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The Coordination of Domestic Public Debt and  
Monetary Management in Economies in  
Transition--Issues and Lessons from Experience 1/

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Abstract

In economies in transition, the development of financial markets is a common objective linking the monetary and fiscal authorities, while monetary and public debt management cannot be strictly separated. This calls for close coordination of objectives and instruments of monetary and debt management, and the development of supporting institutional and operational arrangements. Key aspects of these arrangements are surveyed.

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### Summary

The coordination of objectives, instruments, and institutional arrangements of public debt and monetary management assumes particular significance in economies in transition. Such coordination can be achieved either through the pursuit of joint actions to achieve commonly shared objectives or, where strict institutional separation of objectives, functions, and instruments exists, through the work of market forces. Because financial markets are underdeveloped in economies in transition, the objectives and operations of monetary and debt management cannot be strictly separated. Rather, the development of financial markets--along with monetary control--is a common objective linking the monetary and fiscal authorities.

In the process of financial market development, the relative roles of the monetary and fiscal authorities need to be delineated and developed in the areas of primary debt issuance, secondary market operations, and reserve money and government debt programming. This paper surveys the key institutional and operational arrangements for such delineation and coordination of functions. These include the role of debt and monetary management committees in coordinating objectives and instruments; procedures for sharing information on, and forecasting variations in, government cash balances; legal and administrative arrangements for limiting central bank credit to the government; rules and procedures for the treatment of central bank profits and losses; the appropriate division of debt-management responsibilities between various agencies; and the legal underpinning and institutional infrastructure for secondary markets in government securities.

These arrangements and structures will vary across countries depending on sociopolitical factors, efficiency considerations, policy objectives, and the stage of financial market development. Proper arrangements for coordination, however, play a key role in fostering financial market development in economies in transition. In such economies, with no secondary markets in government securities initially, primary market issues of government debt are often used for monetary purposes, calling for much closer day-to-day collaboration between the monetary and fiscal authorities. The effective use of primary debt issues for monetary management requires appropriate selling techniques and supporting use of other monetary instruments to both encourage market development and ensure monetary control. This coordinated development of primary market arrangements and market-based monetary management creates incentives for secondary markets to grow. The authorities can further encourage secondary markets in government securities by providing transparent and equitable system for regulating and supervising markets; developing an efficient clearing and settlement system; fostering an appropriate market micro-structure, including the role of "market-makers"; and managing market liquidity actively with market-based instruments.

## I. Introduction

The coordination of policy objectives, instruments, and institutional and operational arrangements of public debt and monetary management assumes particular significance in the process of financial sector reform and stabilization of economies in transition. In market economies, such coordination can be achieved either: (i) through the sharing of common objectives and pursuit of joint actions to achieve those objectives; or (ii) through the work of market forces, in cases where there is strict institutional separation of objectives, functions, and instruments. In the latter case, coordination is achieved with the central bank exercising operational autonomy in designing and implementing monetary policy, and the monetary and fiscal authorities operating in different segments of well-developed financial markets, supported by a separation of debt and monetary instruments. In either case, arrangements exist for the sharing of needed information and of responsibilities, in order to support the day-to-day execution of monetary and debt policy and the effective pursuit of stabilization goals.

In economies in transition, where financial markets are underdeveloped, the development of financial markets is a common objective linking the monetary and fiscal authorities, while monetary and public debt management cannot be strictly separated. This raises special issues regarding the coordination of policy objectives, and instruments, and the supporting institutional and operational arrangements for such coordination. Indeed, it is not uncommon in the early stages of financial reform for debt management instruments to be used for monetary purposes, calling for much closer day-to-day collaboration between monetary and fiscal authorities than would be the case in well-developed financial markets.

The development of financial markets and well-coordinated monetary and debt management procedures are mutually reinforcing processes. The development of market-based instruments of monetary and public debt management supports and stimulates the growth of money and government securities markets, because the use of market-based instruments expands the opportunities for active liquidity management (for the central bank, the commercial banks, and other nonbank institutions) and provides incentives for institutional development (for example, more active asset-liability management by commercial banks or the development of new institutions to support secondary trading). In turn, the resulting increased depth and efficiency in money and government securities markets opens up additional opportunities for effective and efficient implementation of monetary and public debt policy; moreover, the growth in government securities markets serves as a catalyst for the development of markets in other more risky securities (such as enterprise bonds and stocks).

