>Hungary, 1990-1993.</i>	
a) Money Multiplier	
b) Monthly Growth Rate of Reserve Money [in percent]	
c) Real Central Bank Credit to Non-Governmental Sector [in billion Forint]	
4. <i>Poland, 1990-1993.</i>	
a) Money Multiplier	
b) Monthly Growth Rate of Reserve Money [in percent]	
c) Real Central Bank Credit to Non-Governmental Sector [in Billion Zloty]	

* This paper reports on research activity undertaken in a project on "Financial Market Reform in Eastern Europe – Precondition or Result of a Successful Transformation Process?". Financial Support from the Volkswagen-Stiftung is gratefully acknowledged. The author wishes to thank Dr. Miroslav Hrnčir and Dr. Michael Koop for their most helpful comments on an earlier version of this paper.

I. Introduction

Despite having been candidates for the next banking crises to come over the last couple of years, the reform states of Eastern Europe seem thus far to have done remarkably well in avoiding major financial collapses. Banking distress has in most cases not yet turned into banking crisis. These supposed successes, however, have only come at the cost of state intervention in the financial systems which often took the form of ad hoc rescue operations rather than being part of a coherent overall reform package. Although the problem of non-performing loans on the balance sheets of Eastern European banks is far from being resolved, first signs indicate that at least some banks are transforming into risk-cautious lending institutions. Many successor states of the Soviet Union, in contrast, have not yet started to restructure their banking systems. Often, structural problems remain covered by negative real interest rates and by a flow of direct and indirect subsidies to firms.

This paper intends to serve two main purposes. First, it analyzes the different strategies that have been implemented by the reform states of Eastern Europe in order to avoid large-scale banking failure. Secondly, the paper gives some outlook as to the perspectives of financial market development in the more advanced reform states. The major findings of the paper are that the stock problem of inherited bad debt has already been dealt with in the more advanced reform states. Future bail-outs would thus entail severe moral hazard problems. Nevertheless, the danger of large-scale banking crises has not yet been removed from Eastern Europe. Especially as banks gain strength and expand their operations into new business activities, banking risks will increase, and the implementation of tight prudential regulations through a functioning banking supervision becomes key. In less advanced economies, especially in parts of the former Soviet Union, an efficient financial and banking sector can only emerge if banks are no longer used as agents of the Ministry of Finance that channel cheap credits to preferred sectors of the economy. As part of an encompassing reform program in these states, banks should be recapitalized for the stock of non-performing loans which results from this form of indirect subsidization. Such a recapitalization program must be closely tight to the privatization of banks and may, for an interim period, comprise ceilings on loans from state-owned banks to state-owned enterprises.

The paper proceeds as follows. The second part reviews the potential causes for banking crises and assesses the situation of the banking systems in the Czech Republic, Estonia, Hungary, and Poland. The third part gives an overview over policy measures that can be implemented in order to contain the stock as well as the flow problem of non-performing loans and analyzes the measures that have already been implemented in this regard by the four countries. The fourth part concludes.

II. Banking Crisis vs. Banking Distress

I. Conceptual Notes

Banking crises can have liquidity or solvency problems as underlying causes which, albeit being closely related, should be strictly separated. Because banks finance long-term assets with short-term liabilities, they run into *liquidity problems* as soon as they cannot easily refinance short-term deposits that are being withdrawn in an unforeseeable way. This can be shown upon inspection of a bank's balance sheet restriction [Baltensperger/Milde, 1987]:

$$(1) \quad R + L = D + E$$

where R = (liquid) reserves, L = (illiquid) loans, D = deposits, and E = equity. As soon as stochastic withdrawals of deposits (W) exceed the amount of reserves, the bank is illiquid and may have to borrow additional liquidity at the Central Bank at an interest rate r^p :

$$(2) \quad W \geq R \Rightarrow X = r^p \cdot (W - R)$$

where X = liquidity costs as a function of reserves and deposits. Hence, banks which are facing liquidity problems may turn to the central bank as a lender-of-last-resort or use its discount window.¹ As an alternative to borrowing with the Central Bank, *maturity risks* can be managed by taking recourse to inter-bank money markets as long as the solvency of the bank is not being questioned.² On these markets, other banks offer their excess liquidity at a market interest rate.

In developed market economies where liquid inter-bank markets exist and where assets which might serve as collateral for central bank refinancing are available, pure liquidity problems of banks are rarely a major concern. In the emerging market economies, however, where neither of these conditions is met, liquidity problems may actually suffice to put the overall viability of a bank at risk. This holds in particular because bankers are inexperienced with maturity management. In such a situation, a bank run is individually rational although it may be collectively irrational [Baltensperger/Derrmine, 1992, p. 279]. If depositors expect the bank to become illiquid in the future, it is rational for each depositor to try and be the first to

¹ In Estonia, where the central bank does not offer such services, the question of how to prevent liquidity crises from causing banking crises is of special importance. Hence, the central bank requires commercial banks to hold fairly large required reserves on which they can draw as emergency credits [see part III.3].

² One solution to liquidity problems could be to sell part of the bank's assets and to use the sales proceeds to pay off depositors. An immediate sale of the bank's assets may, however, yield less than the book value of the assets. This is the case if the value of the banks' assets contains some bank-specific information that is not easily verifiable to outside investors.

withdraw his or her deposit. From a collective point of view, however, such a bank run is irrational since it puts the viability of the bank or even of the banking system³ at risk.

Despite the importance of liquidity problems of banks in Eastern Europe, this paper will focus on *solvency issues* which relate to the quality of the bank's assets and thus to the *credit risk* that a bank faces. Insolvency is defined as a situation in which the expected return does not suffice to cover costs or

$$(3) \quad (1 + \mu^L) \cdot L < K(L, D) + X(R, D) + (1 + \mu^D) \cdot D$$

where μ^L (μ^D) = expected interest rates on loans (deposits), and K = operating costs.⁴ The bank's expected profits (π) thus become

$$(4) \quad \pi = \mu^L \cdot L - \mu^D \cdot D - K(L, D) - X(R, D) - Y(L, D) - \rho \cdot E$$

with Y = insolvency costs which can be interpreted as the costs of restructuring the bank's asset portfolio or of negotiating with its debtors, and ρ = opportunity costs of holding equity. Even if the maturity structures of assets and liabilities perfectly match, the bank may recover less than a dollar on each dollar lend and may thus not be able to fully repay its depositors because of the stochastic nature of the lending rate. Again, a bank-run is the likely outcome because depositors who start to doubt the quality of the bank's assets will find it rational to be the first to liquidate their deposits.

A *banking crisis* in this paper will be defined along the lines proposed by Sundararajan and Balino as "a situation in which a significant group of financial institutions have liabilities exceeding the market value of their assets, leading to runs and other portfolio shifts, collapse of some financial firms, and government intervention." [Sundararajan/Balino, 1991, p. 3] A banking crisis describes therefore a situation in which banks are both, insolvent and illiquid. The portfolio shifts which a banking crisis sets into motion are typically reflected in a rising ratio of currency-to-deposits [Brunner/Meltzer, 1988, p. 447] and thus in a contraction of money supply.⁵ The likely increase in real interest rates is one channel through which a banking crisis may have negative feedback effects on the real sector. Mishkin [1992, 1994] offers a different interpretation of a financial crisis which addresses the causes of banking failures. He defines a financial crisis as a situation where a disruption of financial

³ This is the case if, due to incomplete information, bad news about one bank are interpreted as bad news about other banks of similar structure.

⁴ Hence, in a one-period model, illiquidity may be interpreted as the inability to service depositors *during* the period while insolvency relates to the value of assets and liabilities *at the end* of the period.

⁵ Note that nothing has been said so far about the desirability of government intervention to alleviate the crisis. This, as will be discussed below, depends on the causes of the crisis.

markets leads to *increased* adverse selection and moral hazard. Although this definition is somewhat hard to apply to Eastern Europe because of the lack of a reference scheme, Mishkin also notes that financial crises may not necessarily be associated with bank runs but are most likely to start with an increase in interest rates, a fall in stock market prices, or an increase in uncertainty.

The above definition distinguishes a banking crisis from a situation of *banking distress* which is characterized by banks which are insolvent but not illiquid [Sundararajan/Balino, 1991]. Financial distress, as will be shown below, characterizes the situation of many Eastern European banks. Such a situation can occur if the bank is able to pay out depositors by attracting new deposits [Calvo/Kumar, 1994, pp. 13]. If, at the end of the period, the depositors of this period liquidate their deposits, they are not being repaid from the return on lending but from new deposits. Hence, for this mechanism to be sustainable, demand for deposits must remain constant (at zero interest rates on deposits) or may even have to increase (at positive deposit rates). As this increase in money demand is unlikely to occur in a situation in which banks are known to be insolvent⁶, it seems more reasonable to assume that the Central Bank provides timely liquidity assistance to insolvent banks such that these can meet their current commitments.⁷ This reasoning also indicates that banking distress is likely to turn into a banking crisis if either the deposit base stops to increase because, for example, an implicit deposit insurance scheme is terminated, or if the Central Bank becomes more selective and does not refinance insolvent banks anymore.

Poor asset quality as the underlying source of financial distress and crisis can have different potential causes. First, many banking crises that have occurred in developed market economies were caused by a deterioration of the value of assets which served as collateral for a loan. Hence, falling asset prices are often one major underlying factor to banking crises.⁸ This asset price deflation has a direct effect on the value of the bank as the value of its asset holdings declines. Falling asset prices also have an indirect, and probably more significant, impact on the solvency of banks as they reduce the value of loan collateral. Secondly, the higher and more volatile real interest rates, the more likely is borrower distress. This, in turn, depends on the relative movements of individual sector's prices as well as on the flexibility of

⁶ Money supply may also increase during the transformation process as households increase their savings.

⁷ At least for Poland, there is evidence that insolvent banks have been kept afloat through cheap refinancing facilities of the Central Bank [Pawlowicz et al., 1994, p. 59]. Csáki [1994, p. 26] also cites the case of two small Hungarian banks which the Central Bank intends to refinance until their financial position has strengthened. The refinancing policy is thus discretionary as, in general, the Hungarian Central Bank started to charge penalty rates for the refinancing of insolvent banks in 1990 [Szanyi, 1993].

⁸ Gern [1993, pp. 61] cites evidence for the case of Japan where, due to the collapse of the stock market and a fall in real estate prices, non-performing loans in commercial banks reached up to 10 percent of total loans.

nominal interest rates. Thirdly, inappropriate wage policies regime may endanger the profitability of the domestic industry. If nominal domestic wages are downward sticky, domestic inflation may lead to real exchange rate appreciation and thus prove detrimental for the competitiveness of the domestic tradables sector. This danger is in particularly pronounced in those countries which have adopted a fixed exchange rate regimes such as Estonia or the Czech Republic. Fourth, the higher the leverage ratio and thus the dependence of the domestic industry on external finance, the more likely is real sector adjustment to have negative feedback effects into the financial sector.⁹ Generally, there are three factors that tend to aggravate financial crisis: (i) shifts in relative prices, (ii) interest rate deregulation and other financial liberalization measures prior to or during the crisis, (iii) weakness in enforcing prudential regulations or poor regulations as such [Sundararajan/Balino, 1991, p. 8].

The emerging market economies have a number of features in common with those countries where banking crises have occurred. The causes of the financial distress of banks in Eastern Europe and of the imminent crises can broadly be divided into factors that are external or internal, respectively, to the banking system. The *external* factors are those related to the overall transformation process which rendered many previous loan recipients insolvent. Bad debt on the balance sheets of banks, at least in the beginning of the transformation process, reflects the inefficiencies with which financial funds were allocated under central planning (*stock problem*). In the socialist system, loans were typically granted in accordance with the requirements of the central production plan, regardless of solvency or liquidity criteria. A proper assessment of credit risk was thus not required [Garvey, 1966]. In this sense, financial distress is the reflection of the transformation process and of the drastic changes in relative prices associated with it. In addition, the effectiveness with which bankruptcy laws are implemented determines over the size of spill-over effects from the real to the financial sector. The *internal* factors result from the liberalization of the banking system itself. First of all, by carving the new commercial banks out of the old monobank-system without giving them an adequate equity base, the foundation for a future crisis was laid. Also, financial liberalization created a new institutional framework for the operation of banks which was often inconsistent and incomplete. Banks were allowed to attract new customers, to expand into new areas of business, and to offer new products without being placed into an adequate regulatory framework.

