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Use of Central Bank Credit Auctions in Economies in Transition

by

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Abstract

A number of economies in transition have instituted central bank credit auctions as part of a package of reforms seeking to improve monetary control and foster money market development. This paper examines the use of those auctions and features of their design, including collateralization and access rules intended to minimize adverse selection and moral hazard. The implementation of credit auctions in Eastern Europe and the former Soviet Union is surveyed. The experiences of countries in Eastern Europe suggest that credit auctions can be a useful tool in the transition towards indirect monetary control and the development of interbank markets.

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I. Introduction

Auctions or tenders are used as means of allocating portions of central bank credit in many industrial and developing countries. 1/ In these countries credit auctions are used in combination with other monetary policy instruments, including other central bank credit facilities, to manage bank liquidity or short-term interest rates. In a number of economies in transition from centrally planned to market-based systems, the central banks have begun to use credit auctions as part of broader packages of reforms to foster market-based monetary operations, promote money markets and improve monetary control. However, while the monetary operations of central banks in market economies are supported by well functioning interbank markets, adequate risk management, including the use of collateral, and effective banking supervision, these factors are either missing or insufficiently developed in economies in transition. As a result, it has been argued that there is a potential for adverse selection, moral hazard, and collusion in the credit auction process, raising concerns for the adequacy of this instrument for monetary control. 2/

This paper will discuss ways in which credit auctions can be designed to minimize these problems, and present some experiences of countries in transition which have implemented credit auctions as one of their monetary policy instruments. It takes as its starting point the present-day reality

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1/ Money market operations in Germany, France and Belgium can be described as credit auctions (Laurens 1994). The central banks of Israel and Indonesia conduct daily auctions of reserves, while the central bank of Malaysia auctions government deposits and the Bank of Norway auctions central bank deposits and short-term deposits at the central bank (Klein 1994, Carling 1994, Norges Bank 1993). Credit auctions have also been used to on-lend multilateral development funds in countries such as Chile and Bolivia (Guasch and Glaessner 1992).

2/ See Mathieson and Haas (1994).

of most economies in transition: economic and financial activity cannot be put on hold until enterprise restructuring is completed, commercial banks form the core of the financial system, and these banks are heavily dependent on central bank credit. 1/ This dependence stems from the concentration of household deposits in the savings banks and of credits with the specialized commercial banks inherited from the monobank era, low rates of deposit mobilization, and underdevelopment of interbank markets. These structural factors have resulted in a need for central bank intermediation between banks and extensive central bank financing of bank lending during the initial stages of transition (Sundararajan 1991). In many economies in transition, the authorities have reduced the structural dependence on central bank credit over time, in part through reforms of monetary control arrangements, including central bank credit facilities. 2/ Building on this experience, a key policy question is how best to design central bank credit facilities to ensure monetary control and foster a smooth transition towards market-based indirect instruments. 3/

1/ At the end of 1993, central bank credit to commercial banks was equivalent to 30-65 percent of the volume of commercial bank credit to the economy in some countries of the former Soviet Union.

2/ This was done in some countries by converting part of the outstanding central bank credit to long-term loans to be repaid in installments (e.g., Poland, Czechoslovakia, Macedonia), with the remainder used as short-term loans (including credit auctions) for monetary control purposes. In other countries, credit was gradually phased out as outstanding credits were repaid. The appropriate strategy depends on the other monetary policy instruments adopted, and the overall financial program being pursued.

3/ The uses of central bank credit, its role in economies in transition, and alternative allocation mechanisms are discussed more fully in Saal and Zamalloa (1994).

II. Characteristics of Credit Auctions

In most economies in transition, credit was allocated administratively to specific sectors or borrowers at preannounced interest rates. The main disadvantages of this approach are that the use of directed credit is prone to misuse and abuse, the pricing of credit may be inefficient, and administrative allocation procedures tend to favor the state-owned sector and do not lay a foundation for more market oriented financial systems. Available evidence indicates that auction-based allocation mechanisms, in the absence of distortions, function efficiently, i.e. they assure that resources accrue to those that value them most highly and where they will be most productive (Feldman and Mehra, 1993). However, some of the assumptions behind this conclusion may not apply in economies in transition where some banks may be insolvent and the banking system as a whole may not be competitive. Thus there are both advantages and disadvantages to using credit auctions in economies in transition.

When no restrictions are placed on the use of auctioned credit and on the interest rate in the auction and banks act rationally to maximize profits, it would be expected that central bank credit will flow to banks which can make the best use of the available resources. This will also increase the competitive pressure on banks and potentially improve corporate governance. Since the end use of funds will be determined by the commercial banks, the government can disavow any presumed guarantees for loans, and banks will be forced to develop their credit analysis capabilities. State-owned enterprises will no longer be guaranteed finance from directed sources, so they must essentially compete with other bank customers; this competition will take place along both price (loan interest and expected project rate of return) and quality (reliability of returns) dimensions. The increased responsibility of banks will put them in a position which will both require and permit an increased level of monitoring which could be expected to result in improved corporate governance.