In the course of such an interactive process, a number of operational and institutional aspects of coordination between monetary and public debt management assumes increased importance. In particular, the relative role of the monetary and fiscal authorities needs to be delineated in organizing and managing primary issuance of government securities; in monitoring, forecasting, and planning reserve money and government borrowing programs; and in regulating and fostering secondary markets in government securities

(including the supporting clearing and settlement system). In addition, certain institutional arrangements between the central bank and the Ministry of Finance (MoF) may have to be underpinned by appropriate legal provisions relating to limitations on central bank credit to government, and the distribution of central bank profits and procedures to deal with central bank losses.

The specific objectives of coordination arrangements derive from the broader objectives of stabilization and the financial sector reform process. These objectives include: (i) the effective and efficient conduct of monetary and debt management; (ii) the development of deep and liquid government securities markets; and (iii) the enhancement of central banks' operational independence in the conduct of monetary policy. A lack of close coordination between the monetary and fiscal authorities could limit the effectiveness of monetary policies and slow the development of secondary markets.

The actual division of responsibility between central banks and ministries of finance and other statutory institutions in coordinating and implementing monetary and public debt policies depends, in part, on a variety of historical and sociopolitical factors. However, as discussed below, certain parallels in the approach to coordination can be derived from the underlying economic linkages and common objectives that bind monetary and fiscal management.

The paper is organized as follows:

Chapter II discusses the rationale for coordination, the objectives of public debt management, and the scope of institutional arrangements to achieve coordination.

Chapter III discusses strategies for the development of primary markets and their role in indirect monetary management, with emphasis on technical aspects of the coordination of primary market operations with other instruments of indirect monetary control.

Chapter IV discusses strategies for the development of secondary markets in government securities, and explains the role of central banks.

Chapter V discusses organizational and institutional arrangements to support monetary and debt management operations.

Finally, Chapter VI discusses a number of issues arising from the macroeconomic impact of debt management policies.

## II. The Rationale for Coordination and the Associated Institutional Arrangements

In the context of economies in transition, this section discusses the rationale for coordination; the objectives of debt management; and the evolution of supporting institutional arrangements. The transition from direct monetary controls and limited financial markets to market-based arrangements for monetary and debt management is illustrated in Figure 1. It presents a stylized sequence of critical steps in debt and monetary management in the course of transition to market-based arrangements, and thereby highlights areas requiring coordination between the monetary and fiscal authorities.

### 1. Rationale for coordination

The basic rationale for coordination and the associated institutional and operational arrangements derive from the following interrelated objectives:

- a. to set internally consistent targets and objectives of monetary and debt management, with a view to achieve stabilization goals;
- b. to contribute to the development and liberalization of financial markets; and
- c. to facilitate efficient implementation of the objectives of monetary and public debt management through mutually supportive information sharing and structural policies.

Table 1 below highlights the government's consolidated (treasury and the central bank) budget constraint which will be used to demonstrate the need for and kinds of coordination arrangements.

Table 1: Government Budget Constraint and Policy Coordination

Fiscal Policy		Debt Management		Monetary Policy	
(1)	$D_t$	-	$[B_t - B_{t-1}]$	+	$[M_t - M_{t-1}]$

The budget constraint highlights the fact that the main elements of fiscal policy (the size of the budget deficit), debt management (the issuance of public debt), and monetary policy (the rate of expansion of monetary base) are linked. Expression (1) shows that the government's deficit in the current period ( $D_t$ ) must be financed either through net bond

sales ( $B_t - B_{t-1}$ ) to the public (banks, corporations, or persons), or through central bank credit to government, resulting in a rise in monetary base ( $M_t - M_{t-1}$ ), held by the public in the form of currency or bank reserves. 1/ 2/ Since all three policies cannot be independently determined, a need arises to coordinate. There are three possible cases, highlighted below, with different implications for the scope of coordinating arrangements.