In this situation, there are three main reasons why the government may have to intervene in the banking system. First, the presence of a stock of non-performing loans has detrimental consequences for the efficiency of financial resource allocation. Banks burdened with non-performing loans tend to bias lending towards their traditional clients, hence having

⁹ This is not to say that causality runs from the real to the financial sector only. Schiantarelli et al. [1994], for example, show that financial sector reform has positive implications for the real economy.

less funds available for lending to the newly emerging private sector.¹⁰ By lending to their old clients, banks maintain a residual claim on these enterprises' profits. The banks have thus a chance to recover previous loan losses.¹¹ Hence, distress lending as well as improper risk assessment lead to a substantial *flow problem* of non-performing loans. As this mechanism also applies to private banks, the stock problem should be solved prior to privatization in order to prevent a continuing misallocation of resources. As a matter of fact, the presence of bad debt on the balance sheets of banks can serve as an argument against bank privatization. Bank privatization prior to recapitalization may raise expectations of a potential future bail-out of these banks. In addition, the greater the stock of bad debt and thus the worse the structure of the existing clients of a bank, the greater are the potential lending risks of new loans. Banks have therefore an incentive to raise lending rates and interest rates spreads as a cushion against loan losses. This strategy, however, causes problems of adverse selection. If information on project risks is asymmetrically distributed between borrowers and lenders, banks may choose not to raise interest rates but to ration credit in order to avoid a deterioration of the pool of loan applicants [Stiglitz/Weiss, 1981]. Again, private enterprises may be more seriously credit rationed than old, state-owned enterprises because information on new firms is particularly scarce [Buch, 1994].

The misallocation of financial resources caused by a stock of bad debt is one main reason for government intervention that relieves banks off their burden of non-performing loans. This efficiency argument for bank recapitalization holds in principle for both, old as well as newly accumulated stocks of bad debt. There is, however, also a moral hazard argument which should caution against a bail-out for newly accumulated bad debt. A government bail-out can be more reasonably be justified as a one-time, non-recurring event if only loans which commercial banks inherited from the past are the subject of bank recapitalization. In cases when deliberate asset mis-management through the owners of banks is the source of poor asset quality will a bail-out entail severe moral hazard problems. In other words, not the presence of a stock of bad debt as such justifies government intervention but rather its origin as a reflection of past legacies does.

Secondly, apart from the efficiency argument, the protection of depositors' wealth justifies banks' solvency to be restored. Unsound lending policies put the deposits of the

¹⁰ Calvo and Kumar [1994] as well as Gomulka [1993] also argue that the weakness of banks' loan portfolios can be hold responsible for increased bank lending to the government and thus for a crowding out of private sector investment.

¹¹ This argument has been formalized by Perotti [1993a]. For a related reasoning see Mohr [1991]. Perotti [1993b] argues that the main reason for credit roll-over is the presence of a deposit insurance system which protects the bank from assuming risks as well as a highly concentrated lending portfolios. Credit roll-over and distress lending can thus be explained endogenously without taking recourse to the assumption that banks follow politically motivated lending strategies or that close personal contacts between bank and enterprise managers determine the allocation of loans.

population at risk. This concern can be eliminated if depositors are assumed to have complete information about the lending policies of the banks. They can then demand a risk premium, causing positive insolvency costs for the bank. In the emerging market economies, however, do neither depositors have the expertise to assess the quality of a bank nor do banks are having a reliable record of past performance. Incomplete information on the bank's lending portfolios is thus prevailing.¹² This argument strengthens even further if one considers that under central planning depositors were typically constrained regarding the choice of their bank and that interest rates were controlled. Hence, the decision to hold a deposit with a certain bank at a certain interest rate was all but voluntary.

Thirdly, in addition to the adverse effects that bank insolvencies can have on the efficiency of resource allocation, banking distress also has negative implications for the conduct of monetary and fiscal policies. To the extent that the Central Bank tries to counteract banks' solvency problems by injecting liquidity into the banking system, it may loose control over monetary policy. Once the banking crisis is anticipated or has even occurred, significant portfolio re-allocations set in which tend to complicate monetary fine-tuning even further. A financial crisis also causes substantial costs to the central budget and/or to the Central Bank. These costs may actually rise over time as distress lending contributes to a continued mis-allocation of resources. Hence, the soundness of the banking and financial system are important components of a successful stabilization-cum-liberalization package.

¹² Note that this argument also has an efficiency component. If the trust of depositors in the domestic banking system is severely destroyed through a banking crisis, depositors may decide to reduce their financial savings. This may leave the economy with insufficient funds for investments. An additional argument for the protection of depositors interests is that, during the periods of negative interest rates, they have already provided a net transfer to the holders of debt obligations [Bennett/Schadler, 1993].

2. Empirical Evidence from Eastern Europe

Based on the definition outlined above, a banking crisis is characterized by (i) a significant group of financial institutions with negative net worth and (ii) an increase in the currency-to-deposit ratio. Because risk-adjusted, disaggregated balance sheet data from Eastern European banks is not available, we will use the overall share of non-performing loans on the balance sheet of banks as well as the capital-asset-ratios of selected banks as proxies for the net-worth of banks. In order to take changes in the creation of reserves by banks into account, the currency-to-deposit ratio is replaced by the money multiplier (m):

$$(5) \quad M = m \cdot H \quad m = \frac{1+c}{r+c} \quad r, c < 1$$

where M = money supply, H = base money, c = currency / deposits, r = reserves / deposits. This money multiplier decreases as the currency-to-deposit ratio increases. During the transformation process, one would – in the medium- to long-run – expect the currency-to-deposit ratio to decline (and thus the money multiplier to increase) for three reasons. First, the market participants have to hold less precautionary balances for unexpected purchases or for black market transactions. Secondly, the establishment of positive real interest rates should induce households and firms to economize on their transaction balances and to invest into interest-bearing financial assets. Thirdly, the modernization of payments techniques should lead to an increase in non-cash transactions and thus reduce cash balances. An increase in the currency-to-deposit and, *cet. par.*, a decrease in the money multiplier therefore indicates a portfolio reallocations which may be caused by increasing reservations about the soundness of the banking system.

Non-Performing Loans¹³

At least on paper, banks in Eastern Europe had virtually no non-performing loans on their balance sheets at the beginning of the transformation process. This was primarily the result of poor risk assessment techniques and insufficient reporting requirements in the socialist banking system rather than a reflection of the true size of the problem. As a response to the introduction of better reporting requirements and of an improved bankruptcy legislation, the amount of bad loans that banks reported to carry on their balance sheets virtually exploded. At the same time, the economic viability of many previous loan recipients seriously deteriorated.

Even though data on the quality of banks' loan portfolios should be treated with extreme caution because of the yet insufficient reporting systems, some evidence on the relative performance of the Eastern European reform states is available. In the *Czech Republic* only

¹³ See Table 1 for a summary of the data presented.

three commercial banks inherited the assets and liabilities of the former monobank. Among the assets of these newly created banks were low-interest rate credits which had been granted previously to finance inventories of the state-owned firms. These credits, amounting to 35 percent of all bank credit at the end of 1991, were likely to yield substantial losses to the banks which, in addition, were capitalized only by the amount of 1-1.5 percent of their assets [OECD, 1993]. According to officially recorded data, however, classified loans accounted only for 2.4 percent of the loan portfolio of commercial banks in 1991. In 1992, primarily as a response to new accounting and auditing requirements, this ratio jumped up to 18.96 percent. Since then, the share of classified loans has been gradually increasing, albeit at a significantly lower pace, to 23.77 percent at the end of 1993.¹⁴ The problem appears to be of a similar order of magnitude if one looks at the share of non-performing loans in overall domestic credit [Table 1]. This reflects the fact that the major share of domestic lending is being done by commercial banks.

Along with the increase of the overall amount of classified debt in the Czech Republic, two further observations can be made. First, the share of short-term non-performing debt which accounted for 97 percent of all overdue debt at the end of 1991 has steadily been falling to 56 percent at the end of 1993. Secondly, non-performing loans in the Czech Republic are increasingly concentrated in the private sector. While at the end of 1992 private sector loans were only half as likely to become non-performing than loans to state-owned enterprises, this marked difference had almost disappeared by the end of 1993 [Hrncir, 1994, p. 12]. In principle, the failure of new enterprises should not be surprising in the context of a developing economy. The above observation should yet be taken seriously. The high share of private sector credit in overall non-performing loans indicates that poor management skills of bankers and not the past misallocation of resources are responsible for the troublesome lending portfolios of many banks.¹⁵

In *Estonia*, the share of overdue loans as a percentage of total loans granted by commercial banks has hardly surpassed the 10 percent threshold since the beginning of 1993. In early 1994, the share has even been falling as a response to a new requirement to write off loans which have been overdue for more than 150 days. In relation to GDP, non-performing loans in Estonia seem to be even less of concern as they hardly exceed one-percent of GDP.¹⁶

¹⁴ It should also be noted that the low share of non-performing loans in 1991 is also the result of the bank recapitalization that has taken place in former Czechoslovakia in that same year.

¹⁵ The observed development can also be interpreted as a lack of effective banking supervision. Intensified audits of Czech banks in early 1994 revealed that at least 10 banks failed to meet their minimum capital and capital-adequacy requirements [Czech Business Update, 1994, p. 561].

¹⁶ This is also the result of the small size of the financial system with respect to total GDP. While both, the share of bank loans to GDP as well as the share of M2 in GDP rose

This apparently superior performance of the Estonian banks in terms of risk assessment must, however, be seen against the background that the numbers which are being reported in Table 1 do not reflect the situation which led to the Estonian banking crisis of 1992. At the time of that crisis, one bank which had about 30 percent of non-performing loans in its portfolio was closed and two others were merged. The latter two banks held frozen assets with Russian banks at the amount of two thirds of total assets. Altogether, the banking crisis affected banks which had about 30 percent of total money supply on their books in November 1992 [Sutt, 1994]. Despite these major disruptions in the financial system, the Estonian banking system is gradually recovering. The largest banks appear well-capitalized with a ratio of 12.75 percent of total capital-to-credits and of 4.56 percent of capital-to-assets in the second quarter of 1993. Both ratios had increased as compared to the previous quarter.¹⁷ By February 1994, the commercial banks had reduced, both, their solvency as well as their liquidity ratios, yet keeping them well above the requirements of the Central Bank [Eesti Pank, 1994, p. 37]. When analyzing this data, however, it must be stressed that accounting rules in Estonia do not yet conform to international standards. Hence, the capital of banks' is likely to be overstated and, therefore, solvency appears more favorable than it truly is [Hansson, 1994, p. 3].

In *Hungary*, there are three banks to which the stock of bad debt inherited from the socialist regimes was allocated. At the end of 1992, these banks ranged under the five largest Hungarian banks in terms of total assets. Two of them reported substantial losses while in 1991 only one of them incurred a negative profit [The Banker, 1992, 1993]. Throughout the 1987-to-1989 period, the major share of bad debt was concentrated in these large banks. Since 1990, however, the situation has changed substantially, as small and mid-sized banks had almost half of the non-performing loans of the banking system on their books [OECD, 1993, p. 62]. Generally, non-performing loans as a percentage of commercial banks' loan portfolios increased sharply since the inception of economic reforms. The share of classified debt in total loans granted by commercial banks was 21.46 percent in 1992 (1990: 4.36 percent). If the effects of the loan consolidation scheme which was implemented in 1992 and 1993 are taken into account, this share lowers to 15.27 percent. The share of classified debt appears markedly lower if one looks at non-performing loans as a percentage of total domestic credit. The reason is that, in contrast to the Czech and the Estonian case, the Hungarian Central Bank lends significant funds to the government such that the amount of domestic credit exceeds commercial bank lending substantially. In addition, as domestic credit data has also been available for 1993, it becomes evident that the positive effect which

slightly in 1993, these shares were only 14.57 and 28.86 percent, respectively, at the end of the year [Eesti Pank; own calculations].

¹⁷ This data is based on internal documents of the Estonian Savings Bank and covers the seven largest Estonian banks.

credit consolidation had on the solvency of banks was only a temporary one because the share of classified debt already approached its pre-consolidation level.

Among the early reform countries of Eastern Europe, *Poland* obviously has the worst track record as far as non-performing loans relative to banks' lending portfolios are concerned. The problem of inherited debt in Poland is concentrated in the nine regional branches which were carved out of the monobank in 1989. These banks also inherited the task of financing major infrastructure projects. As a result, 6 out of the 9 banks reported negative net assets in 1993. Overall, more than one third of all loans granted by commercial banks was reported to be below average at that time. Loans to private enterprises seem to be more likely to turn out non-performing than loans to state-owned enterprises. At the end of March 1994, the share of overdue interest in total loans was 12.59 percent in the private and 9.5 percent in the state-owned sector. This difference has been a common trend since the end of 1992 when comparable data was reported for the first time by the Polish National Bank.¹⁸ As in the case of Hungary, classified debt seems to be less of a problem if domestic credit is used as a basis of reference. This can be explained by the on-going domestic lending activities of the Polish Central Bank. Two modifications to the apparently poor state of the Polish financial system are in order. First, the data for 1993 does not yet take into account the effects of the Polish recapitalization program of 1992 because banks only had to register loans to be included in the program by March 1994. Assuming that the total amount of recapitalization (21 trillion zloty) is used for the write-off of loans, this recapitalization would actually lower the share of bad debt in total loans to about 24 percent which is still comparatively high. Secondly, the overall size of the Polish banking system with respect to GDP is much smaller than the size of the Czech or the Hungarian banking system [Buch et al., 1994]. Hence, the share of non-performing loans in total GDP is only in the range of 5-6 percent in the Polish economy (1992-93), whereas non-performing loans amount to almost 18 percent in the Czech Republic (1993). The Hungarian case lies somewhat in between with a share of classified debt in GDP of 7-9 percent in 1992.

