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**Establishing Monetary Control in Financial Systems  
With Insolvent Institutions**

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by

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Abstract

The paper addresses the problem of establishing monetary control in financial systems with insolvent institutions. In particular, it examines the potential adverse selection, moral hazard, and collusion problems that can arise if indirect, auction-based monetary control systems are used in this environment. The analysis also considers the credit risks that can be assumed by the authorities when these market failures occur. The implications of using several alternative monetary control mechanism including a narrow banking system, the use of credit ceilings, and a two-tier banking system are also examined.

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	<u>Contents</u>	<u>Page</u>
I.	Introduction	1
II.	Techniques for Establishing Monetary Control	2
III.	The Use of Indirect Monetary Policy Instruments in Financial Systems with Insolvent Institutions	6
IV.	Alternative Arrangements for Establishing Monetary Control	11
	1. Narrow banking proposals	15
	2. Direct and indirect monetary instruments	17
	a. Direct monetary policy instruments	18
	b. Indirect monetary policy instruments	20
V.	Conclusion	23
	Bibliography	24

## I. Introduction

Countries in Eastern Europe and the former Soviet Union (FSU) face the problem of establishing monetary control in order to foster noninflationary growth. It is widely recognized that the credibility of monetary control depends importantly on achieving fiscal control. Beyond ensuring fiscal discipline, however, establishing monetary control involves three basic considerations: (1) selecting a nominal anchor--the exchange rate or some monetary or credit aggregate; (2) establishing the rate of expansion for central bank domestic credit consistent with maintaining the nominal anchor; and, (3) determining the modalities for distributing central bank credit to the financial system. The first two considerations have received much attention in recent policy discussions. However, the advantages and disadvantages of different techniques for distributing central bank credit in a financial system dominated by insolvent institutions have received less attention; our paper will focus on this topic, particularly on the use of auctions of central bank credit.

In industrial countries, as well as in many developing countries, indirect monetary instruments encompassing discount window operations, advances, repurchase agreements, and open market operations are employed to alter the stock of central bank credit in the financial system. In market based financial systems with solvent financial institutions subject to appropriate prudential supervision and market discipline, these indirect instruments provide a mechanism that ensures both an efficient distribution of credit and minimizes the credit risks that the central bank incurs. A key issue for countries making the transition from centrally planned to market

economies is whether such techniques can be effective in financial systems dominated by insolvent financial and nonfinancial institutions.

The rest of this paper is divided into three sections. Section II examines the advantages of using indirect monetary policy instruments in market based financial systems. Section III considers the adverse selection, moral hazard, and collusion problems that can arise when auction-based, indirect monetary policy instruments are used in transition economies. In Section IV we discuss alternative direct and indirect monetary policy instruments that can be used to establish monetary control for economies with financial systems dominated by insolvent institutions. The paper draws some conclusions in the final section, Section V. 1/

## II. Techniques for Establishing Monetary Control

In the early post-World War II period, monetary control in many industrial and developing countries was established through the use of direct monetary and credit instruments. Direct credit controls were particularly important during the reconstruction of Germany and Japan. These instruments typically involved the use of controls on interest rates (often with preferential interest rates for certain classes of borrowers), aggregate and individual bank credit ceilings, credit allocation rules for financial institutions, and high required reserve and liquidity ratios. In financial systems dominated by commercial banks and closed to external financial transactions, such direct controls were seen as an effective means of influencing both the level of macroeconomic activity and the distribution of

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1/ While the focus of this paper is on transition economies, many of the proposals advanced are equally relevant for developing countries which are in the process of moving to indirect monetary control.

credit (Mathieson (1991)). However, as financial systems became more complex and open to international transactions, these instruments became increasingly difficult to administer effectively. Their macroeconomic effects also became less predictable as new financial institutions, instruments, and techniques created new avenues for the evasion and avoidance of direct controls. The monetary authorities in those countries therefore gradually moved toward monetary control systems based on indirect monetary instruments both to overcome the shortcomings of direct instruments and to improve the efficiency of their financial systems.

While the relative importance of different types of indirect monetary instruments has differed across countries, there has been a trend toward using a combination of auction-based instruments and on-demand central bank facilities to meet both the short- and long-term liquidity needs of the financial system (Johnston and Brekk (1990) and Stigum (1983)). Auction-based instruments include, inter alia, open market purchases and sales of government securities, repurchase agreements, and foreign exchange operations. In auction-based operations, central bank credit is directed toward those market participants willing to pay the highest price. <sup>1/</sup> On-demand facilities are typically focused on the central bank's discount window operations and advances. Such facilities often serve as a supplement to the central bank's auction-based operations, which are focused on satisfying the economy's general liquidity needs, and are used to meet the temporary liquidity needs of individual banks. In operating these facilities, the

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<sup>1/</sup> At times, central banks will accept less than the highest price in order to distribute open market operations across a dealer network.

central bank usually specifies borrowing interest rates and establishes either explicit or implicit limits on access by individual banks to the facilities.