Case (a): The monetary authorities are in a position to determine the supply of base money  $M_t$ ,  $t=1,2,3,\dots$ , consistent with an inflation target. The deficit path is then determined in relation with monetary objectives and financing possibilities. Clearly, this arrangement requires a central bank with operational autonomy to set a path for monetary base (at least the domestic component of the monetary base if the exchange rate is fixed), and sufficient policy coordination and fiscal discipline to align the fiscal balance.

Case (b): The fiscal authorities determine the deficit path  $D_t$ ,  $t=1,2,3,\dots$ , and the monetary authorities then supply whatever volume of base money is required to finance government deficits. Consequently, the central bank's mandate for delivering the desired level of price stability may be jeopardized, particularly, when the fiscal deficit is large in relation to stabilization goals and the scope for debt issuance outside the central bank is limited. This case is typical of many economies in transition in the undeveloped stage.

Case (c): The fiscal authorities and monetary authorities take independent decisions about the size of the fiscal deficit and the path for the monetary base, respectively. Debt management operations in well-developed government securities markets finance the deficit in a non-inflationary manner through bond sales  $B_t$ ,  $t=1,2,3,\dots$  outside of the central bank to banks and the nonbank public. In this arrangement, interest rates--and also exchange rates, depending upon the exchange system--adjust in well-developed financial markets and bring about the alignments needed to satisfy the government budget constraint.

In economies in transition, the coordinating arrangements under Case (c) are not realistic--with undeveloped financial markets, it is impossible to independently set the deficit and the supply of money, as the budget constraint demonstrates. Hence, if the plans of the fiscal and monetary authorities prove incompatible with the budget constraint and

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1/ In this simple model of the interactions between the private sector, fiscal authority, and the monetary authority, it is assumed that the entire government debt consists of one-period debt.

2/ Other sources of increase in base money--credit to banks, changes in net foreign assets, etc.--are assumed to remain unchanged for simplicity.



Figure 1

Transition to Market-Based Debt and Monetary Management

Undeveloped Stage

- Limited or no domestic government debt outside the central bank
- Fiscal deficits accommodated by money creation



Preparatory Stage

- Introduction of marketable securities, typically treasury bills sold in auctions
- Interest rates insufficiently flexible and largely controlled by the authorities
- No secondary market, weak interbank markets
- Development of debt management objectives
- Introduction or testing of other indirect instruments of monetary policy (credit auction, bill rediscount, etc.)



Transitional Stage--Fostering Markets

- Further development of market-based debt and monetary management instruments, with greater flexibility in interest rates and more active liquidity management by the central bank
  - use of treasury bills for monetary management
  - coordination of treasury bills and credit auctions for monetary management
  - securitization of outstanding claims on government
  - replacement of bad loans with government securities
  - sterilization of excess reserves
- Introduction of a comprehensive public debt management regime. Medium-term debt securities introduced, with rates set administratively or tied to treasury bill rates. Build up volumes and widen the range of holders
- Strengthening reserve money and debt programming, and related treasury and monetary operations
- Plan regulatory and institutional arrangements for secondary trading, the central bank remains the major source of liquidity to government debt instruments
- Strengthening interbank markets and clearing and settlement arrangements
- Review the adequacy of banking supervision relating to asset-liability management



Developed Stage--Strengthening Markets

- Interest rates fully flexible
- Institutional arrangements for secondary markets are expanded and strengthened with appropriate regulatory and supervisory arrangements
- The market ensures the liquidity of government debt instruments, with the central bank managing liquidity in the market at its own initiative, using more flexible market-based instruments (repos, interventions in secondary trading, etc.)
- Auctions of medium- and long-term debt instruments
- Further expansion of book-entry clearing and settlement system, consistent with the overall reforms of payment system



stabilization goals, then either the government or the central bank has to modify their targets. Otherwise, stabilization would be unlikely to be achieved.