¹⁸ This information is based on unpublished documents of the National Bank of Poland.

Table 1: Classified Loans as a Percentage of Total Loans, Domestic Credit, and GDP, 1990 - 1993.

	1990	1991	1992	1993
As a Percentage of Total Loans ^a				
Czech Republic	2.6 ^f	2.41	18.96	23.77
Estonia	...	...	9.35 ^g	6.71
Hungary	4.36	13.05	21.46 (15.27) ^c	...
Poland	...	15.77	24.99	32.02 (27.88) ^d
As a Percentage of Domestic Credit ^b				
Czech Republic	...	2.26	17.80	22.78
Estonia	...	...	12.46 ^g	9.02
Hungary	2.49	8.02	12.76 (9.08) ^c	11.78
Poland	...	10.81	13.85	17.47 (15.22) ^d
As a Percentage of GDP				
Czech Republic	...	1.67	14.23	17.94
Estonia	...	...	0.71	0.98 ^e
Hungary	2.06	6.41	9.36 (6.66) ^c	...
Poland	...	3.70	5.34	5.29 (4.6) ^d

- a) Loans granted by commercial banks to enterprises, households, and to the government.
 b) Aggregated domestic credit from the monetary survey.
 c) After credit consolidation.
 d) Stock data as of March 1993, flow data for 1993. After bank recapitalization.
 e) Estimate.
 f) Data for former Czechoslovakia.
 g) Data as of February 1993. Domestic credit = net of government deposits.

Sources: Various issues of CNB, Eesti Pank, Hansapank, IFS, NBH, NBP, SBC, Planecon; own calculations.

Money Multiplier¹⁹

As regards the development of the money multiplier, the data indicates the occurrence of a banking crisis only in the case of *Estonia*. Here, the money multiplier decreased sharply from a value of 2 in November 1992 to about 1.3 in February 1993, i.e. after the moratoria on three large banks were declared. During 1993, the Estonian money multiplier recovered somewhat to 1.56 in March 1994 but remained fairly low as compared to, for example, *Poland*. Here, the multiplier showed a downward trend in 1990 which, however, is more likely

¹⁹ See Graph 1 in the appendix.

to be the effect of highly negative real interest rates in this period rather than the result of growing concerns about the stability of the banking system. In 1991, the multiplier rose to fairly high values of 5 on average but dropped sharply at the end of that year. This change, which is primarily the result of an increase in the reserve holding of banks, may be interpreted as the result of bad news after Polish banks were audited by Western experts [Pawlowicz, 1994, p. 21]. In 1992 and 1993, the money multiplier began to rise in response to lower reserve holdings of the commercial banks with the Central Bank. The currency-to-deposit-ratio showed a more modest decline in this period. Overall, there is no indication of a bank run in Poland.

Similarly in *Hungary*, tighter regulations that were imposed on banks in 1992 did not lead to any run on the banking system. The currency-to-deposit ratio remained fairly flat in 1992 and even declined somewhat as compared to 1991. As banks lowered their reserve position with the central bank, the money multiplier – after having declined continuously in 1990 and 1991 – even increased in 1992 despite the growing problems in the Hungarian banking system. Although this issue certainly warrants closer inspection, market participants seemed to have expected the government to bail out commercial banks [Mizsei, 1994, p. 7]. Only in mid-1993, when the ineffectiveness of the recapitalization program became obvious, did the money multiplier decline. This decline was primarily driven by an increase in the currency-to-deposit ratio. A further interpretation of this development is that the system of automatic public deposit insurance was abandoned at this time [Csáki, 1994] and that depositors may have become more risk-aware. The development in the *Czech Republic* is overshadowed by the impact of the separation from Slovakia. In January 1993, the currency-ratio – and with it the money multiplier – declined sharply which may be interpreted as a shift in to foreign currency holdings due to increased uncertainty. Hence, the subsequent increase in the money multiplier ratio should be taken as an adjustment to pre-separation levels rather than as an indicator of a banking crisis.

Despite growing financial distress of commercial banks in Eastern Europe as evidenced by the sharp increase of bad assets, only Estonia has thus far experienced a banking crisis. In none of the other countries did significant changes in the money multiplier and the currency-to-deposit ratios occur. To confirm this statement, two further indicators can be considered. The first is the monthly growth rate of reserve money. Banks can be expected to increase their reserves as they foresee financial problems, and they would run down their reserves in the event of a bank run. Except for the case of Estonia where banks' reserves showed significant swings at the time of the crisis, there is hardly any evidence for changes in bank reserves in Hungary and Poland which cannot primarily be explained by cyclical factors. A second indicator for the occurrence of a financial crisis is central bank lending to financial institutions. One might expect central bank lending to banks to increase during a banking crisis as banks need to draw on short-term credit lines. In both countries, Hungary

and Poland, however, central bank lending to the non-government sector declined throughout most of the time.²⁰

III. Policies to Prevent the Crisis

1. Restoring Solvency

As regards policy options for solving the stock problem, Sundararajan and Balino [1991, p. 35] in their study of banking crises conclude that a reform package should (i) make the losses transparent, (ii) use technical, financial, and personal resources most efficiently when recovering loans, liquidating assets, and restructuring firms, and (iii) ensure that equity-holders absorb losses to the greatest possible extent. In addition, they deem it essential for the success of a restructuring-cum-recapitalization program that (iv) the old management is being replaced. For the case of Eastern Europe, this requirement is closely related to the privatization of banks. As a further crucial element that determines over the success of a reform program, it should be added that (v) the scope for moral hazard problems should be minimized, i.e. banks and enterprises should have no incentive to gamble on future bail outs. Finally, (vi) solvency should be restored in a non-inflationary way which excludes central bank lending to troubled banks from the list of options.²¹

A policy of widening bank margins which allows banks to gradually recapitalize themselves through monopolistic profits cannot hold firm against the above criteria. Such a policy would allow banks to recover loan losses through a managed interest rate adjustment²² [Mathieson, 1980], combined with a protection of market shares of the incumbent banks. This is neither transparent because it leaves the bad loans on the balance sheets, nor does it reduce the wealth position of equity holders. The policy has severe negative implications for the competitive structure of the banking system and for the efficiency of resource allocation because high interest rate spreads discourage both, investment and savings. As an alternative to gradual recapitalization, the replacement of bank loans by government bonds which have been placed on the private capital market seems a suitable instrument for recapitalization

²⁰ See appendix for a graphical exposition of these findings. Unfortunately, comparable data for the Czech Republic has not been available, and the Estonian Central Bank typically does not perform any lending activities.

²¹ Calvo and Kumar [1994] formalize this argument in a simple cash-in-advance model in which enterprises finance working capital through bank loans.

²² In other words, taxation of deposits as a means to cope with the bad debt problem is not a viable option for policy makers as it may drive financial savings out of the country. Equally inappropriate would be a policy which deliberately aims at inflating the economy in order to reduce the real value of non-performing loans. As a matter of fact, the real value of old debt was sharply reduced in Poland, as it is now the case in Russia. However, apart from the adverse effects that high inflation rates have on the real economy, the structural problem underlying the accumulation of bad assets is not solved in this way.

[Begg/Portes, 1993; Schmieding/Buch, 1992; Hinds, 1991]. With such a policy, there is no case for protecting the wealth of equity holders of an already privatized bank²³ because, in contrast to depositors, the owners of a bank should have had at least some control over management behavior. A bail-out of owners may thus seriously impair their incentives to effectively monitor and constrain management behavior in the future. It thus remains to discuss the costs of a recapitalization program to the government.

The exchange of debt owed by state-owned enterprises into government debt is nothing more but an arithmetic calculation entirely taking place within the state sector. The discounted present value of the state sector's obligations remains unaffected by such a swap of bad loans for government bonds. This argument is strengthened even further if one considers that the socialist state typically provided an implicit deposit insurance. Hence, if enterprises cannot repay their debt, the government may intervene anyhow to make its guarantee explicit. Because the replacement of unsafe assets on the balance sheets of banks by safe government securities entails a shift of obligations of the state-sector over time, recapitalization has immediate implications for the narrowly defined budget due to the debt servicing requirements [Calvo/Kumar, 1994, p. 22]. State-sector's liabilities which have previously been part of the quasi-fiscal deficit are now included in the fiscal deficit. The immediate impact of a recapitalization program is thus an increase in the federal deficit which is only gradually declining as potential privatization revenues are realized. In addition, effective banking sector reform may reveal that the bulk of the profits that banks report are nothing more but paper profits. Hence, the government may lose a substantial amount of profit tax revenue when effectively starting to restructure banks [Gomulka, 1993, p. 15]. In many Eastern European countries, a solution to the stock problem has thus been rejected or delayed because of its supposed costs to the budget.

The calculations below show that the budgetary costs of recapitalization programs are indeed non-trivial [Table 2]. It has been assumed that the government takes over all non-performing loans or all loans to state-owned enterprises, respectively, and pays the domestic market-interest rate on these loans to the banks. Hence, the calculations give the interest costs of a recapitalization program only; the repayment of the principal in the future is neglected.²⁴ In order to obtain a complete estimate of the net costs of recapitalization, one would have to

²³ Note that to the extent that banks are still state-owned the protection of share-holders wealth through the state is meaningless.

²⁴ For similar calculations see Begg and Portes [1993] and Thorne [1993]. Levine and Scott [1992], in contrast, calculate the costs of recapitalization for the widely defined government budget as the costs arising from the take-over of that debt that presumably could have been served by the enterprise sector. Note, however, that the take-over of this debt should raise the privatization revenue from the enterprise by an equal amount, leaving the net financing requirement for the government unaffected.

deduct privatization revenues for the sale of banks and enterprises.²⁵ The calculations reveal that the potential costs of bank recapitalization have, at least initially, been lowest in the Czech Republic and in Estonia, which, at the same time, reported also the lowest budget deficits and could thus afford a recapitalization program best. It is also evident that the postponement of recapitalization as in the case of Hungary contributed to rising costs of such program, at least if the numbers for 1991 and 1992 are compared. The decline in the interest costs between 1992 and 1993 is primarily the result of falling interest rates and a rise in GDP rather than of a reduction in bad debt. In Poland, the costs of a recapitalization program as a percentage of GDP declined throughout the 1991-1993-period. This is primarily effect of a growing GDP and of a relatively small (official) financial sector. The Polish economy seems thus to grow out of the problem, albeit at the cost of a low degree of bank-based financial intermediation.

Table 2: - Potential Interest Costs of Bank Recapitalization, 1991 - 1993.
[in Percent of GDP]

	Czech Republic	Estonia	Hungary ^a	Poland
1991	0,25 - 7,06 (-1,9)	...	1,92 (-5,18)	2,02 - 6,87 (3,76)
1992	1,91 - 4,94 (-1,68)	0,24 - 1,53 (+0,41)	2,81 (-7,04)	2,08 - 4,03 (6,07)
1993	2,51 - 3,15 (-2,2)	0,25 - 0,50 (+0,67)	1,58 (-8,3)	1,26 - 2,71 (4,7)

Upper Value: All loans to state enterprises taken over at market interest rates.

Lower Value: All non-performing loans being taken over.

In Brackets: budget deficits in percent of GDP (+ = surplus, - = deficit)

a) No data on loans to state-enterprises available; effect of loan consolidation not considered.

Sources: Various issues of CNB, Eesti Pank, NBH, NBP, Planecon; own calculations.

With respect to the specific design of a recapitalization program, three different questions have to be answered.²⁶ First, it has to be decided whether all loans to state enter-

²⁵ Due to different privatization methods employed in the emerging market economies and the lack of information on actual privatization revenues, these estimates are hard to obtain. The experience of Eastern Germany, however, gives an idea of how costly recapitalization remains even if privatization revenues are included. In Eastern Germany, the privatization agency "Treuhandaanstalt" has taken over all old debt of state-owned enterprises and guaranteed its repayment. Hence, firms were privatized without any old debt on their books. The same held true for banks. Yet, in April 1994, the Treuhandaanstalt reported cumulative costs of bank recapitalization of 95 Billion D-Mark whereas privatization revenues amounted only to 28.3 Billion D-Mark, or one third [Deutsche Bundesbank, Monatsbericht, April 1994, pp. 22].

²⁶ For a slightly different classification see Saunders/Sommaravia [1993].

prises that the state-owned commercial banks inherited upon their separation from the former monobank or only those which effectively turned out non-performing should be covered by the program. Secondly, a centralized or decentralized solution to the selection and administration of loans can be chosen. Thirdly, the program may target the asset side of the bank's balance sheet by replacing bad debt by interest-bearing government bonds or the liabilities' side. If the latter approach is taken, non-performing loans remain on the balance sheet of the bank. The bank may then decide to write off the loans against freshly injected equity.