Credit auctions can be an important component of the package of measures needed to liberalize and manage interest rates and improve monetary control in economies in transition. 1/ Auctions introduce a market-based reference lending rate that can influence and guide the market as well as other central bank operations. Moreover, the central bank can control the volume of credit auctioned, taking into account other factors affecting bank reserves, and thereby either influence the level of bank reserves or the rate in the auction and in the interbank market. Thus, a regularly scheduled auction allows the central bank to act at its own initiative and send appropriate signals on the stance of monetary policy. 2/

By introducing a flexible-price market in bank liquidity, and by allowing unrestricted use of credit, auctions contribute to the development of the interbank money market, and therefore pave the way for strengthening indirect instruments and phasing out direct controls, if any, on credit and interest rates. The early introduction of credit auctions or other open-market type operations can allow the central bank to gain experience in

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1/ Bredenkamp (1993) presents arguments in favor of the liberalization of interest rates in FSU countries early in the transition.

2/ At the same time, however, auctions must be viewed as part of a broader package of monetary control instruments. Although variations in the volume of credit auctioned can be used to withdraw liquidity from the system, effective monetary management may require other instruments to reduce excess liquidity when necessary.

market-based monetary control and, as money markets develop, set the stage for developing more sophisticated instruments of open market operations. As banks become familiar with the process of assessing liquidity conditions and pricing credit through participation in the auction, they will become more active in managing their reserve positions, thereby stimulating money market dealing. Furthermore, imposing uniform and transparent access through an auction forces banks which have historically been supplied by directed credit from the central bank to look towards other sources, including the interbank market.

The possible disadvantages of uncollateralized credit auctions in economies in transition center around problems of incentives and information which can compromise the allocational efficiency of the auction mechanism and increase the credit risk to the central bank. Credit risk may result from adverse selection, or the tendency to attract banks willing to offer the highest bids but bearing the highest risks. Another potential problem is moral hazard, i.e. the inability of the central bank to influence or monitor how the borrowing bank uses the funds. Finally, collusion among auction participants or market dominance by a few large banks might be a problem, particularly when there are very few banking institutions, or the sector is dominated by a small number of large banks. 1/ These problems could be much more significant in economies in transition, where banks' accounting and reporting are insufficiently developed and banks' weak

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1/ Although ex ante there is no reason to expect increased credit risk to the central bank on this account, the allocational efficiency of the auction may be compromised, and the value of the auction rate as a reference rate would be diminished.

portfolios induce an inelastic demand for central bank credit, than in countries which use collateralized credit auctions in the context of well-developed banking systems and financial markets. 1/

III. Auction Design to Control Credit Risk

Given the potential advantages of the use of an auction mechanism for the allocation of credit, it is worth exploring whether an auction can be designed to minimize the problems of adverse selection, moral hazard, and collusion. The former two issues may be addressed by requiring adequate collateral, formulating access rules for the auction, and setting limits on the volume of central bank credit that each bank is allowed to borrow. 2/

Ideally, central bank lending should be collateralized by government securities or other high quality paper, but banks' securities holdings in economies in transition are often negligible, particularly in the early stages of reform. Under these circumstances, the collateral requirement can be introduced only gradually. Since a program to develop treasury bills and other securities is typically part of the transition strategy, some requirement of collateral is feasible and desirable even if it covers less than 100 percent of the loan. In addition, the range of admissible collateral can be broadened to include such assets as foreign exchange and bankers' acceptances. 3/ As the volume of treasury bills and government securities in the market increases, the rate of collateralization can be

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1/ For further discussion of these issues, see Mathieson and Haas (1994).

2/ While adverse selection in the auction can be addressed directly, the fungibility of money implies that the risk of moral hazard must also be addressed through improved bank supervision.

3/ However, the use of foreign exchange as collateral encourage banks and enterprises to hold liquidity in foreign exchange and may provide further incentive for dollarization.

increased, gradually transforming the uncollateralized credit auctions into a repurchase auction. 1/

Rules of access are particularly important in the absence of adequate collateral. They must be uniform and transparent, and should include compliance with all mandatory prudential ratios, including foreign exchange exposure limits, compliance with reserve requirements, satisfactory repayment record for previous credits, compliance with reporting requirements, and satisfactory performance in clearing and settling payments. Even under uniform and transparent access rules, present uncertainties underlying the computation of prudential ratios may temporarily limit the effectiveness of these ratios in screening banks. In addition to access rules, credit limits as a ratio (or multiple) of each bank's deposits could be set. This would encourage banks to compete for deposit resources in the market. However, there is a trade-off between regulation and competition. The need to limit central bank credit risk must be balanced against the need to ensure fairly wide access by banks so as to permit adequate competition at the auction.

In many countries, including some industrial and developing economies, the auctioneer retains the right to screen bids and reject any which are deemed inappropriate. However, the option to reject a bid must be exercised judiciously so as not to diminish confidence in the fairness of the auction and interfere with the price discovery function of the auction. The problems of collusion and uncompetitive behavior may be addressed by using

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1/ This process will also create demand for collaterizable assets, reinforcing reforms in government finance such as the introduction of treasury bills and other government paper.

sealed bids rather than an open out-cry mechanism, by awarding credit at a uniform price, by limiting the post-auction sharing of information with bidders, and by limiting the share of total volume offered for which any one bank may bid (see Feldman and Mehra, 1993; Guasch and Glaessner, 1993). While these procedures may reduce the likelihood that collusive arrangements can be sustained, the best insurance against collusion is a dynamic and competitive banking sector.