The above discussion also suggests that for economies in transition, which are typically characterized by Case (b), coordination of monetary and fiscal policies should encompass not only the reconciliation of targets for fiscal balances and monetary growth, but also the development of financial markets, particularly government securities markets. Market development would enable a greater scope for independent fiscal and monetary policies in due course, with market prices providing the signals for policy adjustments, rather than explicit operational coordination arrangements, which could be limited to essentials such as information sharing. <sup>1/</sup>

2. Coordination of debt and monetary management objectives,  
and the development of financial markets

The pace of financial market deepening will depend greatly on the strategies for the development of primary securities markets--the choice of debt and monetary instruments and the management of the instruments (discussed in Chapter III)--, and of secondary markets--the role played by the central bank in market development (discussed in Chapter IV). Moreover, in the absence of secondary markets, the primary market for government securities may be used for both debt and monetary management purposes.

In these circumstances, the objectives and operations of monetary and debt management cannot be strictly separated, and will have to be more closely coordinated to achieve the goals of financial market development, on the one hand, and liquidity management, on the other hand. In this context, it is vital to articulate a debt management objective so that the design of the debt management program may be consistent with the harmonization of debt and monetary management and the attainment of financial market development goals. This is discussed below.

The objectives of debt management and hence the details of coordination arrangements are likely to vary with the economy's stage of development. In modern market economies, a widely accepted debt management objective is to minimize the expected cost of debt service. This presupposes that debt management policies are part of a system (Case (c)) that includes macroeconomic policies (fiscal and monetary) geared toward economic stabilization, well-developed financial markets, a regulatory framework which supports voluntary holdings of government debt, constraints which

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<sup>1/</sup> It is important to note, however, that even in countries with developed financial markets, a lack of coordination between the fiscal and monetary authorities can cause volatility in financial markets and create uncertainty about the future real value of bond and money holdings of the private sector.

limit central bank financing of the government (and the requirement of maintaining positive cash balances), and a central bank which determines the overall monetary stance (i.e., the debt managers treat interest rates as a variable exogenous to the debt management strategy).

This debt management objective can be illustrated by expanding expression (1) to form equations (2) and (3), as explained below. Given an exogenously determined financing requirement (government spending on goods and services ( $G_t$ ), less revenues ( $R_t$ ), plus debt service ( $S_t$ )), what mix of debt instruments--short-term bonds ( $B_t^S$ ) and long-term bonds ( $B_t^L$ ) minimizes the expected debt-service costs ( $S_{t+1}$ ). This cost minimization problem depends on the shape of the yield curve--short-term interest rates ( $IS_{1/2}^S$ ) versus long-term interest rates ( $I^L$ )--and the expected future course of interest rates ( $IS_{2/2}^S$ ). <sup>1/</sup>

$$(2) \quad [G_t - R_t] + S_t = [B_t - B_{t-1}] + [M_t - M_{t-1}]$$

$$(3) \quad S_{t+1} = [B_t^S * IS] + [B_t^L * I^L]$$

$$\text{where: } B_t = B_t^S + B_t^L$$

$$IS = [(1 + IS_{1/2}^S) * (1 + IS_{2/2}^S)]^{1/2} - 1$$

In economies lacking well-developed financial markets and with high deficit financing requirements, a debt management framework of cost minimization, as highlighted above, is unsuitable. Given a scarcity of market sources of financing (there will not likely exist a long-term bond market, let alone a short-term market), such an objective could encourage the government to borrow from the central bank (at the expense of fostering inflation). Or, as illustrated by equation (4) below, private sector borrowing--loans from banks ( $B_t^{cb}$ ) and nonbank financial institutions ( $B_t^P$ )--would likely be at nonmarket interest rates [ $I^{cb}$  and ( $IP$ )], enforced by statutory regulations such as high liquid asset requirements on these captive sectors.

$$(4) \quad S_{t+1} = [B_t^{cb} * I^{cb}] + [B_t^P * IP]$$

where:  $I^{cb}$  and  $IP$  are typically unequal and fixed at below the rate of inflation

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<sup>1/</sup> Although this is a one-period model with all bonds due at the end of the period, short-term bonds can be thought to roll over (principal amount matures and is reissued) with the same bond holder whose interest from the first half of the period ( $IS_{1/2}^S$ ) accrues at the interest rate for the second half of the period ( $IS_{2/2}^S$ ). At the start of the period, the interest rate for the second half of the period ( $IS_{2/2}^S$ ) is unknown.