Case-by-case vs. wholesale: While there is wide-spread agreement in the literature that banks should be recapitalized for the loans that they inherited from the past, it needs to be decided whether only those loans that turned out non-performing should be replaced case-by-case [Hinds 1991, Brainard 1991] or, alternatively, whether all loans to state enterprises should be included [Schmieding/Buch 1992, Levine/Scott, 1992]. As the case-by-case solution requires a substantial amount of human resource input and may thus be rather time consuming, a wholesale solution seems preferable at least at the beginning of the reform process [Schmieding/Buch 1992]. Accounting procedures and banking regulations are too weak at this time to allow a reliable assessment of the quality of loans. In order to achieve a clear cut with the past, to minimize the scope for bargaining over which loans to include as well as to reduce the scope for moral hazard behavior of banks after the recapitalization, and to signal the clear determination of the government to carry on with banking reform, an immediate whole-sale write off seems thus the preferable solution. This write-off should be done immediately at the time of banking reform in order to enhance government credibility [Levine/Scott, 1992]. A delayed recapitalization would increase the concentration of risk on the balance sheets of banks [Perotti, 1993] and may thus make a future bail-out more likely. Banks may actually gamble on this possibility and thus render any initial announcement not to bail them out time inconsistent. The arguments for a whole-sale debt write off of loans to state-owned enterprises become, however, weaker over time if bank recapitalization has already been delayed and if most of the lending to state-owned enterprises has taken place in a reformed financial system.²⁷ In such a situation, a whole-sale write off might send the wrong signals to bank and promote moral hazard behavior in the future. In addition, banks may in the meantime already have learned about the quality of their loan portfolio as accounting procedures are being adopted to market-based standards and as Western auditing firms have analyzed the balance sheets. A case-by-case approach therefore become feasible.²⁸

²⁷ It could be argued that this is a scenario in which no recapitalization should take place. However, as a lack of earlier recapitalization efforts may have been conducive to further bad loan accumulation, the same arguments as for early recapitalization can be applied.

²⁸ This applies in particular to those states which have already introduced Western-type regulations such as, with modifications, the economies analyzed in this paper.

Centralized vs. decentralized: If a case-by-case approach is chosen, it must be decided whether the bank itself (decentralized) or the government (centralized) decides which loans are to be replaced, i.e. which of the two is better suited to assess the value of a loan. One way to overcome this information problem is to allow banks to sell their loan portfolios on the market, as has recently been proposed by several authors [Mizsei, 1994; Perotti, 1994], and to recapitalize them by the amount necessary to restore solvency. While this is certainly the most market-based solution, it also puts substantial demands on the efficiency of secondary markets. Especially at the beginning of the transformation process, when the problem of inherited bad debt is most pressing and when markets are the least developed, market-based debt reduction may not be feasible. As, however, the case-by-case solution has been proposed as a strategy that becomes more favorable over time, market-based debt reduction seems a viable strategy to implement the case-by-case solution.

There remains the general question whether the recapitalization of banks should go hand-in-hand with a write-off of debt to firms. Notwithstanding the disciplining effects that debt can have on the behavior of firms, there is a good argument for reducing the inherited debt of firms early in the transformation process. This cancellation of old loans, which have been granted at socialist times, may actually serve to speed up the privatization of firms. There is, however, no point in relieving firms off their burden of newly accumulated bad debt as such a debt write-off would promote moral hazard. To the extent that loans to firms are not completely cancelled, the administration of the loans may again be organized on a centralized or decentralized basis. One advantage of centralized loan administration through a governmental agency is that it takes any obligation to administer old loans off the banks. Banks can thus concentrate their resources on the selection and administration of new clients. The need for qualified personal that is able to undertake loan workouts may, in addition, be less a constraint under a centralized approach than under a decentralized approach. Also, enterprise and banking reform can be separated by choosing a centralized approach, and bank privatization may become more independent of progress being made with restructuring the enterprise sector. However, it can be questioned whether government agencies have superior qualities in loan administration than banks [Gomulka, 1993; Mizsei, 1994] and whether the government can successfully withstand demands for subsidies for the firms that it has under its administration. Furthermore, any learning potential for the bank that may be connected with the administration of old loans is foregone upon choosing a centralized approach. It could well be argued that banks already have better information on their customers, and that they may have a greater potential and interest to acquire this information than government agencies. Hence, in order to reduce the potential for unsound lending while yet exploiting the information basis of the bank, the administration of the loans could be assigned to the bank while prohibiting the bank from extending any new loans to the firms covered by the loan work-out.

Asset vs. liabilities side: While most recommendations for banking reform favour the replacement of non-performing loans by government bonds (equalization claims) [Begg/Portes, 1993; Schmieding/Buch, 1992], recapitalization might as well target the liabilities' side of the bank's balance sheet. In the latter case, in order to strengthen the equity base of the bank, the government would have to inject fresh equity. The advantage of the asset-side approach, i.e. of a swap of loans for bonds, is that it can be done quickly and in a whole-sale manner. The liabilities-side approach, in contrast, would give banks leeway in deciding over which loan to write off, it is thus more closely related to a decentralized program. The objections raised against a decentralized approach hold therefore as well. Two further concerns against the injection of new equity must be mentioned. First, the injection of new equity, at least temporarily, raises the government's stake in the banking system. Even if the government was committed to divest its newly acquired shares soon, this commitment may not be credible. Bank recapitalization would thus have the undesirable outcome to work against the ultimate goal of bank privatization. Secondly, the mere injection of equity potentially restores the solvency of banks but it would leave the old, non-performing loans on the balance sheets. Maintaining their residual claims on enterprises, the banks may thus have an incentive to embark in a gambling game, hoping to recover some of the individual loan's losses. In order to avoid distress lending and to speed up bank privatization, approaches that target the asset side should thus be strictly preferred over those that inject new equity.

2. Containing the Flow of Bad Debt

Parallel to the implementation of a recapitalization scheme, measures should be launched that have the potential to prevent a recurrence of a non-performing loans problem, i.e. to *maintain* solvency. These measures are necessary because banks may not fully take account of lending risks for two reasons. First, as long as banks are state-owned, they may follow a politically motivated lending strategy and operate under soft budget constraints.²⁹ These banks would not take lending risks and the impact of potential losses on credits into account when deciding over the structure of their assets. This would give a rationale for restrictions to be imposed on the lending activities of state-owned banks forcing them to behave in a more risk-cautious manner. A second rationale for the introduction of prudential regulations stems from the observation that information may be asymmetrically distributed between the enterprise and the bank as well as between the bank and its depositors. This means that either the bank cannot observe the riskiness of the enterprise's investment and thus not adjust its

²⁹ However, if safeguards against a continuing flow problem cannot be introduced, bank recapitalization may have to be postponed in order to avoid that banks use their additional leeway to support ailing enterprises [OECD, 1993b, p. 173].

balance sheet structure accordingly or that the depositor's cannot observe the riskiness of the bank's loan portfolio and thus not demand the appropriate risk premium.

A first crucial step towards the embankment of the flow problem of non-performing loans is the abolition of directed credit programs. Under these programs, commercial banks are used as agents of the government that channel loans to pre-determined enterprises. Typically, directed credits are granted under below-market interest rates. The channel banks have no influence on the selection of enterprises, they effectively continue to operate just like banks in the socialist system. The presence of directed credit programs therefore delays the transition to market-based, two-tier financial systems and lays the foundation for a bad debt problem in the future.

After the abolition of such directed credit programs, the most effective way to ensure a risk-based allocation of financial resources is the privatization of banks and the imposition of an effective bankruptcy threat on financial firms. As long as banks remain state-owned and are thus under suspicion to pursue goals other than profit maximization, however, ceilings should be imposed on the maximum exposure of state-owned banks to the socialized enterprise sector [Begg/Portes, 1993; Schmieding/Buch, 1992; Hinds, 1993]. State-owned enterprises with liquidity needs in excess of these limits could then turn to private banks. This measure would incidentally support private banks in their acquisition of market shares. The need to impose credit ceilings on the lending of state-owned banks is in particular urgent if bad loans have not yet been removed from the balance sheets. In such situation, distress lending is likely to occur. Credit limits would thus also have to be imposed on privatized banks that have not yet been relieved off non-performing loans to state-owned enterprises. However, as banks are seldom privatized while having bad loans on their balance sheets, this case is only of minor empirical importance.

On a microeconomic level, the introduction of tighter banking regulations and their enforcement through a banking supervision agency are means to condemn risky lending behavior of banks [Baltensperger/Dermine, 1992]. In the presence of asymmetric information, prudential regulations may be imposed on banks that require them to hold a certain amount of equity or equity-reserves in proportion to their (risk-weighted) assets (capital-asset-requirements), that limit bank's exposures to single clients, or that impose other constraints on the lending behavior of banks. In the extreme case, banks may be required to hold deposits of the population in safe assets such as, for example, government securities only (narrow bank approach). The appropriateness of each of these measures hinges on the exactness with which the underlying market failures can be identified and on the information of the supervisory agency. For the emerging market economies, the case can be made for a rather pragmatic adaptation of banking regulations to Western standards [Schmieding, 1992, Schmieding/Buch, 1992]. This would save scarce human resources that would otherwise have to be employed to

draw up programs specific for Eastern Europe. In addition, the implementation of Western type banking regulations may foster the market entry of Western banks. Nevertheless, the need remains to adjust Western banking regulations to the specific circumstances of the economies in transition. This applies, for example, to the classification of financial assets regarding their liquidity characteristics as secondary markets are functioning less smoothly than in developed market economies.

Tirole [1994], based on a joint paper with Dewatripont [1993], argues that one way to contain the flow problem of bad debt is to limit shareholder control in case that the bank is performing poorly. In such a situation, shareholders whose expected return is convex, tend to take on more risk than optimal. Hence, in bad states of the world, i.e. if the capital-asset-ratio falls below a certain threshold level, depositors should gain control. He shows, in addition, that the standard capital-asset or Cooke-ratio meets the requirements which are imposed on regulations from the viewpoint of the theory of optimal control. As depositors are typically dispersed and thus not able to easily coordinate their interests, banking regulators may bundle depositors' interests, take over control, and prevent excessive risk taking.³⁰

Next to the introduction and enforcement of prudential regulations, the establishment of an explicit deposit insurance system is essential for the stability of the financial system. In the socialist financial system and, at least partially also in the reformed system, the state has been providing an implicit guarantee for the safety of deposits held with state-owned banks. This commitment of the government may incidentally be one major reason why depositors keep their trust in domestic banks despite the mounting bad debt problems. It also may cause substantial costs in the future. In the medium- to long-run, the government should therefore withdraw its obligation to protect depositors' wealth. Such a move could actually follow the implementation of a recapitalization program, after which deposit insurance may be organized on a private basis.³¹

The results of this section can be summarized as follows. First, the first-best approach to solving the problem of non-performing loans is to replace all inherited loans to state-owned enterprises by government securities at the beginning of the transformation process. Combined with the immediate privatization of banks and the implementation of tight banking regulations and, possibly, credit ceilings this approach minimizes the costs of a recapitalization program because the scope for distress lending is minimized. Secondly, if the enforcement of this first-best solution has been delayed and if credit assessment procedures have been improved in the meantime, a case-by-case solution, covering non-performing loans only

³⁰ For a discussion on the optimality of different regulatory regimes, i.e. private vs. state-owned banking supervision see Dewatripont/Tirole [1993].

³¹ See Schmieding/Buch [1992] on a more lengthy discussion of this subject.

can be implemented. Thirdly, if old loans to enterprises are not written off, a decentralized approach to the administration of these loans seems superior to a centralized approach if banks have already acquired some skills in loan monitoring. This, however should not hamper the privatization of banks. Fourth, asset-side restructuring clearly seems to be preferable over liability-side approaches.

3. First Solutions³²

The Czech Republic

Out of the three early reform states of Eastern Europe, former Czechoslovakia tackled the problem of inherited non-performing loans on the balance sheet of banks rather early in the reform process. The implementation of such measures was in particular urgent as, in contrast to Poland or Estonia, the real value of old loans was not eroded through high inflation rates [Hrncir, 1993, p. 308].³³ Hence, in March 1991, the Consolidation Bank was founded to which 110 billion Krowns in so-called Perpetual Inventory Credits were transferred. These loans had been granted to enterprises under central planning in order to finance inventories at low interest rates and under often unlimited maturities. In October 1991, the banks were re-capitalized for less than 50 percent of the amount of loans transferred through government bonds at the amount of 50 billion Krowns or 6.8 (9.8) percent of total credits (credits to state-owned enterprises). 12 billion Krowns were used to increase the banks' capital base, against the remainder could the banks write off loans. Hence, the Czechoslovakian authorities used a combined asset- and liabilities-side approach. In a centralized decision making process, the allocation of bonds across banks was decided.³⁴

With respect to the flow problem of bad debt, the Czech Republic opted for a gradual approach as far as the implementation of prudential regulations is concerned. Only by the end of 1996 do banks which were founded prior to 1990 have to comply with the 8 percent capital-asset-ratio. Rules for maximum exposure and large credit risks exist, but full compliance is only required by the end of 1995. The net credit exposure of a bank to one client, for example, should not exceed 40 percent of the bank's capital by the end of 1993 and 25 percent by the end of 1995. In 1994, the Czech National Bank finally began to enforce the bankruptcy

³² A summary of this section is given in Table 4 in the appendix.