Frequently, central banks set a minimum auction rate to increase monetary control, discourage recourse to central bank lending, or coordinate the auction with other central bank facilities. Setting a floor below the interest rate could also prevent banks from colluding to bid a low interest rate. However, announcing the minimum rate in advance provides a focal point for collusive bidding. Even if the minimum rate is not announced, participants may guess the level and their bids may cluster around the assumed minimum rate. Although this outcome may appear to demonstrate collusive behavior, widespread bidding at the minimum rate may also indicate that there is excess liquidity at the floor price.

Ultimately the design of an auction cannot insure against all risks, both from the credit risk and monetary control perspectives. Credit auctions are typically initiated on a small scale, allowing central banks to gain experience in monitoring borrower behavior under conditions of limited total risk. In any event, the likely alternative, administratively allocated credit, cannot control for these risks either. Economies in transition have long records of nonrepayment of directed credit. Administered allocation of credit led to outstanding loans being serviced through additional directed credit, a form of adverse selection in that the borrowers were those who could not repay previous loans. In the early stages of transition, assets in the portfolios of the newly created commercial banks were largely loans carried over from the previous systems of administrative allocation; of these assets, non-performing loans were estimated at 15-20 percent in Czechoslovakia and Hungary, 20-30 percent of assets in Poland, and 40 percent in Bulgaria (Calvo and Kumar, 1993). Clearly credit risk is significant under administrative allocation. Furthermore, the potential for collusion between enterprises, banks, and officials may be worse under a system which explicitly allows discretionary allocation than under a rules-based auction.

IV. Experience with Credit Auctions in Economies in Transition

1. Eastern Europe

Credit auctions have been used in several economies in transition, in particular in Eastern Europe. The central banks of Bulgaria, the Czech and Slovak Republics, Hungary, Macedonia, Poland and Romania have used credit auctions both as a means to extend structural credit and as an instrument of monetary control (Table 1). For example, the Bulgarian National Bank (BNB) auctions one-month interbank deposits to inject and redistribute liquidity in the system. The liquidity need arose in part because of a lack of collateral which could be used to borrow from the Lombard facility; the redistribution need arose because of underdevelopment of the interbank market and the commercial banks' lack of a deposit base (Mladenov 1992). The auction allowed the BNB to replace some refinance credit with a competitive funding instrument, and enabled banks to become familiar with auction procedures and the interbank trading of deposits (see Filipov 1992). The National Bank of Macedonia (NBMa) has also structured its refinancing auction to redistribute excess deposits among commercial banks. 1/

Most Eastern European countries have continued to allocate credit according to objective or administrative planning criteria in parallel with their credit auctions, sometimes to the detriment of the auction. The National Bank of Hungary (NBH) began in 1991 to offer some refinancing loans at regularly held auctions. Over the next few years, an increased proportion of short-term refinancing loans was awarded through auctions, replacing allocation based on banks' capital. However, long-term refinancing loans continued to be allocated for priority projects (Balassa 1992). The National Bank of Romania (NBR) began to auction some of its credit to banks in January 1992. In the latter half of 1992, government directives resulted in a shift of NBR lending to direct allocation of subsidized credits (for onlending to the agricultural sector) and the auction became inoperative. In July 1993 government deposits were shifted to the NBR to force banks to resort to the NBR for liquidity, and the auction of short-term NBR credit was reactivated in September 1993.

Auctioned credit has been used as a monetary control instrument through direct liquidity effects and through interest rate transmission mechanisms. For example, the use of auction credit allows the NBR to retain short-term control over a significant portion of bank liquidity, and to effect a tightening or loosening of its policy stance on a week-by-week basis. In a

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1/ So far, commercial banks have not been offering funds through the NBMa. It is not clear whether banks perceive the NBMa as providing any implicit guarantee for interbank lending.

number of countries, Lombard and other central bank rates have been pegged to the refinance auction rate. The State Bank of Czechoslovakia (SBCS) linked the rate on its daily refinance facility (1 to 7 day maturity, allocated on the basis of bank capital) to the auction rate in 1992. By the end of that year, the SBCS had phased out refinancing credit offered at the discount rate and made auctions of refinancing credit the primary indirect instrument of monetary control. The Slovak National Bank (NBS) reintroduced lending at the discount rate; credit auctions were dormant for a period, but auctioned credit now accounts for about 40 percent of NBS refinance. Since late 1993 the NBS has linked the discount and Lombard rates to the refinance auction rate. Interest rates on NBS auction credit have generally been below the Lombard rate and above the treasury bill rate, while interbank rates have hovered around the auction rate. The NBH used to set its minimum rate for the uncollateralized auction above the interbank rate to encourage banks to participate in the interbank market; now the repurchase rate is a key determinant of interbank rates (National Bank of Hungary, 11-12/1993).

Interest rates on loans and deposits have tended to track the auction rate in most countries. The behavior of interest rates has not suggested that the auctions have attracted banks willing to pay any price with the expectation (or intent) of defaulting. Interest rates in the credit auctions have been responsive to changes in volumes auctioned and general liquidity conditions. For example, Romanian commercial banks have responded in the expected direction to central bank signals conveyed via the minimum acceptable bid rate (set by the NBR) or the auction volume. In December 1993 the volume was cut for one week, resulting in a jump in the average interest rate. The NBR raised its floor rate prior to the next auction, and banks raised their lending and deposit rates. 1/

In general, banks are required to be in compliance with prudential and reserve regulations (to the extent that the central bank is capable of monitoring) to participate in auctions. 2/ In addition, some countries have introduced restrictions to widen participation and encourage competition in the auction or to prevent excessive credit risk exposure to particular banks (Slovak Republic, Macedonia, and Romania).