Such a segmented market approach to debt management would undermine the development of financial markets and exacerbate the costs of stabilization through distortions in the interest structure. Thus, the challenge for economies in transition is to articulate and adopt a debt management objective which is compatible with the broader goals of monetary stabilization and the development of financial markets. One broad objective might be as follows:

To enhance economic stabilization and promote financial system development, to be accomplished by: (i) government borrowing from non-inflationary (noncentral bank) sources; (ii) inducing voluntary holdings of government debt through establishing market-related rates of return; and (iii) minimizing the cost of debt service by enhancing the liquidity of government debt instruments through the development of a government securities market, while taking actions to increase investor confidence.

The above objective may also involve tradeoffs between multiple policy objectives (and constraints). For example, recapitalization and restructuring of banks may be needed to support effective competition and interest rate flexibility, but this would require additional fiscal adjustment and additional debt issues to cover the costs of restructuring. In this case, additional debt issuance could be made part of the government securities market development strategy; in this strategy, refinement of monetary operations plays a crucial role in fostering liquid markets in government debt instruments.

In summary, in economies in transition, stabilization and the development of financial markets are common objectives binding monetary and fiscal authorities, while monetary and public debt management policies cannot be strictly separated. Therefore, coordination of policy has to be achieved through the sharing of common objectives and the pursuit of joint actions--involving stabilization and institution-building measures--to achieve those objectives.

### 3. Institutional and operating arrangements

The coordination of fiscal, debt, and monetary policies has to be supported by concrete institutional and operating arrangements. Types of arrangements, their rationale, and their likely evolution in the course of transition are discussed briefly below, and more fully in Chapter V.

First, institutional arrangements that limit central bank credit to the government can reduce conflicts between the central bank and the MoF in decisions regarding the sources of deficit financing, and enhance the operational autonomy of the central bank.

Second, institutional arrangements, such as a debt and monetary management committee, can play an important role in coordinating the volume of debt issuance in the primary market with monetary policy goals and help resolve conflicts concerning the stance of interest rate policy.

Third, operational arrangements to share information and to forecast variations in government balances with the central bank or expected changes in the government's overdrafts, can help to facilitate appropriate adjustment of instruments and the attainment of both the reserve money and debt issuance objectives.

Fourth, arrangements and rules for the treatment of central bank profits and losses will be important for maintaining central bank operational autonomy through the preservation of the central bank's capital, while removing incentives for inflationary spending that may result from transference of profits.

Fifth, the central bank and the MoF have a joint interest in developing secondary markets in government securities. Well-functioning secondary markets are important for the MoF as they stimulate demand and render the absorption of relatively large issues less problematic. Thus, the central bank may need to consider institutional arrangements to enhance secondary markets, such as establishing a secondary market window or developing market makers, while arrangements in the primary market will need to be designed to enhance market deepening by improving the auction system.

Such institutional arrangements will generally evolve along with the stages of transition. In the initial stage (the undeveloped stage, noted in Figure 1), regulatory changes may be required: for example, central bank legislation may need to be altered to permit the central bank to issue its own securities, or purchase and sell government securities in the open market; changes may also be needed to permit it to act as fiscal agent for the MoF. In addition, a ministerial decree or a public debt act may be needed to permit the government to issue securities and to allow investors to trade in securities.

In the preparatory stage, the coordination of debt and monetary instruments will probably require the formal establishment of a high level policy coordination committee, comprising MoF and central bank officials. The placement of limits on central bank credit to the government, and the introduction of debt instruments and selling techniques to serve both monetary and fiscal objectives would be important aspects of coordination.