³³ After the liberalization of prices, consumer price inflation reached only 56.7 percent (1991) in the Czech Republic. In Poland, prices increased by 585.8 percent (1990), in Estonia even by 1069.3 percent (1992). Only in Hungary did consumer price inflation not rise sharply. [Planecon, 1993, 1994]

³⁴ Hrncir [1993] remarks that the Consolidation Bank has later on also taken loans off the commercial banks on a case-by-case basis. However, there is no detailed information on these transactions available. In addition, two debt clearing operation for enterprises have been conducted by the National Property Fund in 1993 [WIIW, 1994, p. 26].

law against commercial banks. The activities of three banks which assets accounted for 2.7 percent of those of the ten largest banks at the end of March 1994 were suspended,³⁵ and further banks are under tight scrutiny of the banking supervision. In the context of these measures, an amendment to the Czech banking law, including a private deposit insurance, improved provisioning requirements, and enhanced powers of banking supervision was adopted in July 1994 [The Economist, 1994]. In addition to these measures, the Czechoslovakian authorities used credit ceilings as an instrument of monetary policy until autumn 1992. These ceilings limited the amount of loans that the large, state-owned banks could grant to enterprises and may thus have served to contain the flow of bad debt. Finally, the Czech Republic has made great progress with the privatization of banks. However, the state continues to hold controlling stakes even in those banks which were privatized in the voucher privatization.

In summary, the Czech Republic tried to solve the stock prior to the flow problem. By relieving banks off their burden of inherited non-performing loans early on, the way for financing new, private enterprises was smoothed. In addition to the implementation of credit ceilings, this is one reason why the share of private sector credit in total credit surpassed this sector's contribution to GDP earlier than in Hungary or Poland [Buch et al., 1994]. However, banking distress remains a problem also in the Czech Republic. The gradual implementation of prudential regulations may have induced state-owned banks to engage into risky lending behavior. New, private banks, which already have to comply with the stricter rules may not have been supervised properly as evidenced by the high share of non-performing loans in the private sector. As in other reform states, accounting procedures in the Czech Republic, at least until recently, did not meet with the requirements of an advanced market-type system.³⁶ Hrnčir [1993] even notes that the incomplete recapitalization of banks implies the risk of the recapitalization to have to be repeated. However, the fact that the first recapitalization can be justified as a non-recurring event because it dealt only with the immediate legacies of the past, this danger may be less pronounced than in Hungary or Poland, as will be shown below.

³⁵ More specifically, one bank was taken over by the Czech Savings Bank, one discontinued its activities, and one is actually undergoing bankruptcy procedures.

³⁶ The largest Czech bank, Komerční Banka was, according to international accounting standards, running losses in 1992. According to Czech standards, the bank was profitable [Handelsblatt, 30.6.1994]. According to unofficial sources, these discrepancies had largely been eliminated in 1993.

Estonia

Perhaps the most risk-prone strategy of dealing with the banking crisis has been adopted by Estonia.³⁷ Shortly after the Estonian currency reform of June 1992³⁸, three commercial banks became insolvent and were subjected to moratoria by the Central Bank. The banking crisis was in fact a result of the stabilization phase after the introduction of the Krown. Insolvent banks quickly became illiquid as their refinancing opportunities with the Central Bank dried out and as profit opportunities from foreign exchange operations became more limited [Hansson, 1994, p. 9]. In November 1992, when the banking crisis was inevitable, there was a payments backlog in the order of magnitude of about 19 percent of total bank lending [IMF, 1993, p. 19]. The reasons for these bank insolvencies were at least twofold. In one case, the poor quality of the loans portfolio was primarily the result of asset mismanagement. This bank was closed and depositors received only their fair share out of the revenue from selling the bank's assets which is estimated to amount to 50 percent of the face value of the claims [Hansson, 1994, p. 12]. The other two banks were insolvent because they held their assets with accounts of the Russian Foreign Trade Bank which had become insolvent. These banks were merged and recapitalized through the government and the Central Bank by an overall amount of 400 Million Estonian Krowns. For this purpose, the Estonian government issued bonds at the amount of 300 Million Krowns which were used to replenish the new bank's capital (43 Million) and to buy the bank's claims on the Russian Foreign Trade Bank [North Estonian Bank, 1993]. Deposits by firms and the population with that Russian bank were transferred to a newly created VEB-fund, which is under the control of the Central Bank and of the government. These accounts, which are most likely to be worthless, still accounted for 15 percent of the deposits of the whole banking system at the end of 1993. These deposits, for which the VEB fund issued certificates of deposits, are not covered by any official guarantee. In the context of the Estonian banking crisis, 10 further banks were merged, 8 lost their licenses, and two more banks were closed without depositors being bailed out [Hansson, 1994, p. 1]. Accordingly, the number of banks in Estonia was reduced from 42 at the end of 1992 to 20 at the end of 1993. Deposits are generally not insured through the government or the Central Bank. One exception to this rule is the Estonian Savings Bank which private deposits are fully insured by the Central Bank since the monetary reform. In exchange for this guarantee, however, the Savings Bank was subjected to a 100 percent reserve requirement for its deposits until restructuring and management changes of the bank were completed [Ross, 1993, p. 42].

Together with the revoking of banking licenses and the recapitalization of two banks, stricter banking regulations and reporting requirements were implemented at the beginning of 1993. These changes include the requirement of a higher capital base for commercial banks,

³⁷ The information in this paragraph is based on various issues of the quarterly Bulletin of Eesti Pank as well as on Sutt [1994].

³⁸ For a detailed account of the Estonian monetary reform and the functioning of its currency board system see Bennett [1992], Lainela [1992], and Buch [1993].

the maintenance of a 8 percent risk-weighted capital-asset ratio, rules on maximum risk exposure for both, the bank's client as well as for the bank. In addition, banks were subjected to minimum reserve requirements of 10 percent for all their accounts. Compliance with these rules is checked by the banking supervision department of the Central Bank. Further amendments to the Estonian banking law are currently under the review of the Estonian parliament. They intend to bring Estonian rules closer to international standards and, among others, to introduce legislative measures against money laundering.³⁹ In addition to the introduction of prudential regulations that aim at improving the solvency of Estonian bank, the Central Bank has undertaken efforts to improve the liquidity position of banks. The modified currency board system which was established in Estonia does allow the Central Bank to provide only a limited lender-of-last-resort facility [Hansson/Sachs, 1994] by lending its excess reserves to troubled banks. The Central Bank does not offer liquidity assistance on a regular basis through a discount window facility. For this reason, the operation of an inter-bank money market is of crucial importance for maintaining the liquidity of Estonian banks. Hence, in June 1993, the Central Bank started to auction off certificates of deposits (CD's). Commercial banks can buy these certificates against any excess balances that they hold on the accounts with the Central Bank. In response to this issuance of CD's, money market turn-over has increased substantially to a monthly turnover of 850 million Estonian Krowns in February 1994, which is equivalent to 13 percent of commercial banks' assets [Eesti Pank, 1994:2].

The Estonian approach to dealing with the banking crisis resembles most closely the ideal approach outlined above. Losses were made transparent, the crisis was solved in a timely manner, hence saving scarce resources, and owners lost their equity stakes. Because the government and the Central Bank refrained from bailing out banks which losses were due to management failure, moral hazard problems are unlikely to occur. In addition, the tight monetary policy of the Estonian Central Bank seems to be credible as it led to lower real interest rates in Estonia as compared to the other Baltic states [Hansson/Sachs, 1994]. One immediate effect of the crisis, however, has been a decline in the money multiplier and, hence, a tendency towards disintermediation of the financial system. The crucial question for the future success of the Estonian strategy is whether banks can resume their role to finance investment without putting the stability of the financial system at risk. Apart from the establishment of a functioning money market, the introduction of a deposit insurance system is of crucial importance in this regard. It is planned to establish such a system on a completely private basis. While this approach minimizes the incentives of banks to gamble on public bail-outs it does not yet solve problems of moral hazard and adverse selection in insurance markets as such [Rothschild/Stiglitz, 1976]. As these problems are likely to impede the evolution of an efficient privately-run insurance system, Estonia may allow its banks to join a foreign

³⁹ The draft of the new banking law foresees compliance with the banking standards of the European Union by the year 2000 [Hansson, 1994, p. 7].

deposit insurance system. The provision of access to deposit insurance systems could be an effective opportunity for the West to enhance the potential for financial stability in the East.⁴⁰ In addition, domestic banking supervision may make information on the quality of banks available to the general public.

Hungary

The Hungarian government relied on a gradual approach to bank recapitalization and balance sheet restructuring up to 1992. Banks were supposed to recapitalize themselves through high interest rate spreads and, at the same time, to provide tax revenues to the government. Only in 1991 did the government extend guarantees to the banks covering loans of 10.5 billion Forint [OECD, 1993, p. 65]. This measure could, however, offer only minor relief to the commercial banks as only 1 percent of their non-governmental loans or 12 percent of the classified debt was covered. Despite these rather ineffective efforts at solving the stock problem of bad debt, the Hungarian authorities exposed the banks to quite substantial legislative changes aimed at solving the flow problem. In 1992, prudential regulations for banks were tightened (1.12.1991), new accounting and reporting requirements were introduced, and the bankruptcy law became effective (1.1.1992) [Abel/Bonin, 1994]. As a consequence of these institutional changes, the true amount of financial distress was revealed, the financial situation of banks worsened dramatically, and many of them reported negative net-worth.⁴¹ Banks virtually stopped any new lending to the business sector and restructured their asset portfolios towards holding more safe assets such as loans to the government.⁴² Hence, the government was forced to implement measures which directly targeted the stock problem with the loan consolidation programs of 1992 and 1993.

The original intention of the loan consolidation program was to avoid a major financial crises, to strengthen the capital base of banks, and to prepare them for privatization. All loans which had been granted prior to November 1992 to borrowers undergoing liquidation were covered by the program.⁴³ By January 1993, commercial banks which were either state-owned or, upon approval of the Ministry of Finance, which had a capital-asset ratio below 7.25 percent could submit parts of their loan portfolios to be bought by a state-owned Development and Investment Corporation at centrally determined prices. The banks received (i) 50 percent of the face value of loans granted prior to December 1991, (ii) 80 percent for

⁴⁰ The same recommendation applies to the West to grant access to inter-bank money market which would tend to mitigate liquidity risks for Estonian banks.

⁴¹ Abel and Bonin [1994] report that three of the four largest banks were insolvent according to international accounting procedures at this time.

⁴² Although nominal credit expanded slightly in 1992, these increases primarily reflect capitalized interest [Calvo/Kumar, 1994, p. 24].

⁴³ Consumer credits, housing loans, and inter-bank loans were not covered [Csáki, 1993, pp.16]

the loans granted between January and September 1992, and (iii) 100 percent for loans to those state-owned enterprises which were selected by the State Privatization Agency [OECD, 1993, p. 66]. In March 1993, upon a case-by-case examination through the Ministry of Finance, recapitalization of the banks commenced. In return for 102.6 billion Forint of non-performing loans – most of it having been contracted between 1990 and 1992 [Szanyi, 1993, p. 3] –, the banks received 79.4 billion Forint in Consolidation Bonds [Csáki, 1994, p. 17]. These bonds have a maturity of 20 years and yield the treasury bill rate if they replace the principal of a loan and of 50 percent of that rate if they replace interest arrears, respectively. In addition, the banks had to pay a participation fee of up to 50 percent of the interest revenue they received from the bonds. Because the participation fee lowered the effective value of the bonds, banks were initially recapitalized only for 30 percent of their bad loans. Hence, the fee and the interest differential were dropped in June 1992 [Abel/Bonin, 1994]. Altogether, the three banks which had inherited the corporate sector loan portfolios of the monobank⁴⁴ contributed about one third of all loans to the first loan consolidation program, which is roughly equivalent to their share in commercial banks' assets [Table 3].

Overall, the first loan consolidation program had little impact on the behavior of banks and enterprises as well as on the quality of the banks' loan portfolios. At the end of 1993, banks reported the same amount of non-performing loans as one year earlier while overall credit expansion had been a modest 6.38 percent between January and November 1993. Because many banks still had a negative net worth, the government decided to buy equity issued by the banks, thus gradually raising their capital-asset-ratio from zero percent by the end of 1993 to 4 percent by May 1994 and, finally, to the full 8 percent. The purchase of the equity shares was financed through the sale of government bonds, but for the last stage of this program, financial support from the World Bank is envisaged. The total costs of the Hungarian bank consolidation programs are estimated at 296 billion Forint [NZZ, 12.-13.6.1994]. The interest costs of this program therefore amount to 1,5 percent of GDP in 1993.⁴⁵

⁴⁴ These are the Budapest Bank, The Hungarian Credit Bank, and the Commercial and Credit Bank [OECD, 1993, p. 56].