There has been a trend towards increasing collateralization of bank borrowing from the central banks. The CNB has raised the level of collateral required for auctioned credit to 40 percent; at the same time, banks holding bills of exchange have access to a rediscount facility at a rate generally below the rate of auctioned credit. As collateralization of credit auctions moves towards 100 percent the auction will become a repurchase facility. The BNB has not required collateral for the credit auction, but the increased availability of suitable collateral has reduced the need for credit auctions and increased usage of Lombard and discount operations at the BNB. BNB has begun using repurchase agreements and intends to phase out the uncollateralized credit auction. (Sandberg 1994). Poland is an unusual case in that the National Bank of Poland moved directly

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1/ However, the minimum bid rate set by the NBR has provided a focal point for bidding, and possibly for collusion. In the first quarter of 1994, all bids have tended to be at the minimum rate. As explained above, this may also indicate excess liquidity at the floor price.

2/ The process of putting in place a supervisory regime need not be extremely lengthy, and has in some cases been accomplished within the first few years of transition. Fully insuring compliance may require further development of supervisory skills as well as restructuring of some banks.

to repurchase agreements soon after the introduction of treasury bills; thus the auction facility was fully collateralized from the start.

Uncollateralized credit auctions have diminished in importance as interbank markets have developed and commercial bank dependence on central bank credit declined. The Bulgarian auction's initial structural importance in intermediating between the State Savings Bank and other banks with less developed deposit taking networks diminished as the interbank market developed. This, together with the introduction of treasury bill-based open market operations for monetary control, has allowed the outstanding volume of auctioned credit to be reduced from the equivalent of 17 percent of broad money at end-1991 to 1 percent at end-1993. At the same time, outstanding central bank credit to banks relative to domestic credit to the private sector declined from 21 percent to 9 percent. As the interbank market and other monetary operations developed in Hungary, commercial bank dependence on NBH credit declined from over 40 percent at end-1991 to 30 percent in 1992, and the auction became unattractive, in part due to the high minimum bid rate. The Czech refinance auction now mainly serves smaller banks which lack sufficient rediscountable collateral and which do not have access to the interbank market. Czech interbank rates have at times been well below the auction rate, possibly indicating adverse selection in the auction.

The developments in the countries surveyed suggest that as the financial sector develops, in the absence of adjustments in auction design the riskiness of the credit auction may increase, since the worthiest counterparties will seek financing in the interbank market. The central bank may in fact be assuming the intermediation credit risk which the market refuses to bear; while this may be justified in the early stages of market development, it is not a sustainable position. A decline in participation in the auction coupled with significantly higher interest rates in the auction than in the interbank market may signal a need to review the purpose and structure of the auction. 1/

The trends in Eastern Europe also suggest that certain aspects of credit auctions can diminish in importance as the banking system develops. While in some countries the auction may continue to fulfill a structural function in that it redirects some amount of credit towards banks which do not have the collateral necessary to participate in the other facilities and are not considered appropriate counterparties for interbank lending, in countries where conditions have improved the focus of the auction has moved to short term monetary control. The trend towards increased collateralization of borrowing from the central bank and increased recourse to interbank markets indicates that the use of an auction allocation mechanism is indeed in conformance with, and probably has helped foster, the development of these features of market-based financial systems.

At the same time, it should be noted that credit auctions have often been used side by side with direct instruments of monetary control; for example even though Poland instituted a repurchase facility in 1991, bank-specific credit ceilings were only removed in 1993. 2/ A credit auction should be implemented as part of a carefully designed financial program.

1/ It may also indicate that the auction is functioning as a lender-of-last resort facility, suggesting the need to evaluate the condition of the banks still participating in the auction.

2/ For a discussion on the joint use of both direct and indirect instruments in transition economies, see Hilbers (1993).

The case of Romania, where government-dictated credit allocations superseded auctions and led to monetary control problems, highlights the fact that ultimately the commitment to the overall financial program matters more than the design of any one instrument. The early implementation of market based institutions can support but is not a substitute for consistent and well-formulated macroeconomic policies; even well-designed monetary instruments will not prevent the loss of monetary control if political commitment to appropriate policies is absent. 1/

2. FSU and Baltic States

Countries of the FSU have, in general, more fragile banking systems than those in Eastern Europe. Thus the ex ante concern for moral hazard and loss of monetary control is greater; nevertheless, in recent years, many FSU countries, including Kazakhstan, The Kyrgyz Republic, Moldova, and Russia, have relied partially on central bank credit auctions to allocate credit and to determine interest rates (Table 2). Particular attention has been paid to elements of auction design, including collateralization, limits on participation, and the use of sealed bids, which can ameliorate the problems identified above.