In designing auction-based operations and on-demand facilities, central banks try to ensure that they take onto their balance sheets only the most liquid and creditworthy instruments in the financial system. Open market operations usually involve transactions with either government or central bank securities which presumably are regarded as carrying zero credit risk. Similarly, repurchase agreements often involve government securities. For discount window operations and advances, the authorities typically define the set of eligible paper to be the commercial banks' most creditworthy, short-term instruments. 1/ The creditworthiness of these instruments is judged at several levels. First, when the bank acquires the short-term paper that may eventually be used as collateral in its borrowing from the central bank's discount window, it must make a creditworthiness judgment about the corporate entity to which it is lending. In addition, in order for the bank to acquire these instruments, its depositors, owners, and creditors must also make a judgment that the bank is creditworthy or they would not provide the bank with the funds it needs for purchasing earning assets. 2/ These private-sector creditworthiness judgments are supplemented by the authorities' prudential supervision that is undertaken to help ensure that financial institutions are solvent and operating within established rules and procedures.

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1/ Even if a bank presents eligible paper, the central bank would still make an administrative judgment about whether the bank has already presented "too much" paper for discounting. If so, the central bank can refuse to discount more eligible paper for the bank.

2/ It is nonetheless well recognized that the presence of government guarantees such as deposit insurance or the belief that a financial institution will be assisted by the authorities because it is "too big to fail" can erode market discipline and distort creditworthiness evaluations.

On the grounds of both efficiency and minimizing the credit risks that the central bank faces, indirect monetary instruments therefore offer an attractive means of establishing monetary control in economies with a broad range of financial structures. And, for economies making the transition from centrally planned to market based systems, the establishment of monetary control systems based on indirect monetary instruments is clearly an appropriate medium-term objective.

Whether reliance on indirect monetary instruments in the short run is appropriate for economies in transition is a separate question. As indicated above, the attractiveness of indirect monetary instruments, especially those involving auction facilities, is based on the assumption that participants in the auction are solvent and subject to market discipline, as well as effective prudential supervision. Unfortunately, a significant proportion of the financial and nonfinancial institutions in transition economies are not subject to hard budget constraints, and there is often a weak system of prudential supervision and regulation. <sup>1/</sup> This raises the issue of what difficulties are likely to be encountered if the authorities should move rapidly to use auction-based indirect monetary policy instruments, as well as the steps that might be taken to minimize these difficulties.

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<sup>1/</sup> Perotti (1993) has characterized the financial systems of these economies as encompassing: (1) state owned banks with large holdings of nonperforming loans; (2) new private banks, some of which have been set up by nonfinancial state-owned enterprises (SOEs) to obtain easier access to credit; (3) weak systems of prudential supervision; (4) poorly developed securities markets and nonbank financial intermediaries; (5) many SOEs with weak financial positions and whose long-term solvency is questionable; and (6) implicit or explicit deposit insurance guarantees.

### III. The Use of Indirect Monetary Policy Instruments in Financial Systems with Insolvent Institutions

The use of indirect monetary policy instruments would appear to offer a number of advantages over the arbitrary and noneconomic criteria used to allocate credit by the central banks in most FSU and Eastern European countries. For example, even though the scope for open market operations is limited by the size--or even the existence--of government securities markets, it has been suggested that central banks might use auctions to distribute planned increases in central bank credit to the financial system. Such auctions have been seen as introducing competitive market practices to both the central bank and other financial institutions, providing greater transparency regarding the authorities' criteria for allocating central bank credit, reducing wasteful, rent-seeking activities in the allocation of credit, directing credit toward the most efficient uses, and being consistent with the medium-term objective of establishing a monetary control system based on indirect monetary instruments (see Saal and Zamalloa (1994)). However, in order for credit auctions to provide these benefits, they must not expose the central bank to excessive credit risks because the financial system is dominated by insolvent institutions.