⁴⁵ These calculations are made at an interest rate on treasury bills of 17 percent. As an additional step towards the strengthening of the domestic banking system, Hungary established guidelines for a deposit insurance system in June 1993. However, it remains unclear to what extent the government and the Central Bank keep an implicit obligation to support ailing financial institutions. For details see "Act on National Deposit Insurance Fund", Ministry of Finance, Budapest, 1993.

Table 3

Participation in Hungarian Loan Consolidation Scheme

	<u>1st Loan Consolidation</u>		<u>2nd Consolidation</u>		Total Amount Received [bn Forint]	Share of Bank in Banking System's Assets ^a [%]
	Loans Sold [bn Forint]	Share of Bank's Assets [%]	Amount received to reach 0 % Capital Adequacy [bn Forint]	Amount received to reach 4 % Capital Adequacy [bn Forint]		
Budapest Bank	15	9.2 %	5	4.6	24.6	7.2 %
Commercial and Credit Bank	0.914 ^b	0.38 %	33	5	38.9	10.53 %
Foreign Trade Bank	12.4	5.73 %	0	NA	12.4	9.58 %
Hungarian Credit B.	30 ^b	9.3 %	55	NA	85	14.2 %
Savings B.	6.7	1 %	NA	NA	6.7	33.84 %
Total five Banks [bn Forint]	65.01 (75.7 ^c)		93	9.6	167.6	75.34 %
TOTAL [bn Forint]	102.6		114.4	22	239	100 %
Share five Banks [%]	74 %		81 %	44 %	70 %	

a) 25 largest banks

b) Amount of bonds received.

c) Full amount of loans submitted without deductions for lower face value of bonds out of a total of 102.6 billion Forint.

Sources: Csáki [1993]; Planecon Business Report [1994]; NZZ [12.-13.6.1994]; The Banker [July 1994]; own calculations.

The Hungarian bank consolidation schemes have, finally, achieved one of their main goals that is to strengthen the capital base of Hungarian banks. However, these achievements have only come at substantial costs in terms of government credibility, efficiency of resource allocation as well as costs to the budget:

— Because the recapitalization of banks was substantially delayed with respect to the creation of a two-tier banking system, resource mis-allocation continued for a substantial amount of time, and the privatization of banks was delayed. After the new prudential regulations were introduced in 1992, banks virtually stopped credit expansion, and the domestic financial sector lost part of its intermediary role.

- Recapitalization lacked, both, transparency as well as safeguards against moral hazard problems. Because the initial program was not sufficiently encompassing and even needed to be modified shortly after its implementation, banks could actually gamble on future bail-outs and further increase their risk exposure. Moral hazard problems were also inherent in the program because (i) not only banks which inherited a stock of non-performing loans from the previous regime, (ii) not only loans to state-owned enterprises, and (iii) not only loans which were granted in socialist times were covered by the program.
- Mistakes were also made as regards the pricing of assets. First, the pricing was not left to the market but prices were centrally determined. In addition, loans which were granted prior to the introduction of new accounting requirements and prudential regulations were bought at a lower discount than loans which were granted in 1992, i.e. at a time when the new rules already applied and when banks may have had expectations about a future bail-out. Poor management was thus rewarded.
- In contrast to its original intention, the program raised the government's ownership stake in the banking system rather than speeding up the privatization of banks. As government officials are now becoming heavily involved in drawing up business plans for the recapitalized banks, banks may even have become more unattractive for outside investors.

Poland

In Poland, similar to the case of Hungary, no attempt was made until 1992 to deal with the problem of non-performing loans on the balance sheets of banks.⁴⁶ Then, however, the Law on the Financial Restructuring of Banks and Enterprises became effective in March 1993 which intends to solve the solvency problem of 11 state-owned banks and, at the same time, to restructure indebted enterprises. Apart from those nine banks which inherited the monobank's loan portfolios, the Savings Bank and the Bank for Agriculture were covered by the program. The new law consisted of two main parts, the debt restructuring and the recapitalization of banks [Pietrzak, 1994, pp. 26]. As far as debt restructuring is concerned, assets which were classified doubtful or low quality prior to June 1992 qualify for participation in the scheme. Hence, as in Hungary, not only inherited non-performing loans are covered. Only firms which are fully state-owned or in which the state holds more than 50 percent of the shares are covered by the program [Pawlowicz, 1994, p. 44]. The qualifying assets must be transferred to a special unit within the bank, and no new loans may be extended to the firms in question. The newly created loan work-out departments have to analyze restructuring plans and to start reorganization of the enterprises. During these conciliatory procedures, the debt of the enterprise can be converted into equity shares, it may be sold on the market, or be serviced. If no restructuring plan is submitted, the enterprise is forced into liquidation. Debt

⁴⁶ For a detailed account of the Polish approach see Pawlowicz [1994] and OECD [1993].

restructuring plans had to be worked out by the end of March 1994 when 131 agreements had already been reached between banks and enterprises, and when banks had initiated additional 128 conciliatory procedures. Altogether 16 billion zloty or 3.7 percent of the non-governmental credits at the end of 1993 were involved in these agreements, being submitted by seven banks [Presseschau Ostwirtschaft, 1994, p. 13].

Bank recapitalization is, in principle, not directly tied to the handling of specific loans. Rather, a total amount of 21 trillion zloty has been set aside which is being used for replenishing the banks' capital base. These costs are not entirely born by the budget because international financial sources could be tapped. Seven out of the nine banks which had been carved out of the former monobank had received government bonds at the amount of 11 trillion zloty by the end of 1993, intending to bring their capital-asset-ratios to 12 percent. This amount of recapitalization is actually roughly equivalent to the amount of loans that the banking system inherited from the former monobank system. It may, however, not suffice to fully recapitalize the banks [Gomulka, 1993, p. 18]. This is one reason why the National Bank of Poland offers special credit lines to support the program [Pawlowicz, 1994, p. 58]. This additional support makes the program less credible and opens the door for moral hazard behavior on part of the banks. The other two banks out of the nine, which have been privatized already, do not receive additional financial support and are to cover loans losses out of their profits [Pietrzak, 1994, pp. 26]. The remaining 10 trillion zloty are used to recapitalize the Savings and the Agricultural Bank.

While the Polish reform program also suffers from severe delays in implementation, it yet avoids some pitfalls of the Hungarian model. First, as the selection of the participating banks was made strictly on the basis of being successors of the monobank system, as the recapitalization amount is roughly equivalent to the amount of inherited loans, and as only loans to state-owned enterprises are covered, moral hazard problems are somewhat less likely to occur. Secondly, bank managers are given incentives to avoid risky lending because enterprises which are under conciliation cannot receive further loans and because managers received stock options which can be executed upon bank privatization [Calvo/Kumar, 1994, p. 24]. As the timing of privatization depends on the quality of the banks' assets, the executives have thus an incentive to improve portfolio quality. Thirdly, the program does not arbitrarily assign prices for the debt but rather relies on market-based pricing. Finally, the Polish approach utilizes the learning potential of banks. This makes the process of bank restructuring more time-consuming than a centralized solution would but, at the same time, does not relieve bank managers from the obligation to acknowledge past mistakes. In contrast to Hungary, however, Poland has not yet adjusted its banking legislation to Western standards [Pietrzak, 1994, p. 28], hence delaying effective solutions of the flow problem of bad debt.

IV. Outlook

Despite mounting problems of non-performing loans in their commercial banking systems, neither the Czech Republic nor Hungary or Poland, have experienced major banking failures. The reasons why banking distress has not yet led to banking crises are twofold. First, the governments until recently provided implicit deposit insurance to the state-owned banks. Hence, depositors were ultimately expecting to be bailed out and had thus no incentive to withdraw their deposits as a response to banks' solvency problems. This also explains why even technically insolvent banks were able to attract new deposits and thus to maintain their liquidity. Secondly, central banks may at times have provided liquidity assistance even to insolvent banks although the data on central bank lending suggests that this has not been a dominant source of liquidity. The introduction of explicit deposit insurance schemes and a more discriminatory refinancing policy will inevitably increase the public perception of banking risks. This may incidentally raise the currency-to-deposit ratios and make a bank run more likely. A bail-out of the affected banks, however, is not a viable option because, in all three countries, the problem of the inherited debt has been dealt with already.⁴⁷ A government bail-out would thus cause substantial problems of moral hazard because it would reward mis-management.

The policies that have been implemented with regard to solving the stock problem are far from being uniform in terms of efficiency and effectiveness. Two different strategies can be distinguished. Former Czechoslovakia and Estonia, on the one hand, solved the stock problem of non-performing loans at the beginning of financial sector reforms by recapitalizing or closing insolvent banks, respectively. After that, only Estonia implemented fairly tight prudential regulations and seems thus far to have succeeded in keeping its banking system stable. Both countries are more advanced in terms of privatization of their banks and as regards financing the private sector than Hungary and Poland. The latter, on the other hand, have relied on a more gradual approach and launched recapitalization program only at fairly late stages of the reform process. This delay has substantially retarded bank privatization and has, in fact, increased the scope for moral hazard behavior of banks awaiting future bail-outs. One major reason for this moral hazard behavior of commercial banks is that it becomes increasingly difficult to tell new and old bad debts apart as the reform process continues. Hungary tried to tackle the flow problem prior to the stock problem which virtually served to dry out funds to be lent to the enterprise sector while Poland took a more gradual stance in this regard.

The implementation of an efficient banking supervision and of proper prudential regulations remains of utmost importance also for the more advanced reform states of Eastern Europe. As banks gain strength and expand their operations into new fields of business, they

⁴⁷ Of course, this conclusion also holds for Estonia.

may also adopt greater risks. Clear guidance should thus be given to banks regarding the collateralization of loans. Loan classification schemes should not only take account of the time period for which a loan has not been serviced but also include the value of collateral into the assessment of loan quality. This requires asset price behavior such as stock prices to be watched closely by both, the banks and the banking supervisors. In addition, reporting requirements should take off-balance sheet risks into account. Ultimately, however, even the most effective banking supervision cannot make up for the failures that occurred in the bank itself as regards lending decisions. Incentives should be clear enough for banks to appropriately manage risks in house by, most importantly, imposing an effective bankruptcy threat on banks. Liquidity assistance should be granted to solvent but illiquid banks, using data collected by the banking supervision to categorize banks⁴⁸, while insolvent banks should be closed.

⁴⁸ See Mishkin [1994] for a similar argument.

Literature

- ABEL, Istvan, and John P. BONIN, 1994, Financial Sector Reform in the Economies in Transition: On the Way to Privatizing Commercial Banks, in: John P. BONIN, and István P. SZÉKELY (eds.), *The Development and Reform of Financial Systems in Central and Eastern Europe*, forthcoming.
- BALTENSPERGER, Ernst, 1989/90, The Economic Theory of Banking Regulation, in: FURUBOTN/RICHTER, *The Economics and Law of Banking Regulation*, Center for the Study of New Institutional Economics, Occasional Papers No. 2, 1-21.
- , and Jean DERMINE, 1992, "European Banking: Prudential and Regulatory Issues", in: DERMINE, Jean (ed.), 1992, *European Banking in the 1990s*, Oxford, 17-37.
- , and Hellmuth MILDE, 1987, *Theorie des Bankverhaltens*, Berlin.
- THE BANKER, 1992, Can the banks fly? – Special Report on Eastern Europe, September, London, 20-44.
- , 1993, Top East Europeans, September, London, 31-32.
- , 1994, Sales wait for the rush, July, 38-43.
- BEGG, David, and Richard PORTES, 1993, Enterprise Debt and Economic Transformation: Financial Restructuring in Central and Eastern Europe, in: MAYER, Colin, and Xavier VIVES, (eds.) *Capital markets and financial intermediation*, Cambridge, 230-254.
- BENNETT, Adam, 1992, The Operation of the Estonian Currency Board, IMF Paper on Policy Analysis and Assessment, No. 3, Washington.
- , and Susan SCHADLER, 1992, Interest Rate Policy in Central and Eastern Europe: The Influence of Monetary Overhangs and Weak Enterprise Discipline, International Monetary Fund, Working Paper, No. 92/68, Washington D.C.
- BRAINARD, Lawrence, 1991, Reform in Eastern Europe: creating a capital market, *Economic Review*, Federal Reserve Bank of Kansas City, 49-58.
- BRUNNER, Karl, and Allan H. MELTZER, 1988, Money and Credit in the Monetary Transmission Process, *American Economic Review*, Vol. 78, No. 2, May, 446-451.
- BUCH, Claudia M., 1993, Das erste Jahr der Krone – Estlands Erfahrungen mit der Währungsreform, *Die Weltwirtschaft*, No. 4, 441-465.
- , 1994, Insolvency Costs and Incomplete Information in Commercial Banks – Implications for Financial Reform in Eastern Europe, Institute of World Economics, Working Paper, No. 616, Kiel.
- , Norbert FUNKE, Ralph HEINRICH, and Martin RAISER, 1994, Overcoming Obstacles to Successful Transformation in Eastern Europe, Kiel Institute of World Economics, *Kieler Studie*, No. 261, Kiel.
- BUCHTIKOVA, A., and A. CAPEK, 1994, Financial Structure, Performance and the Banks, *Ceská Národní Banka, Institut Ekonomie*, Working Paper, No. 18, Prague.
- CALVO, Guillermo A., and Manmohan S. KUMAR, 1994, Money Demand, Bank Credit, and Economic Performance in Former Socialist Economies, International Monetary Fund, Working Paper, No. 94/3, Washington D.C.
- CSÁKI, György, 1993, Recent Improvements in Hungarian Banking, Hungarian Academy of Science, Institute for World Economics, Working Papers, No. 27, December.