The introduction of credit auctions for monetary management is intended to be associated with a phased reduction in directed credits and in the structural dependence on central bank credit. Although the amounts auctioned have been relatively small (generally below 20 percent of the flow

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1/ The establishment of an auction can provide a benchmark for comparison of actual behavior (e.g. use of the auction relative to use of directed credit) with professed commitment to market mechanisms. Even if the auction is not operated ideally, it can give reformist groups (as well as bilateral and multilateral donors) an opportunity to point out backsliding.

of credits), there has been a gradual increase in the use of the auction mechanism in some countries. For example, in Kazakhstan, about 39 percent of the flow of credits in March 1994 was auctioned; in Moldova, this ratio reached 80 percent in January 1994.

The auction mechanism has provided some flexibility in the implementation of monetary policy in FSU countries. In Lithuania, the auction facility was activated at a critical time to provide liquidity at a penalty rate to banks with reserve deficiencies. 1/ Given the volume of directed credit dictated by the government in the Kyrgyz Republic, the net domestic assets target of the central bank was achieved by reducing the amount of auctioned credit. However, in some countries, such as Armenia, there has been limited room to implement an auction facility due to the excess liquidity in the banking system. Maturities of auctioned credits in FSU countries tend to be around three months, which is relatively long for monetary control purposes but is shorter than directed credit had been. This reduction in maturity of central bank credit should increase monetary control and interest rate flexibility.

In a few cases, auction rules have been circumvented to provide additional auctioned central bank credit to a specific sector or bank. For instance, the National Bank of Georgia has often waived its own access rules with regard to large state-owned banks. The Bank of Lithuania has deviated at times from its own limits on access in order to provide additional credit to the agricultural sector. These procedures reduce transparency at the

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1/ While interbank rates ranged from 7 to 9 percent per month, the rate at the auction was about 13 percent.

auction by mixing monetary and directed credit objectives; it would be preferable to use an administered window to provide such specific credits.

In some countries, such as Russia, Lithuania, and The Kyrgyz Republic, a minimum interest rate is established for the auction. For instance, the Bank of Lithuania rejected all bids at its first auction, indicating that the interest rates offered were too low. Bids at higher rates were offered and accepted at subsequent auctions. While in principle this may prevent low interest rates due to collusion, it may also reduce interest rate flexibility.

As noted earlier, collateralized lending and carefully defined access criteria reduce the potential for adverse selection in the auction process. In the absence of sufficient stocks of acceptable collateral in economies in transition, central banks in a number of countries have introduced partial collateralization to reduce the credit risk they face. For example, in The Kyrgyz Republic, the authorities require collateral equivalent to 10 percent of the loan. 1/ In addition, in most countries the range of admissible collateral has been broadened beyond treasury bills to include foreign exchange holdings, promissory notes, and some less liquid assets.

In the absence of adequate collateral, it has also been desirable to limit commercial banks' access to the credit auction. Countries have restricted access by requiring banks to meet prudential norms. For instance, in Kazakhstan, out of 200 banks only 50 meet prudential norms and

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1/ Although credit auctions are fully collateralized in Russia, the effective rate of collateralization may be lower. Legal constraints limit the effectiveness of collateralization, since in principle Russia's current legislation on collateral permits the pledger to retain control (and possibly dispose) of the assets until the loan is actually in default.

thus are allowed to participate in the auction. Moreover, appropriate access rules coupled with excess liquidity in the emerging interbank market may actually discourage participation in the auction; this has been observed in the Moscow region of the Russian Federation.

In addition, to manage the credit risk exposure of the central bank, some FSU central banks have placed limits on individual banks' access to central bank credit. For example, in The Kyrgyz Republic the total amount of credit granted to each bank may not exceed 20 times its capital. In Russia, commercial banks' are subject to an overall borrowing limit equivalent to the lower of twice capital or 10 percent of assets.

Although the use of credit auctions in FSU countries is fairly new, these safeguards appear to have functioned fairly well. For instance, low participation in the Moscow region of the Russian Federation suggests that the CBR auction did not attract high risk borrowers which had been barred from accessing the local interbank market.

V. Conclusions

This paper has examined the use of auctions as a means of allocating central bank credit. Central bank credit in economies in transition often serves both a structural and a monetary role, and is sizable in volume. The structural need for central bank credit can be reduced over time by commercial bank deposit mobilization, the development of interbank and money markets, and the development of securities markets to provide enterprise financing from outside the banking system, but it is unrealistic to expect a rapid reduction in the dependence on central bank credit. In practice, both administered and market-based allocation coexist in most countries, even those which depend primarily on indirect instruments for monetary control. However, at least some portion of central bank credit in economies in transition can be extended using a market-based allocation mechanism which will facilitate the subsequent shift to market-oriented instruments of monetary control; this can usefully be done early in the transition process.

Credit auctions can be effective as a monetary instrument; central bank volume determination and access procedures allow control of liquidity expansion and influence over interest rates. Operated flexibly, auctions have the potential to allocate credit in an economically efficient manner and provide the basis for further development of money markets and more refined indirect instruments such as repurchase facilities. The price discovery process inherent in an auction provides a market-based reference rate which can be used both inside and outside the central bank. Elements of auction design regarding access rules, collateralization and auction procedures can ameliorate or prevent some of the problems associated with information and incentive deficiencies.