Feldman and Mehra (1993) and Guasch and Glaessner (1992) have analyzed alternative auction mechanisms and have indicated some of the potential problems that can arise, especially if some participants are insolvent or not subject to hard budget constraints. In considering when to establish credit auctions, Guasch and Glaessner (1992) concluded that auctions should be used when: (1) there is significant evidence that current lending practices are not providing a fair and efficient allocation of credit, (2) the competence and



administrative capacity of supervisory agencies to monitor and assess the credit risk of potential participants can be assured, and (3) that competition exists, or can be induced, in the banking and financial sector. In addition, they argued that where state owned banks are major participants, credit auctions are unlikely to be suitable until the banks are privatized. If these conditions are not satisfied, then the principal difficulties associated with credit auctions are adverse selection and moral hazard problems, 1/ both of which tend to raise real interest rates and credit risks, and collusion by oligopolistic borrowing institutions, which tends to result in low (possibly negative), real interest rates. 2/

Credit auctions in transitional economies can potentially give rise to significant adverse selection, moral hazard and collusion problems because of the prevailing incentive structure. For example, state-owned enterprises (SOEs) that cannot cover their current operating costs through sales of output

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1/ Adverse selection problems reflect the fact that auctions attract a high proportion of those institutions with the highest propensity to take risks, whereas moral hazard problems arise because of the inability of the lender (the auctioneer) to control or affect the usage of the funds by the borrowers. More generally, moral hazard problems in the financial system can arise whenever the owners, creditors and depositors lack either the incentive (e.g., if there is deposit insurance) or the ability (e.g., because of poor disclosure requirements) to control the risk-taking activities of banks' managers.

2/ While it may be impossible to fully eliminate these problems, some steps can be taken to limit them; but each corrective step involves assessing tradeoffs. For example, adverse selection problems could be reduced by limiting participation in the auctions but this could increase the possibility of collusion. Moreover, to control for the consequences of adverse selection and moral hazard, it may be necessary to place institution-specific caps on the amount of credit an institution can obtain, both at a single auction and cumulatively; but the process of determining these caps can reduce the transparency of the auctions. As a practical matter, the appropriate design of the auction necessarily involves evaluating the extent of the adverse selection, moral hazard and collusion problems in each situation and employing those measures which will deal most effectively with the most pressing problems.

will have strong incentives to obtain credit to meet their working capital needs. In a stabilization program that sought to limit direct public credits to SOEs and the expansion of interenterprise arrears, SOEs would turn to the banks which had extended earlier credits for additional funds. Moreover, high borrowing costs would not necessarily deter borrowing by insolvent SOEs, especially if there is a past history of governmental assistance to troubled SOEs. The banks, in turn, would have strong incentives to supply additional credits in order to keep their borrowers afloat and avoid revealing the extent of their bad loans. If loans to insolvent SOEs constituted a significant proportion of a bank's portfolio, 1/ then the need to supply additional credits to its troubled borrowers could provide the bank with an incentive to bid aggressively for either deposits from the public or central bank credits. In this situation, an adverse selection problem arises because credit is directed to the most risky borrowers and to the most risky projects. 2/ If these adverse selection problems become significant, then solvent enterprises and new private firms will be excluded from the credit market by their unwillingness to pay the high interest rates that insolvent SOEs are willing to incur.

Moral hazard problems can arise if prudential supervision is weak and depositors have few incentives to monitor the lending activities of banks, such as would occur if depositors perceive that their deposits will be

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1/ A strong incentive for additional lending would naturally also exist if the troubled SOEs were also the principal owners of the bank.

2/ One potential indicator of such problems would be the emergence of very high real interest rates.

protected by implicit or explicit government deposit insurance. <sup>1/</sup> In this situation, insolvent banks would increase their shares of central bank credit and total deposits by being willing to pay the high interest rates at central bank auctions and by offering higher deposit interest rates than could be paid by solvent financial institutions. Moreover, in systems with weak prudential supervision, the authorities may find it difficult to monitor bank activities and ensure compliance with prudential standards. Thus, with weak prudential supervision and limited market discipline, an auction-based monetary control system can lead to a perverse situation: insolvent institutions and enterprises have incentives to expand their operations at the expense of solvent ones.

Collusion problems can also arise from the strategic behavior of borrowers. As Perotti (1993) has noted, the close relationship between banks and SOEs has at times meant that, as credit conditions have been tightened, banks have created a "united front" with SOEs to lobby for a collective bailout through credit expansion by the central bank. In contrast to the effects of moral hazard and adverse selection problems, such collusive activities will tend to depress interest rates at central bank credit auctions and deposit interest rates and create pressures for a bailout of enterprise arrears.