- CZECH NATIONAL BANK (CNB), Financial Statistical Information – The Czech Republic, various issues, Prague.
- CZECH BUSINESS UPDATE, various issues, Prague.
- DEUTSCHE BUNDESBANK, Monatsberichte, various issues, Frankfurt a. M.
- DEWATRIPONT, Mathias, and Jean TIROLE, 1993, Efficient governance structure: implications for banking regulation, in: MAYER, Colin, and Xavier VIVES (eds.), Capital markets and financial intermediation, Cambridge University Press, 12-34.
- THE ECONOMIST, 9.7.1994, Lincenzed to fail, No. 7871, London.
- EESTI PANK, Quarterly Review, various issues, Tallinn.
- GARVY, George, 1966, Money, Banking, and Credit in Eastern Europe, Federal Reserve Bank of New York, New York.
- GERN, Klaus-Jürgen, 1993, Noch keine Überwindung der Bankenkrise in Japan, Die Weltwirtschaft, 1:1993, 61-69.
- GLOWNY URZAD STATYSTYCZNY (GUS), 1993, Poland - Quarterly Statistics, No. 1-4, Vol. 1, Warsaw.
- GOMULKA, Stanislaw, 1993, The Financial Situation of Polish Enterprises 1992-3 and Its Impact of Monetary and Fiscal Policies, Paper presented at the international conference "Output Decline in Eastern Europe – Prospects for Recovery?", 18.-20.11.1993, IIASA, Austria.
- HANDELSBLATT, various issues, Düsseldorf.
- HANSAPANK and HOIUPANK, Eesti Majandus – Estonian Economy, various issues, Tallinn.
- HANSSON, Ardo H., 1994, Reforming the Banking System in Estonia, Paper prepared for the LSE/IEWS conference on "Banking Reform in FSU and Eastern Europe: Lessons from Central Europe", 14-15 January 1994, Budapest, mimeo.
- , and Jeffrey D. SACHS, 1994, Monetary Institutions and Credible Stabilization: A Comparison of Experience in the Baltics, Revised version of a paper presented at the conference on "Central Banks in Eastern Europe and the Newly Independent States", University of Chicago Law School, April 22-23, 1994.
- HINDS, Manuel, 1990, Issues in the Introduction of Market Forces in Eastern European Socialist Economies, World Bank Internal Discussion Paper, No. 0057, Washington.
- , 1993, Policies to Overcome the Transformation Crisis: The Case of Russia, in: Horst Siebert (ed.), Overcoming the Transformation Crisis – Lessons from Eastern Europe for the Successor States of the Soviet Union, Tübingen, 285-304.
- HRNCIR, Miroslav, 1993, Financial Intermediation in Former Czechoslovakia and in the Czech Republic: Lessons and Progress Evaluation, Economics Systems, Vol. 17, No. 4, December, 301-327.
- , 1994, Credit Markets, Private Sector, and Corporate Governance – The Czech Experience, Paper presented at the first workshop of the VW-Project "Banks in the Transformation Process", held on June 8-9, 1994, at the Kiel Institute of World Economics.
- INTERNATIONAL MONETARY FUND, 1993, Economic Review – Estonia, May, Washington D.C.
- , International Financial Statistics (IFS), various issues, Washington D.C.

- LEVINE, Ross, and David SCOTT, 1992, Old Debts and New Beginnings – A Policy Choice in Transitional Socialist Economies, Policy Research Working Papers, No. 876, World Bank, Washington.
- LAINELA, Seija, 1993, Currency Reform in the Baltic States, Bank of Finland, mimeo.
- MATHIESON, D.J., 1980, Financial Reform and Stabilization Policy in a Developing Economy, *Journal of Development Economics* 7, 359-395
- MINISTRY OF ECONOMIC AFFAIRS (Estonia), 1994, Estonian Economic Survey, Tallinn.
- MINISTRY OF FINANCE (Hungary), 1993, Act on National Deposit Insurance Fund, Public Finance in Hungary, No. 121, Budapest.
- MISHKIN, Frederic S., 1994, Preventing Financial Crises: An International Perspective, Supplement to the Manchester School Papers in Money, Macroeconomics and Finance, Vol. 62, 1-40.
- , 1992, Anatomy of a financial crisis, *Journal of Evolutionary Economics*, Vol. 2, 115-130.
- MIZSEI, Kalman, 1994, Lessons from Bad Loan Management in East Central European Economic Transition for the Second Wave Reform Countries, Institute for EastWest Studies, New York, February, mimeo.
- MOHR, Ernst, 1991, Economic Theory and Sovereign International Debt, London.
- NATIONAL BANK OF HUNGARY (NBH), Monthly Report, various issues, Budapest.
- NATIONAL BANK OF POLAND (NBP), Monthly Report, various issues, Warsaw.
- NEUE ZÜRCHER ZEITUNG, various issues, Zürich.
- NORTH ESTONIAN BANK, 1993, Interim Report 1.01.-30.04.1993, Tallinn.
- ORGANISATION FOR ECONOMIC COOPERATION AND DEVELOPMENT (OECD), 1993a, Transformation of the Banking System: Portfolio Restructuring, Privatisation and the Payment System, Paris.
- , 1993b, Economic Surveys – Hungary, Paris.
- , 1994, Country Survey – Czech and Slovak Republics, Paris.
- PAWLOWICZ, Leszek (ed.), 1994, The Financial Restructuring of Companies and Banks in Poland and Sweden, The Gdansk Academy of Banking, Study Material No. 1, Gdansk.
- PEROTTI, Enrico C., 1993, Bank lending in transition economies, *Journal of Banking and Finance*, Vol. 17, 1021-1032.
- , 1993b, Eastern European Financial Systems: The Creation of Inside Money, Boston University and Central European University, November, mimeo.
- PIETRZAK, Edmund, 1993, The Development of the Market-Oriented Financial and Currency Systems in Hungary and Poland (1989-1993), The Gdansk Institute for Market Economics, Economic Transformation, No. 40.
- PLANECON, Business Report, 1994, Hungary Weighs Consolidation Costs, Vol. 4, Issues 5, 2.3.1994, 10.
- , Monthly Economic Monitor, various issues, Washington D.C. and London.
- , 1993, Review and Outlook – Analysis and Forecast to 1998 of Economic Development in Eastern Europe, December 1993, Washington D.C.
- , 1994, Review and Outlook – Analysis and Forecast to 1998 of Economic Development in the Former Soviet Republics, February 1994, Washington D.C.

- PRESSESCHAU OSTWIRTSCHAFT, 1994, Erste Ergebnisse der Bankenrestrukturierung, Mai, Wien, 13-14.
- ROSS, Märten, 1993, Asset Selection Behavior of Estonian Commercial Banks in 1992 - 1993, Eesti Pank, Tallinn, mimeo.
- ROSTOWSKI, Jacek, 1993, The Implications of Rapid Private Sector Growth in Poland, London School of Economics, Centre for Economic Performance, Discussion Paper, No. 159, July, London.
- ROTHSCHILD, Michael, and Joseph STIGLITZ, 1976, Equilibrium in Competitive Insurance Markets: An Essay on the Economics of Imperfect Information, Quarterly Journal of Economics, Vol. 51, No. 4, 629-649.
- SAUNDERS, Anthony, and Andrea SOMMARAVIA, 1993, Banking sector and restructuring in Eastern Europe, Journal of Banking and Finance, No. 17, 931-957.
- SCHIANTARELLI, Fabio, Izak ATIYAS, Gerard CAPRIO Jr., John HARRIS, and Andrew WEISS, 1993, Credit Where It Is Due? A Review of the Macro and Micro Evidence on the Real Effects of Financial Reform, mimeo.
- SCHMIEDING, Holger, 1991, Lending Stability to Europe's Emerging Market Economies: on the Importance of the EC and the ECU for East-Central Europe, Kiel Institute of World Economics, Kiel Working Paper No. 481.
- , and Claudia M. BUCH, 1992, Better Banks for Eastern Europe, Kiel Discussion Paper No. 197, December 1992, Kiel.
- STATE BANK OF CZECHOSLOVAKIA (SBC), Financial Statistical Information - Czechoslovakia, various issues, Prague.
- STIGLITZ, Joseph E., and Andrew WEISS, 1981, Credit Rationing in Markets with Imperfect Information, American Economic Review, 393-410.
- SUNDARARAJAN, V., and Tomás J. T. BALINO, 1991, Banking Crises: Cases and Issues, International Monetary Fund, Washington D.C.
- SUTT, Andres, 1994, New Banks and New Money - The Estonian Experience, Paper presented at the first workshop of the VW-Project "Banks in the Transformation Process", held on June 8-9, 1994, at the Kiel Institute of World Economics.
- SZANYI, Miklós, 1993, The Liquidity Crisis and Bankruptcy Procedures in Hungary, Budapest, mimeo.
- THORNE, Alfredo, 1993, Eastern Europe's experience with banking reform: Is there a role for banks in the transition?, Journal of Banking and Finance, No. 17, 959-1000.
- TIOLE, Jean, 1994, On banking and intermediation, European Economic Review, No. 38, 469-487.
- WIENER INSTITUT FÜR INTERNATIONALE WIRTSCHAFTSVERGLEICHE (WIIW), 1994, Constraints on growth: reports on Poland, the Czech republic and Hungary, Research Reports No. 205, April, Wien.
- WYCZANSKI, Pawel, 1994, Are Efficient Financial Markets Needed for Growth? - The Polish Experience, Paper presented at the first workshop of the VW-Project "Banks in the Transformation Process", held on June 8-9, 1994, at the Kiel Institute of World Economics.

Table 4:

Classification of Recapitalization Programs

	Czech Republic	Estonia	Hungary	Poland
I. Solutions to the Stock Problem				
Case-by-Case vs. Wholesale	<u>1991:Wholesale:</u> 110 billion Krowns of Perpetual Inventory Credits were transferred to Consolidation Bank; banks were recapitalized for 7 % (50 billion Krowns) of their loans to the non-governmental sector in 1991	<u>1993: Case-by-case:</u> recapitalization of two banks at the amount of 15 % of all bank loans in January 1993	<u>1987:</u> recapitalization for 1.7 % of loans (replacement of housing loans); <u>1987-1992:</u> gradual recapitalization through interest spreads <u>1992-1994: Case-by-case:</u> Loans that were non-performing at the end of 1992 qualified for participation in first loan consolidation scheme which covered 4 % (before June 1993) and 12 % (December 1993) of all bank loans to the non-governmental sector	<u>1989-1992:</u> gradual recapitalization through interest spreads, <u>since 1992: Case-by-case:</u> Banks decide which loans to write off; maximum amount of recapitalization 21 trillion zloty; the deadline for the submission of loans was March 1993. Alternatives to loan write-offs are pay-back schemes, debt-equity swaps, debt sales, and liquidations.
Centralized vs. Decentralized	<u>Centralized:</u> Consolidation Bank administers loans and might return performing loans to banks	<u>Centralized:</u> banks to be recapitalized were selected by Central Bank	<u>Centralized/Decentralized:</u> Hungarian Investment and Development Corporation (MBF) administers loans but decision which loans to submit is made by the bank; MBF contracts loans management partially out to the banks	<u>Decentralized:</u> loan hospitals of the commercial banks administer loans and decide which ones to write off; twinning agreements with Western banks; bank managers receive stock options that can be exercised upon privatization which, in turn, depends on quality of the loan portfolio