The evolution from uncollateralized credit to fully collateralized indirect instruments and from extensive dependence on central bank credit to greater use of interbank markets requires an appropriate transition strategy. The experiences of countries in Eastern Europe suggest that credit auctions can be part of such a strategy, providing a suitable instrument to effect monetary control and at the same time promote the use of market-based indirect instruments. However, while the auction can serve as a catalyst for further market development, it also has its limits. The central bank should not allow the auction to become a permanent substitute those which depend primarily on indirect instruments for monetary control. However, at least some portion of central bank credit in economies in transition can be extended using a market-based allocation mechanism which will facilitate the subsequent shift to market-oriented instruments of monetary control; this can usefully be done early in the transition process.

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The early use of auctions should be associated with a phased reduction in directed credits and in structural dependence on central bank credit, and with further development in other areas of the central bank's responsibilities, notably bank supervision and the payments system. As part of such packages of reforms, credit auctions in several Eastern European countries appear to have successfully paved the way for the development of interbank markets and more refined open market operations, and do not appear to have resulted in excessive credit risk or monetary expansion. 2/ Some countries in the FSU have also seen positive results from their early efforts to conduct monetary operations using credit auctions. It is hoped that in these countries too the auction will provide an institutional basis for further market-oriented development.

1/ One way to avoid this is to increase the rate of collateralization.

2/ This must, of course, be viewed as a preliminary conclusion. While it is difficult to demonstrate the absence of an event (and virtually impossible to prove that it will never occur), the restrictions on participation seem to have been reasonably effective in averting defaults. Furthermore, monetary control lapses have not been attributed to the credit auctions.

Table 1. Credit Auctions in Selected Eastern European Countries

Country (auction since)	Purpose, Frequency, Volumes and Maturity	Rules of Access and Collateral	Limits on Access	Auction Procedures
Bulgaria - Bulgarian National Bank (BNB) (1991)	Replaced a portion of refinance credit with a competitive instrument. Banks bid on a pool of 30-day deposits contributed by the BNB and by commercial banks with surplus funds. Contributions to the pool from commercial banks were rare in 1991-92; most banks lend surplus funds through the interbank market. Since 1993 the biweekly deposit auction has consisted entirely of BNB funds. At end-1993, auctioned deposits were about 17 percent of BNB credit to banks, corresponding to about 5 percent of narrow money. In May 1994 the BNB began to auction repurchase agreements.	Banks must have repaid outstanding debt from the previous auction. No collateral is required for auctioned credit. Repurchase agreements are fully collateralized by treasury bills.	The BNB maintains targets in terms of the percentage of capital which banks may borrow. However, such targets are applied flexibly depending on the liquidity situation of banks and the BNB's current monetary policy.	Volume is announced one week before the credit auction. BNB sets a floor interest rate. Deposits are allocated at the average rate bid; this average interest rate is the only information released after the auction. Specific information on bids received is kept confidential. Repurchases are auctioned using a multiple price method. Banks offer repurchases and the BNB selects those offering the highest prices until the BNB's volume target is met.
Czech Republic - Czech National Bank (CNB) (1993)	The credit auction is used for liquidity management and monetary control. A weekly auction of 1 to 4 week maturities is held. Auctioned credit represented about 20 percent of total CNB refinance credit (or 1 percent of base money) in 1993. The CNB also conducts open market operations through 1 to 7 day repurchase agreements on treasury bills.	Collateral on auctioned refinance credit is equal to 40 percent of borrowing; the collateral is structured as a repurchase agreement. 1 to 7 day repurchase agreements are fully collateralized.		Banks may enter up to three bids in the credit auction. Credit is awarded to the highest bids, up to the aggregate volume desired by the CNB. Repurchase maturities and rates are set by the CNB, and banks tender for an amount. Awards are prorated if the total requested exceeds the CNB target repurchase volume.

Hungary - National Bank of Hungary (NBH) (1991)	The uncollateralized credit auction provided short term refinancing to replace credit allocated based on banks' capital. The biweekly auction of two-week credit was used as an instrument for short term liquidity injections in parallel with central bank brokering of interbank deposits. Auctioned credit represented about 3 percent of central bank credit (0.5 percent of narrow money) at end-1991. The auction was discontinued in mid-1992 after failing to attract bids for several auctions. It was replaced by repurchase agreements in early 1993.	All banks and certain non-bank financial intermediaries were eligible to participate in the auction. No collateral was required for auctioned credit. Repurchase agreements are fully collateralized by government securities.	The NBH reserved the right to exclude any institution from participation. In practice, the high minimum rate limited participation to the liquidity-starved larger banks.	The uncollateralized auction was for a pre-announced volume. A minimum interest rate was set by the NBH so as to be above the interbank rate. Credit was awarded at the price bid (multiple-price).
Republic of Macedonia - National Bank of Macedonia (NBMa) (1993)	The auction is intended to replace the refinancing of selective (directed) credits at predetermined rates. An auction of deposits is held biweekly as needed; banks may offer deposits for re-sale through the auction, but in practice the funds have only come from the NBMa. Maturities offered are 14, 28, 56 and 84 days. The NBMa has also purchased deposits. Selective credit continues to dominate NBMa lending; auctioned credit was on average only about 14 percent of NBMa credit in the fourth quarter of 1993.	Banks must meet reserve requirements and must be current on all auction-related obligations. Banks offering deposits for re-sale may specify banks with whom they will not deal. No collateral is required.	NBMa Auction Committee sets limits on access based on each banks level of required reserves. Banks offering deposits for re-sale may specify limits on amounts they will sell to specific banks.	The auction volume is pre-announced. Banks submit sealed bids. Multiple bidding is permitted. A cutoff rate is set as the rate at which the volume offered and the volume bid come closest to matching. Credit is allocated at a uniform price to participants who bid above the cutoff rate.