When these problems of adverse selection, moral hazard, and collusion become severe, they can affect not only the distribution of central bank credit but also, importantly, the credit risks assumed by the central bank itself. For example, consider the situation where the central bank has

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<sup>1/</sup> As has been demonstrated in many industrial and developing countries, government deposit insurance guarantees can limit (or remove) the incentive for depositors to monitor a bank's loan portfolio and thereby eliminate an element of market discipline.

decided to auction domestic assets. A number of different auction arrangements could be utilized. One possibility would be for the central bank to auction credit to banks and accept claims on the individual banks with the highest bids. In a financial system dominated by insolvent financial institutions, however, adverse selection and moral hazard problems would not only direct the central bank's credit toward the support of insolvent banks and their borrowers, but would also concentrate the highest credit risks in the financial system on the central bank's balance sheet. Even in the industrial countries where financial systems are dominated by solvent banks, the central banks seldom, if ever, accept direct claims on a bank precisely because of these credit risk considerations. As noted earlier, commercial bank borrowing from the central bank therefore takes place on a collateralized basis with the central bank accepting "eligible" paper as part of its discount operations or repurchase arrangements.

Consequently, it has been suggested that the credit risks assumed by the central banks in transition economies could be limited if credit auctions were done on a collateralized basis. An important issue is what "eligible" paper could serve as collateral. Eligible paper in the industrial countries typically consists of either short-term claims of banks on their most credit-worthy borrowers or government securities. While the central bank in a transition economy could accept a bank's claims on an SOE, it might be very difficult to be confident that these were claims on a viable SOE. Indeed, many insolvent banks might hold little other than claims on insolvent enterprises. In this situation, auction transactions collateralized by claims on SOEs would do nothing to minimize the credit risks assumed by the central bank.

If auction transactions were collateralized by government securities, the credit risks assumed directly by the central bank would be minimized. However, there is still the question of whether the credit risks associated with insolvent banking institutions would be eliminated or merely transferred to another agency. In order for an insolvent bank to obtain the government securities which could serve as collateral for future borrowing from the central banks, it would have to offer a deposit interest rate that would attract new deposits. Thus, while the central bank would not necessarily take on new credit risks with collateralized auction techniques, the authorities would still be exposed to credit risks through explicit or implicit deposit insurance arrangements.

The credit risks assumed by the authorities can be of importance because of both the potential future budgetary obligations that can emerge in the case of eventual bank failures and the incentives that can be created for a more inflationary monetary policy that would erode the real value of the public sector funding obligation associated with deposit insurance or generate inflation tax revenues to cover the central bank's losses.

#### IV. Alternative Arrangements for Establishing Monetary Control

A number of policy issues arise as a result of the market failures described above. First, if credit auctions are not employed, what alternative techniques for establishing monetary control can be used? Second, if auction based monetary instruments are to be utilized, how can the auctions be structured so as to minimize the problems of adverse selection, moral hazard and collusion? Several proposals have been put forth to answer these questions, and they draw on the recent experiences of a number of industrial

and developing countries in dealing with insolvent, or nearly insolvent, institutions. In considering the relevance of the experiences of the industrial and developing countries for the problems confronting transition economies, however, it is clear that different "initial conditions" have faced these two sets of countries. The industrial and developing countries had market based financial systems in which most, if not all, of the financial institutions were initially solvent. Their authorities were primarily concerned with the problems that arise as the financial positions of previously solvent institutions eroded. In contrast, the FSU and Eastern European countries face the problems of dealing with financial systems that may be initially dominated by insolvent financial and nonfinancial institutions. 1/

While the authorities in countries with market based financial systems have had the common medium term objective of restructuring or closing insolvent financial institutions, there have been a variety of approaches to limiting the impact of these institutions on both the financial system and the authorities' ability to maintain monetary control. Nonetheless, there have been some common elements in all of these approaches. First, as the financial positions of solvent institutions eroded below established prudential supervisory norms, their activities became subject to increasingly restrictive administrative guidance. While the extent of such administrative guidance was typically addressed on a case-by-case basis, the procedures were formalized in established legal codes in some countries. Second, as the financial positions of supervised institutions deteriorated below acceptable regulatory

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1/ For Eastern Europe, Thorne (1993) estimated that at the end of 1991 non-performing loans as a proportion of total bank lending ranged from 37 percent (in Romania) to 50 percent (in Hungary).

norms, the authorities often took steps to limit or exclude the participation of these institutions in auction markets. In the United States, for example, the Financial Institutions Reform, Recovery, and Enforcement Act (FIRREA) of 1989 excluded "troubled" institutions (i.e., those that did not meet minimum risk-adjusted capital-asset ratios) from accepting brokered deposits, offering above-market deposit interest rates, or, in some cases, even expanding their lending activities or the acquisition of other assets. Finally, in order to help minimize the public sector funding obligations associated with the provision of deposit insurance, the authorities increasingly moved to merge, take control, or dissolve troubled institutions before they became technically and legally insolvent (i.e., their net worth became zero or negative).