In the transitional stage, the promotion of a secondary market should make it possible for the central bank to further develop open market-type operations; this would require the establishment of an open market committee and direct-dealing relationships with market participants, and more intensive day-to-day coordination of primary issues with other instruments of monetary management (e.g., credit auctions). At the same time, greater

emphasis would need to be given to short-term liquidity forecasting for the conduct of open market operations, which would, in turn, require more frequent information about the central bank's balance sheet. In addition, increased information sharing between the central bank and the MoF would be needed to monitor and project government cash balances. Arrangements for primary auctions might also become increasingly market-based to further market development: for example, the authorities might switch from a minimum price tender (setting the cutoff rate) to a market-clearing auction (setting a fixed supply).

Given deepening financial markets in the developed stage, institutional arrangements may delineate separate objectives for debt management and monetary management policies, supported by greater reliance on market operations and market signals to ensure coordination, and further development of institutional arrangements to reduce policy conflicts. Such arrangements could include stricter limitations on direct central bank financing of the government, permitting only indirect purchases of government securities in the secondary market. In some countries, a separate statutory institution--a debt management office--has been established to pursue the objective of cost minimization in a market environment.

### III. Development of Primary Markets and Their Role in Indirect Monetary Management

This chapter discusses the use and development of primary markets--for government securities and central bank securities--and their role in indirect monetary management, and the use of other monetary instruments.

#### 1. Primary markets in government securities: designing an appropriate strategy

The design of an appropriate program of debt sales, instruments, and the choice of selling mechanism will depend upon the overall strategy for stabilization, debt and monetary management policies, and the strategy for the development of government securities markets. The main elements in building a market-based strategy for debt and monetary management are highlighted below.

First, the debt sales program should form part of the overall process of stabilization by seeking non-inflationary sources of financing. If debt sales are seen as an opportunity to increase expenditures and run larger fiscal deficits, this will raise inflationary expectations, and at a minimum, raise borrowing costs to the government.

Second, in the context of developing efficient financial markets to support stabilization, as well as broader structural reform objectives, debt management policies should avoid creating distortions in capital and credit

markets, which as country experiences have shown, will tend to slow the development of secondary markets. Thus, the primary issuance of government debt should be based on selling arrangements that are market-based with flexible and competitive interest rate determination, inducing voluntary holdings of securities by investors, rather than based on involuntary holdings by captive market segments using statutory reserve and liquid asset requirements and interest rate restrictions.

Third, an overall strategy for the development of the government securities markets should be developed and agreed upon. Typically, most countries embarking on financial reform have placed the initial emphasis on treasury bill markets, as part of money market development, and gradually extended the maturity spectrum of government securities to encourage capital market development. <sup>1/</sup> The parallel development of market-based monetary management has helped to stimulate money and interbank market activity by inducing banks, in particular, to actively manage their liquidity, using short-term liquid instruments such as treasury bills.

Fourth, as part of the strategy for economic stabilization and overall market development, the central bank and the MoF will need to decide whether to use the primary market for treasury bills strictly as a means of financing the fiscal deficit (and smoothing short-term fluctuations in treasury cash flows), or, to also use it as a significant monetary management tool.

## 2. Coordination of primary market issuance of government debt

In the absence of secondary markets in treasury bills or other market-based instruments to manage bank reserves, many countries have used treasury bill auctions as a substitute for "open market operations." Since indirect monetary management consists of targeting the level of bank reserves in order to control the lending capacity of banks and short-term interest rates, and thereby the overall monetary expansion and the general interest rate level, primary issues of government debt can, in principle, be used not only to meet debt management objectives but also to implement indirect monetary management.

The use of treasury bills to regulate the level of bank reserves requires that the volumes sold be varied from time to time in response to variations in autonomous factors affecting bank reserves, while ensuring that sufficient amounts of treasury bills always remain outstanding in the market to permit liquidity management by holders and foster market

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<sup>1/</sup> It is easier to develop secondary markets in short-term instruments than for long-dated securities whose investment risk, for a majority of institutions and investors, is much greater.



development. 1/ In general, using treasury bills as a monetary management tool requires that an auction technique be adopted to sell the bills regularly, frequently, and at market-clearing interest rates; that the volume of sales be used as a means to regulate the level of bank reserves; and that the interest rate resulting from the auctions be used to signal the authorities' intentions and thereby guide other interest rates in the financial system.