Republic of Poland - National Bank of Poland (NBP) (1991)	A fully collateralized credit auction in the form of repurchase agreements was introduced for monetary control; in particular, the NBP sought to restrict banks' access to funds provided passively by the NBP and replace these with facilities operated at the initiative of the NBP. Initially, weekly auctions of repurchases with 14 day maturities were conducted to inject liquidity. Since January 1993, reverse repurchases have also been executed; maturities of both instruments may range from 2 to 14 days. The amount of auction credit outstanding has ranged as high as 7.5 percent of total refinance credit, but is generally much smaller.	Repurchase transactions with the NBP are open only to primary dealers. These banks have current accounts at NBP and are dealers in the money market. Repurchase agreements are fully collateralized by Treasury bills. Initially bank-discounted commercial bills and NBP bills were also used; these were discontinued in 1992.	NBP reserves the right to reject some or all offers.	NBP announces the volume to be offered/purchased and the discount rate to be used to value the securities. Banks bid a repurchase price. Expressed as an interest rate, the difference between this price and the discount rate is the criterion for ranking bids. Banks may submit multiple bids; awards are at the prices bid.
Romania - National Bank of Romania (NBR) (1992)	NBR conducts a weekly auction of one week credits, which partially replace directed credits. In the second half of 1992 a resurgence of directed credit resulted in the auction becoming inoperative. Short term credit auctions were resumed in September 1993 at an initial volume corresponding to 14 percent of the outstanding NBC credit to banks. By the end of March 1994, auctioned credit represented 36 percent of the stock of NBR lending to commercial banks (equivalent to 10 percent of domestic credit to non-government).	The auction is open to all banks. No collateral is required for auctioned credit.	No formal limit is applied to a bank's borrowing from the NBR. Initially a limit was placed on the share of each auction for which any one bank could bid. The limit was non-binding and has been removed.	Auction volume is pre-announced. Banks bid an interest rate for an amount of credit. A minimum allowable interest rate is set weekly by the NBR. The auction would use multiple-price allocation, but the tendency has been for banks to all bid at the cutoff rate except when there has been a significant change in the volume offered.

Slovak Republic - National Bank of Slovakia (NBS) (1993)	An auction of 30 day credits is held weekly, except when the NBS determines that no additional liquidity is required. At end-1993, refinance credit represented about half of NBS credit to banks, or about 8 percent of base money. From late 1993, Lombard and discount rates have been set with reference to the auction rate.	Initially no collateral was required. From April 1994, 10 percent collateral in the form of T-bills has been required.	Bids cannot exceed 50 percent of the amount offered at that auction. There is no limit on NBS credit a bank may have outstanding.	Volume is announced in the morning. By mid-day banks submit up to three bids by fax. Bids are ranked by interest rate; credit is awarded to the highest bidders at the cutoff rate.
Czechoslovakia - State Bank of Czechoslovakia (SBCS) (1991-92)	Initially, an auction of 30 and 90 day refinance credit was held monthly. Short term refinance rates were linked to the auction rate. During 1992 auction frequency increased to weekly and 90 day credit was discontinued. By end-1992 refinance credit at a pre-determined discount rate had been discontinued and the auction of refinancing credit became the primary indirect instrument of monetary control.	No collateral was required.	To insure access by small banks, a bid limit was set at 50 percent of the volume offered in any given auction.	Volume was preannounced. Interest rate determination was based on a uniform-price auction procedure at some times and a multiple-price auction procedure at others.

Sources: Central bank bulletins; and IMF staff.

Table 2. Credit Auctions in Selected FSU and Baltic Countries

Country	Purpose, Frequency, Volumes and Maturity	Rules of Access and Collateral	Limits on Access	Auction Procedures
Armenia First auction held in July 1993 ID = 6/94 1/	Maturity of credits is 9 months. Auctions have been held irregularly. In 1994, few banks participated in the auction and no credit was extended in the most recent auction. Sound banks were not interested in the auction due to a lack of secure lending opportunities.	Participants must meet prudential norms.	Banks may only bid for up to 10 percent of the volume auctioned.	The minimum interest rate is the refinance rate. A multiple-price auction method is used.
Belarus First auction held in February 1993; auctions were discontinued late in the year. ID = 6/94	Authorities planned to gradually replace directed credit with auctioned credit and to use the auction rate as the basis for setting the refinance rate. By March 1993, 11 percent of the flow of credits was auctioned. A quarterly ceiling on the total amount auctioned was set by the Board of the National Bank of Belarus. Auctions were held irregularly. Maturity of credits varied between two weeks and three months.	Interbank lending is collateralized with a promissory note.	Banks may only bid up to 100 percent of their paid-in capital. Overall liabilities of commercial banks may not exceed 20 times capital.	Credit auctions are conducted at the stock exchange. The auction proceeds by gradually increasing the interest rate until only one bidder remains.