These prudential supervisory practices have been reflected in a number of proposals regarding reform of the financial systems in transition economies (for example, see Begg and Porter (1992), Bredenkemp (1993), McKinnon (1991), Perotti (1993), and Rostowski (1994)). Since these proposals have attempted to identify the policies that would facilitate a transition from a centrally planned to a market based financial system, they have addressed a much broader range of issues than those involved in establishing monetary control in financial systems dominated by insolvent institutions. Nevertheless, the proposals encompass a number of suggestions regarding the use of direct and indirect monetary policy instruments in transition economies. In the remainder of this section, we first summarize the nature of these proposals, examine the rationales for the particular policies that have been recommended, and consider the advantages and disadvantages of utilizing the different monetary control mechanisms.

To address the adverse selection and moral hazard problems associated with financial transactions between insolvent financial institutions and nonfinancial enterprises, most proposals have focused on the use of: (1) a narrow banking structure, (2) direct monetary policy instruments (particularly credit ceilings), and (3) auction-based indirect monetary policy instruments with access limits and other restrictions to limit the influence of insolvent institutions. A narrow banking structure would limit the activities of banks to the provision of payments services and require that they hold only safe assets (typically government securities). The provision of credit would be shifted to nonbank lenders who would remain outside the official safety net that applied to banks. Direct monetary policy instruments, particularly bank-by-bank credit ceilings, have been viewed as an instrument, albeit an imperfect one, for both establishing monetary control and limiting the ability of insolvent institutions to expand at the expense of solvent institutions. The proposed restructuring of auctions of central bank credit so as to minimize the adverse selection and moral hazard problems has focused on institutional arrangements that attempt to control the credit risks assumed by the authorities by limiting access to the credit auctions to solvent ("primary dealer") banks and by forcing other banks to borrow either from the primary dealers or from a central bank facility with very limited access.

These proposals represent short-term, second best solutions for limiting the problems created by insolvent institutions. The ultimate solution will necessarily involve restructuring or closing of insolvent financial and non-financial institutions, the creation of an adequate system of prudential supervision, and the establishment of appropriate legal arrangements, accounting standards, and disclosure requirements.



1. Narrow banking proposals

A narrow banking structure represents the most direct attack on the problems created by insolvent institutions for both excessive risk taking in the financial system and monetary control. The use of a narrow banking structure has been only one element in a number of proposals regarding reform of the financial systems in transition economies (for example, see McKinnon (1991) and Rostowski (1994)). In an environment where it is difficult to determine which institutions are solvent and prudential supervisory resources are limited, these proposals have stressed the need to improve the payments system and avoid excessive risk taking in the banking system. To achieve these objectives, it has been argued that a number of steps need to be taken. First, all unrestructured SOEs would receive their financing through the central fiscal budget. 1/ Such a measure would limit moral hazard and adverse selection problems by both reducing the scale of risky lending that the banking system would undertake and by allowing the authorities to create incentives for restructuring the SOEs. 2/ In addition, the banking system would be restricted to the provision of payments services and would be required to hold only safe assets (preferably government securities or deposits at the central bank). Deposit interest rates would be set marginally below the yield on safe assets or alternatively depositors could be charged for the payments services they receive. All privatized and restructured SOEs

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1/ Banks could still provide payments services to SOEs. It would also be possible that banks could administer the funds that SOEs receive from the central fiscal budget.

2/ Perotti (1993) has suggested the use of conditional subsidies to unrestructured SOEs which tie the availability of these subsidies to the formulation of restructuring and privatization plans by the management of the SOEs.

and new private firms would be limited to self-finance or to the nonbank financial market as a source of funds. 1/

Only as an adequate prudential supervision system is developed and commercial banks are restructured and privatized would banks be allowed to undertake commercial lending. While some proposals envisage a full resumption of lending activities, other proposals would allow only fully collateralized short-term lending to liberalized SOEs and other private firms. There would also be close prudential supervision of banks, and banks would be allowed to offer competitive lending and deposit interest rates. Most proposals have been vague about the expected duration of the narrow banking structure, but the broadening of banking activities would be clearly tied to the pace of the restructuring of insolvent financial institutions and enterprises and the development of an adequate institutional framework (including the establishment of adequate accounting, legal and prudential supervision arrangements) that would facilitate the emergence of competitive financial markets.