	Czech Republic	Estonia	Hungary	Poland
Asset vs. Liabilities Side	<u>Asset and Liability:</u> Banks received 38 billion Krowns in bonds issued by the Consolidation Bank in exchange for the loans; 12 billion Krowns were issued to replenish banks' capital	<u>Asset and Liability:</u> Newly merged bank was partially re-capitalized by government bonds; in addition, the government bought stock of the bank. This purchase was financed by the sale of government bonds.	<u>Asset and Liability:</u> 1st consolidation scheme → loans were replaced by government bonds indexed to Treasury rate 2nd scheme → government buys equity of banks, financed by bonds sales	<u>Asset and Liability:</u> Government bonds are used to replenish equity-base of banks.
II. Solutions to the Flow Problem				
Ceilings for commercial bank lending	<u>1991-92:</u> Credit limits for state-owned banks were the main instrument of monetary policy up to October 92; banking law foresees limits on large exposure	Limits on large exposures are in place.	Single credits may not exceed 25 % of the capital of the bank or 50 million Forint	<u>1990-92:</u> attempt to implement credit ceilings (30 % of all loans to private firms); ceilings were set with respect to total assets and unrelated to bank's capital or deposit base; single credit may not exceed 10.5 billion zloty or 10. % of bank's capital
Prudential Regulations	<u>up to 1996:</u> gradual implementation of BIS-standards	<u>1993:</u> banks have to write off bad loans which are overdue for more than 150 days against pre-tax reserves or net profits; tighter regulations	<u>1991-92:</u> implementation of tighter banking regulations, new and independent banking supervision	<u>1991:</u> Western auditors analyze Polish banks <u>1992:</u> new accounting rules for banks

	Czech Republic	Estonia	Hungary	Poland
Bankruptcy Law	<u>1993</u> : gradual implementation of bankruptcy law for banks and enterprises <u>1994</u> : closure of 3 banks with about 2.7 percent of assets of 10 largest banks at the end of March	<u>1992-93</u> : closure of 3 banks with liabilities of 30 % of the money supply; licenses of all together 20 banks have been revoked	<u>1992</u> : implementation of bankruptcy law for banks and enterprises <u>1993</u> : three banks closed	<u>1991-1992</u> : three banks being closed
Deposit Insurance	<u>up to 1994</u> : Private deposits in state-owned banks fully insured by government. <u>1994</u> : mandatory deposit insurance scheme (July)	No deposit insurance; private insurance is envisaged.	<u>up to 1993</u> : automatic insurance for state-owned banks <u>1993</u> : implementation of deposit insurance system in June	<u>up to 1993</u> : automatic insurance for state-owned banks <u>1993</u> : mandatory deposit insurance
Bank Privatization	<u>1993</u> : bank privatization through vouchers; state retains controlling stakes	gradual increase of private share-holdings; 67 % of banks' capital was privately held in mid-1994	<u>end 1994</u> : bank privatization planned	<u>1992-93</u> : two banks privatized
III. Debt Relief to Enterprises	Consolidation Bank and commercial banks decide over debt relief; by the end-1991: debt relief of 22 Bio. granted to enterprises to be privatized. <u>1993</u> : two debt clearing operations by National Property Fund.	Estonian Privatization Agency reports minor cases of debt forgiveness granted to enterprises at the time of their sale; no systematic evidence available.	Debt-equity-swaps are possible but stakes cannot be kept longer than 6 months if they exceed maximum allowed investment level for banks; 13 large enterprises received guarantees and debt forgiveness until March 1994; total amount of 174 billion Forint	Banks decide over debt relief; debt-equity-swaps are possible

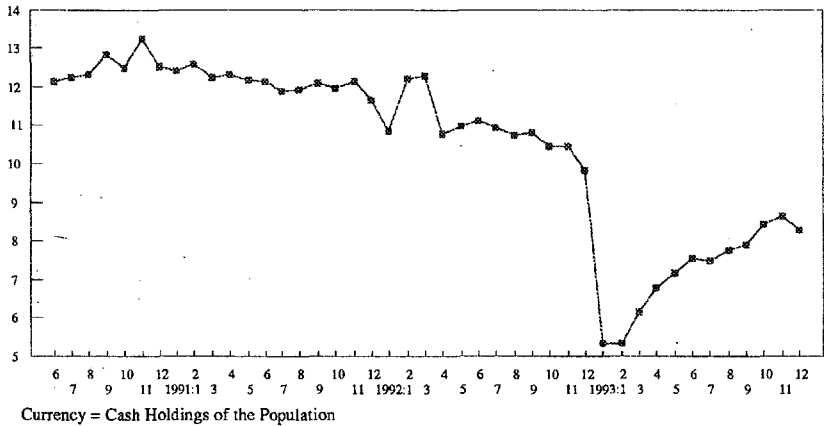
Sources: OECD [1994, 1993a, 1993b]; Schmieding/Buch [1992]; Eesti Pank, various issues; Ministry of Economics (Estonia); Hansapank; Planecon [1994b].

Graph 1

Indicators of Financial Crises

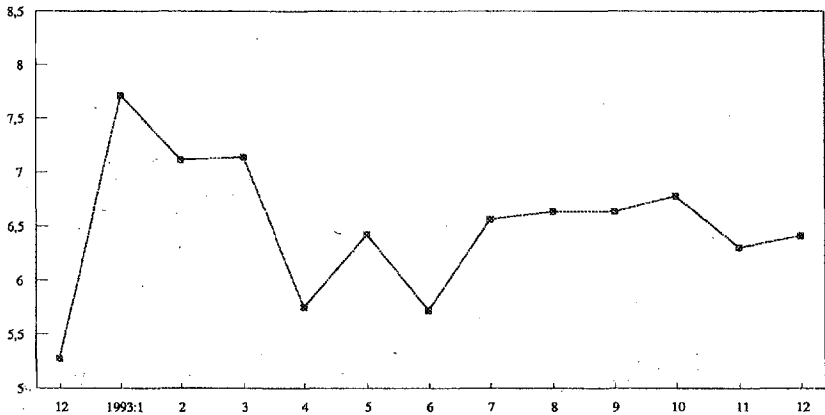
(1) Czech Republic, 1990-1993.^a

a) Currency as a Share of M2, 1990-1993. [in percent]

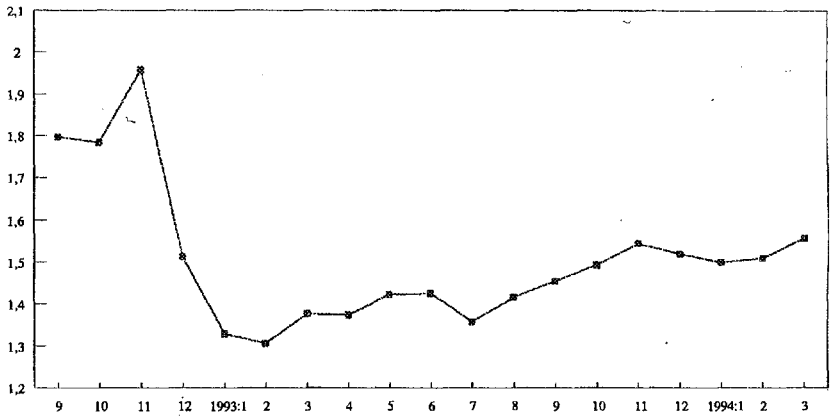
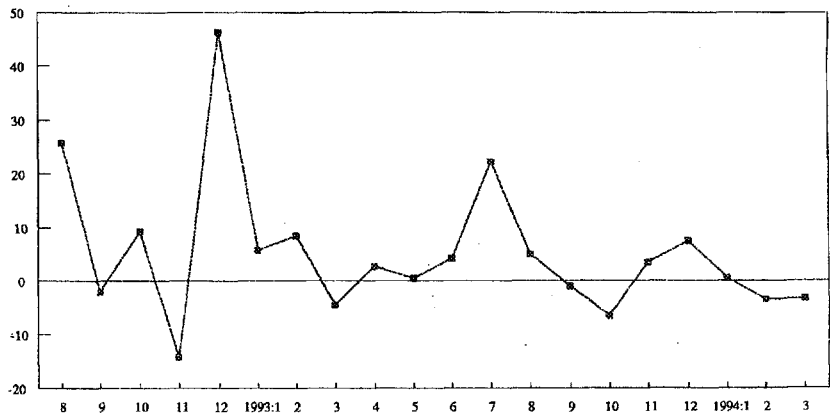


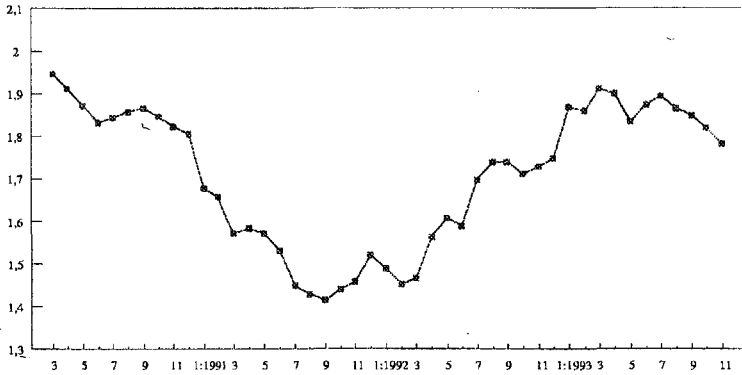
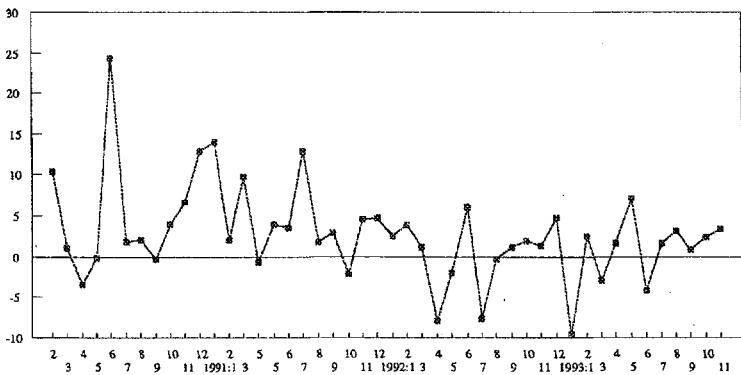
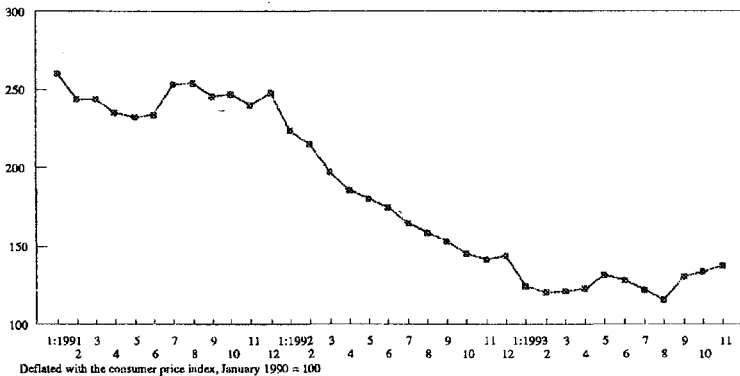
a) 1990-1991: Czechoslovak data

b) Money Multiplier



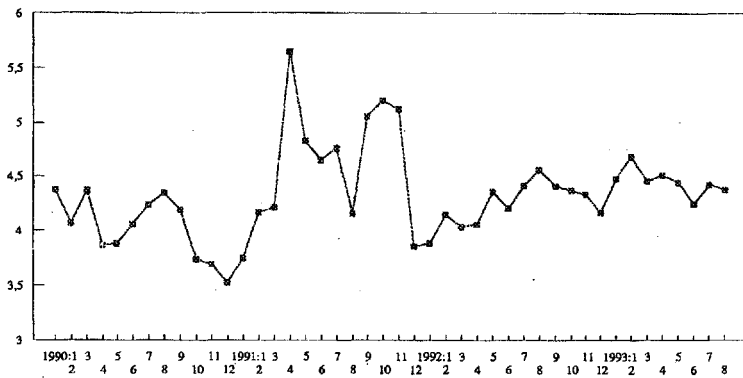
Sources: Various issues of CNB, Eesti Pank, NBH, NBP, SBC, IFS.

(2) Estonia, 1992-1994.*a) Money Multiplier**b) Monthly Growth Rate of Reserve Money [in percent]*

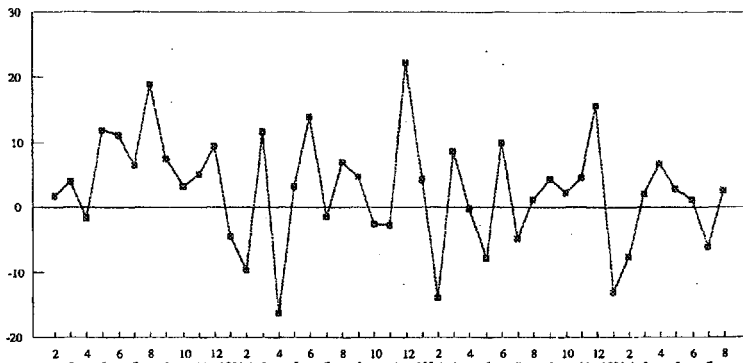
(3) Hungary, 1990-1993.**a) Money Multiplier****b) Monthly Growth Rate of Reserve Money [in percent]****c) Real Central Bank Credit to Non-Governmental Sector [in billion Forint]**

(4) Poland, 1990-1993.

a) Money Multiplier



b) Monthly Growth Rate of Reserve Money [in percent]



c) Real Central Bank Credit to Non-Governmental Sector [in trillion Zloty]