Georgia First auction was held in January 1994 ID = 4/94	Auctions are held irregularly. The amounts auctioned are determined by the volume of maturing directed credit. Banks may onlend to any sector but not to other banks. In practice, moral suasion may be used to direct lending to specific sectors. (There is a concern that some banks may be using the auction proceeds to speculate in the exchange market.) Maturity of credits is 90 days with interest payable on a monthly basis.	Participants must meet prudential norms, but often this access rule is waived with regard to the large state-owned banks. A deposit at the NBG is required prior to the auction.		**Bids are submitted before the auction, but banks may modify their bidding price at the auction. An auctioneer states a minimum interest rate for each lot and then the auction proceeds by gradually adjusting the rate to equate supply and demand.**
Kazakhstan First auction held in September 1992 ID = 3/94	The authorities plan to gradually replace directed credit with auctioned credit. In March 1994, about 39 percent of the flow of credits was auctioned. The maturity of credits has been 3, 6 and 9 months, but the National Bank of Kazakhstan (NBK) plans to limit it to 6 months. Auctions are held twice a month.	Participants must meet prudential norms; the Banking Supervision Department provides a list of qualifying banks. The NBK uses fixed assets as collateral.	No limits on credit have been established.	**Bids must be submitted in sealed envelopes. The number of bids submitted by any one bank is limited to five. The NBK moved from a uniform-price auction method to a hybrid method and subsequently to a pure multiple-price auction method. No minimum interest rate is predetermined.**
The Kyrgyz Republic First auction held in May 1993 ID= 3/94	The authorities plan to gradually replace directed credit with auctioned credit. Auctions are held irregularly. Maturity of credit varies between 3 and 4 months.	Banks must comply with prudential norms, meet reserve requirements, and present their balance sheet. Initially, banks with overdrawn correspondent accounts were excluded from the auction. The collateral requirement was initially 25 percent of the credit granted, but later was lowered to 10 percent.	**The cumulative amount for which a bank is allowed to bid may not exceed 50 percent of the auctioned amount. The overall amount of credit granted to each bank may not exceed 20 times its capital.**	**Banks submit sealed bids. The number of bids submitted by any one bank is limited to five. Credit is extended following a uniform-price method, with the lowest bid as the clearing rate. A minimum refinance rate equal to the clearing rate at the previous auction was introduced by the National Bank in August 1993.**
Latvia First auction held November 1993 ID = 5/94	The Bank of Latvia auctions about 90 percent of new credit extended. Auctions are held on a weekly basis. Maturity of credits is 2 months.	Participants are required to meet prudential norms. No collateral is required.	**The overall amount of credit granted to a commercial bank may not exceed 50 percent of the bank's capital and reserves plus 5 percent of its deposit liabilities.**	**Bids are submitted in sealed envelopes. A multiple-price auction method is used. The minimum rate is not pre-announced.**

Lithuania First auction held in April 1993 2/ ID = 5/94	The Bank of Lithuania (BOL) conducted auctions for structural and monetary purposes. In April and May 1993 the auction facility was used to provide credit to banks with reserve deficiencies. It was also used to extend credit to the agricultural sector. By March 1994, about 10 percent of the flow of credits was auctioned. Maturity of credits varied from 1 to 2 weeks.	Banks were not required to meet prudential norms.	Each bank is only allowed to bid up to 5 percent of its deposits (net of time deposits at the central bank). At times, the BOL relaxed this limit to extend additional credit to the agricultural sector.	Bids were submitted by fax. A multiple-price auction method was used. No minimum rate was preannounced.
Moldova First auction held in August 1993 ID = 4/94	As of March 1994, almost 80 percent of the flow of credit is auctioned. Auctions are held once a month. Maturity of credit varies from 3 to 6 months.	Banks must meet prudential norms to access the auction. Collateral is demanded in some cases.	Each bank is only allowed to bid for up to 50 percent of the auctioned amount.	Sealed bids are used. Commercial banks state the amounts desired and the interest rates offered. Banks pay their bidding price. No minimum rate is predetermined.
Russian Federation First auction held in February 1994 ID = 5/94	Auctions are held on a monthly basis. Maturity of credit is 3 months.	Participating banks must observe Central Bank of Russia (CBR) regulations on book-keeping and prudential requirements, should have no outstanding overdraft or arrears with the CBR, and must have been registered for a minimum of one-year in the CBR's bank registry. Banks must provide 100 percent collateral; acceptable collateral includes hard currency deposits and balances in correspondent accounts.	No bank may borrow more than 25 percent of the amount allocated to the relevant regional center. Banks are subject to an overall borrowing limit equivalent to twice capital or to 10 percent of assets, whichever is lower.	Each regional center is assigned a volume to be offered at the auction. Bids are submitted only by banks' head offices, to the appropriate regional center. Participants submit written bids. A multiple-price auction method is used with a floor price equal to the CBR refinance rate.

Ukraine First auction held in May 1993 ID = 6/94	The National Bank of Ukraine held one auction in May 1993 and one in May 1994. While in 1993 the auction was discontinued to provide directed credit, in 1994 it was stopped due to lack of secure lending opportunities for commercial banks. The purpose of the auctions was to provide a portion of refinance credit at market rates. All of the credit offered had a maturity of three months.	No collateral was required at the auction.		Bids were submitted in sealed envelopes. A multiple-price auction method was used. The minimum interest rate was the refinance rate.

1/ ID = Information cut-off date

2/ In April 1994, a currency board was introduced and no credit auctions have been held since then.

Source: IMF staff.

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