If a narrow banking structure is utilized, maintaining monetary control would be relatively straightforward. Since banks would effectively face 100 percent reserve requirements, there would be no auctions of central bank credit to banks. The stock of base money could be expanded through the

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1/ The rationale for limiting restructured SOEs and private firms to self-finance was that this would be the simplest technique for imposing financial restraints on these entities. As nonbank private capital markets (e.g., markets for short-term commercial bills) began to emerge, the financial constraint on the nonbank firms would be relaxed, but the private lenders would also face bankruptcy if they made bad loans; this would introduce an element of market discipline. McKinnon has emphasized, however, that self-finance can yield such market discipline only in a low inflation environment. In a situation of high inflation and negative real interest rates, the state banking system may have to continue to provide credit to SOEs to prevent industrial collapse. Because interest rates are not used to ration credit, credit would have to be allocated administratively.

issuance of credit to the government and by purchases (e.g., through discount window operations) of government securities held by commercial banks and foreign exchange in order to meet the liquidity needs of the public.

The major disadvantages of the narrow banking structure are threefold. First, the extension of credit by nonbank institutions would take place in an institutional environment that is subject to limited prudential supervision and whose depositors are, by design, excluded from the official safety net. It has been argued that this will give the owners and depositors greater incentives to monitor the activities of the managers of these institutions. However, once these nonbank institutions become large, it may become difficult for the authorities to allow them to fail. Second, adopting a narrow banking structure could make it more difficult to make an eventual transition to a broader banking structure (e.g., universal banking) since bank managers would have little experience with commercial lending. Finally, a narrow banking structure could inhibit the development of other financial markets. For example, efficient government securities markets typically require the provision of liquidity from banks to securities dealers and brokers so that these markets participants can effectively manage their portfolios.

## 2. Direct and indirect monetary instruments

As an alternative to a narrow banking structure, it has been suggested the banking system and monetary control mechanisms of transition economies be designed to be similar to those that have been used in industrial and developing countries with appropriate modifications to deal with the problems caused by insolvent institutions. One possibility would be to utilize direct monetary policy instruments, including credit ceilings such as were employed

by many industrial countries in the 1950s and 1960s and continue to be used by many developing countries. Another possibility would be to consider how to modify the indirect monetary policy instruments, such as credit auctions or open market operations, so that the potential adverse selection, moral hazard and collusion problems are minimized.

a. Direct monetary policy instruments

In a number of recent analyses, direct monetary policy instruments (encompassing credit ceilings, interest rate ceilings, and reserve ratios) have been discussed as a means of both establishing monetary control and limiting excessive risk taking in the financial systems of transition economies (see Begg and Portes (1992), Bredenkemp (1993), Hilbers (1993), Perotti (1993) and Thorne (1993)). For example, the central bank could establish the overall rate of expansion of bank credit that would be consistent with its stabilization program; and it could then specify the percentage increase in each bank's lending that would be allowed to take place during a particular period. Each bank would then decide on which individual projects would be funded under the ceiling. In most proposals, lending and deposit interest rates would be set by the authorities at levels designed to ensure a modest, positive real deposit rate and with a spread between lending and deposit interest rates wide enough to allow relatively efficient bank to earn a profit. Those banks that did not attract enough deposits to allow them to expand their lending in line with the credit ceiling would be able to obtain refinance credits from the central bank at a cost equal to or above the deposit rate.

Such arrangements would allow for a relatively straightforward monetary control mechanism. The overall expansion of the monetary base would come

through central bank extensions of credit to the government and through a limited access refinance facility. Overtime, greater flexibility could be added to this system by allowing banks to attract nondeposit sources of funds. Such subordinate debt could be used to fund lending outside the credit ceiling, and it would carry market determined interest rates. Since this subordinated debt would not be subject to official guarantees, the bank's creditors would have a strong incentive to monitor the banks activities; and this would introduce an element of market discipline.

In addition to providing a direct mechanism for establishing monetary control, this institutional structure would limit the ability of insolvent financial institutions to expand at the expense of solvent institutions, both by limiting their ability to expand their activities (due to the credit ceilings) and by not allowing them to offer above average deposit interest rates. Nonetheless, such arrangements would not eliminate the activities of insolvent financial institutions; and, if such institutions engaged in excessively risky lending, the authorities could still face a potentially large public sector funding obligation when the depositors ultimately need to be protected. The only way to avoid this problem would be to establish more restrictive credit ceilings for insolvent than for solvent institutions, but this would require that the authorities be able to differentiate between the two types of institutions, something especially difficult in the early stages of the transition to a market economy.

Perhaps the biggest potential problem associated with the use of credit ceilings is that it necessarily involves the bureaucracy in the credit allocation process, and this opens up the scope for favoritism and bribery. If such bureaucratic interference occurs, then there could be an inefficient

distribution of credit directed toward politically favored borrowers and a crowding out of new borrowers.

b. Indirect monetary policy instruments

Using indirect, auction based monetary policy instruments in financial systems dominated by insolvent institutions is a difficult undertaking; one has to consider carefully how typical market economy auction mechanisms must be restructured. As noted earlier, one of the key features of the indirect auction based monetary policy systems in western economies is that the authorities rely on market participants to judge the day-to-day creditworthiness and solvency of individual financial institutions. 1/ In particular, the short-term creditworthiness of commercial banks is judged by their ability to access the interbank market for reserve money. In this market, each bank typically establishes ceilings on the credit that it will extend to any other bank, which reflects its judgment about that bank's creditworthiness. In turn, the central bank limits its need to make creditworthiness judgments by engaging only in collateralized transactions with individual banks in either its open market operations, discount window, or advances activities. 2/ Banks that are excluded from the interbank market or draw heavily at the discount window are immediately subject to enhanced prudential supervision.

It has been suggested that one means of mimicking this system in a transition economy would be to create a two tier banking system. The first tier would consist of those banks that the authorities could identify as

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1/ These market based creditworthiness evaluations are supplemented by the authorities' prudential supervision.

2/ Nonetheless, central banks can (and do) establish limits on the access of individual banks to their discount window.

creditworthy ("primary dealers") banks, and these banks would be the focus of the authorities' prudential supervision activities. Only the primary dealer banks would be allowed to participate in the central bank credit auction, and there would be limits on their access both to individual auctions and to the cumulative amount of central bank credit that is issued through auctions. Moreover, if the government securities market were adequately developed, then the auction could be conducted on a collateralized basis. The identification of which banks were creditworthy would necessarily involve a judgment by the authorities. But, in the absence of competitive markets, such a judgment is unavoidable. Indeed, the decision to open the auction to all financial institutions would imply that the authorities have made the implicit judgment that all institutions are equally creditworthy.

All other ("second tier") banks would normally be expected to obtain funding through deposits or by borrowing from the primary dealer banks. The primary dealer banks would then play a key role in evaluating the creditworthiness of the other banks. Banks that were denied access to the interbank market of the primary dealers would have limited access to a central bank facility where interest rates would be tied to the rate established at the most recent credit auction. In deciding how much each second tier bank would be allowed to borrow at this facility, the central bank would again have to make a judgment about its viability. Since the authorities' prudential supervision resources would be focused on the primary dealer banks, it has been argued that the authorities may need to adopt uniform access criteria coupled with indicators that a particular bank may be having difficulties and therefore require special attention. There are a variety of access structures that could be utilized, but most would set period (e.g., monthly) and

cumulative limits on the use of the facility and monitor the activities of banks that either fully utilize their access limits or offer above average deposit interest rates. To give banks that cannot access the interbank market an incentive to restructure, it could also be announced that the real size of this facility would be diminished over time.

The advantages of this institutional structure are that it would introduce market determined interest rates, would limit the credit risks assumed by the central bank (especially if credit auctions took place on a collateralized basis), and would introduce credit evaluation techniques to the primary dealer banks. However, there are a number of potential problems and tradeoffs that can arise under this structure. First, given limited prudential supervision resources, the authorities would face a tradeoff between designating a large number of primary dealer banks (so as to increase competition in the credit auction) and the ability to effectively supervise the primary dealer banks. Second, if the set of primary dealers is relatively small, then it may be difficult to prevent collusion between the major banks in their bids at the credit auction. Moreover, such collusion could also affect lending and deposit rates. This would be reflected in relatively low real returns on deposits and a wide spread between lending and deposit interest rates. In an environment with inadequate disclosure requirements, poorly developed accounting standards, and uncertain property rights, the evaluation of the portfolio positions of individual banks, which would be vital for the evaluation of the creditworthiness of an individual bank by both the primary dealer banks and the supervisory authorities, would be highly uncertain. This process would be further complicated if the major banks were either owned or controlled by their major borrowers. Even in western financial systems, where



prudential supervision and market discipline are much stronger, these factors have often contributed to excessive risk-taking by bank managers.

## V. Conclusion

While the use of indirect monetary policy instruments to establish monetary control in transition economies is a highly desirable medium-term objective, a strong case can be made for linking the introduction of these instruments to institutional reforms that facilitate market discipline and strengthen prudential supervision. Premature reliance on auction-based indirect monetary policy instruments can give rise to adverse selection, moral hazard, and collusion problems that can create large public sector funding obligations because of credit risks assumed by the public sector.

During the period when market discipline and prudential supervision are weak, a narrow banking structure, direct monetary policy instruments, or specially structured auction based indirect monetary policy instruments will be needed to deal with the problems created by insolvent institutions. None of these approaches is a panacea, all three have drawbacks. The narrow banking option would lead to credit being created outside of the banking system and could impede the development of the financial system. Direct instruments will necessarily involve the bureaucracy in the credit allocation process and are unlikely to rapidly eliminate insolvent banks from the system. An auction based system especially designed to mimic the important features of markets in developed economies might result in collusion and insufficient competition.

Bibliography

- Begg, David and Richard Portes, "Enterprise Credit and Economic Transformation: Financial Restructuring in Central and Eastern Europe", Birkbeck College, The University of London and CEPR, (Draft May 1992).
- Blommestein, Hans J. and Michael G. Spencer, "The Role of Financial Institutions in the Transition to a Market Economy", IMF Working Paper WP/93/75, International Monetary Fund, Washington, D.C. (October 1993).
- Bredenkamp, Hugh, "Conducting Monetary and Credit Policy in Countries of the Former Soviet Union: Some Issues and Options", IMF Working Paper WP/93/23, International Monetary Fund, Washington, D.C., (March 1993).
- Calvo, Guillermo and Jacob A. Frenkel, "From Centrally Planned to Market Economy", IMF Staff Papers, pp. 268-299, Vol. 38, No. 2, International Monetary Fund, Washington, D.C., (June 1991).
- Calvo, Guillermo and Manmohan S. Kumar, "Money Demand, Bank Credit and Economic Performance in Former Socialist Economies", IMF Working Paper WP/94/3, International Monetary Fund, Washington, D.C., (January 1994).
- Feldman, Robert A. and Rajnish Mehra, "Auctions: Theory and Applications," IMF Staff Papers, pp. 485-511, International Monetary Fund, Washington, D.C., (September 1993).
- Guasch, J. Luis and Thomas Glaessner, "Auctioning Credit: Conceptual Issues", Latin American and the Caribbean Technical Department, Regional Studies Program, World Bank Report No. 15, (World Bank, Washington, D.C. (January 1992).
- Hilbers, Paul, "Monetary Instruments and Their Use During the Transition from a Centrally Planned to a Market Economy," IMF Working Paper WP/93/87, International Monetary Fund, Washington, D.C., (November 1993).
- Johnston, R. Barry and Odd Per Brekk, "Monetary Control Procedures and Financial Reform: Approaches, Issues, and Recent Experiences in Developing Countries," in P. Callier (ed.), Financial Systems and Developments in Africa, The World Bank, Washington, D.C., (1990).
- Johnston, R. Barry, "Aspects of the Design of Financial Programs with the Adoption of Indirect Monetary Controls", IMF Paper on Policy Analysis and Assessment, PPAA/93/16, (October 1993).
- Mathieson, Donald J., "Policy Constraints in Developing Countries," in Gerard Caprio, Jr., and Patrick Honohan (eds.), Monetary Policy Instruments for Developing Countries, The World Bank, Washington, D.C., (1991).

McKinnon, Ronald I., The Order of Economic Liberalization: Financial Control in the Transition to a Market Economy, Johns Hopkins Press, Baltimore and London, (1991).

\_\_\_\_\_, "Financial Control in the Transition from Classical Socialism to a Market Economy", Institute for Policy Reform Working Paper Series, Washington, D.C., (March 1991).

Perotti, Enrico C., "A Taxonomy of Post-Socialist Financial Systems: Decentralized Enforcement and the Creation of Inside Money," Boston University Working Paper, (November 1993).

Rostowski, Jacek, "Systematic Requirements for Monetary Stability in Eastern Europe and the Former Soviet Union," IMF Working Paper WP/94/24, International Monetary Fund, Washington, D.C., (February 1994).

Saal, Mathew, and Lorena Zamalloa, "Use of Central Bank Credit Auctions in Economies in Transition," International Monetary Fund, Washington, D.C., PPAA/94/11, June 1994.

Stigum, Marcia, The Money Market, Dow Jones-Irwin, Homewood Illinois, (1983).

Thorne, Alfredo, "Is There a Role for Banks in the Transition?" Policy Research Working Paper No. 1235, World Bank, Washington, D.C., (December 1993).