The coordination of policies insofar as they relate to the primary issuance of securities is typically done in a joint committee (or working group) of central bank and MoF officials. If deficit financing is the primary objective, then central banks will essentially play an advisory role, while the MoF will normally have the final authority concerning the terms of primary issues including, in particular, the volume of issue, but also the interest rates and maturities. In the case where issuance is for monetary management purposes, the central bank will normally be granted much greater discretion in choosing the volume of securities to issue. In addition, arrangements may be required, and agreement sought, to sterilize the proceeds from the sale of securities on the balance sheet of the central bank to eliminate the attendant risk that an increase in government cash balances could induce an expansion in government expenditures. Finally, the central bank and the MoF should also agree on various technical aspects of treasury bill sales, or to leave technical aspects for the central bank to decide. These include frequency of offerings, settlement times, the range of bidders, type of auctions, items to be preannounced, etc.

If fiscal deficits are sizable, debt financing solely through sales of treasury bills may not be sufficient. In this case, either the fiscal deficits will have to be reduced or efforts will need to be made to sell a wider range of government debt instruments to tap different markets (or a combination of both). It is therefore important that, in parallel with introducing treasury bill auctions, the fiscal and monetary authorities agree on a comprehensive program of government debt management, including the use of a range of debt instruments, and selling techniques, and a phasing-in strategy for the various debt instruments.

### 3. The development of additional monetary instruments

In practice, the use of treasury bill auctions for monetary management will not be sufficiently flexible and the development of additional monetary instruments will often be necessary to facilitate monetary management, especially in cases where liquidity fluctuations are volatile and large, or permanent. For example, if liquidity shortages suddenly develop, say due to short-term capital outflows, the authorities may wish to contain the

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1/ This can be achieved by maintaining standard amounts of treasury bills offered with a predictable regularity to assist buyers in their investment planning. On top of this standard amount, the authorities could vary the quantity offered for monetary purposes.

resulting increases in short-term interest rates. However, an injection of liquidity would be difficult to achieve solely through the maturing of treasury bills at discrete intervals. At the same time, sharp reductions in the amounts offered may disrupt market development and investment planning by buyers. Therefore, in many countries, refinance/rediscount instruments and/or repurchase agreements are used to inject or withdraw liquidity for short periods. This raises technical issues regarding the coordination of treasury bill auctions with other instruments which are discussed later in this section.

In cases where the initial situation is one of high excess liquidity in the banking system (or if such a situation develops), it may not be feasible or desirable to absorb this excess by treasury bill issues alone. Reserve requirements could be raised, but this is inefficient if the required reserves are not adequately remunerated. In such a case, it may be preferable to sterilize the excess liquidity, if feasible, through the issuance of medium-term government debt. Another possibility is the issuance of central bank securities. This might be more appropriate if the issuance of government securities would lead to an excessive buildup of government deposits. <sup>1/</sup> Yet another possibility is that the authorities could restrain the volume of central bank credit to banks, which, in combination with an increase in the volume of treasury bills sold, could also be used to offset the excess liquidity. Such control in the volume of central bank credit at the initiative of the central bank would require additional instruments, such as credit auctions. The appropriate choice (or combination) of instruments highlighted above, naturally, would depend upon the circumstances.

In practice, therefore, the authorities would typically need an arsenal of instruments, which could be used in some combination to regulate the level of bank reserves as well as the level of interest rates in the treasury bill and interbank markets. The use of primary issuance of treasury bill auctions alone would not normally be enough and would have to be supplemented by other instruments, such as credit auctions, short-term repurchase agreements, special issues of securities (central bank or government) for monetary purposes, government deposits, reductions in central bank credit to priority sectors, and variations in reserve requirements (see Appendix I). A few of these instruments are discussed below.

a. Central bank securities

In the discussion above, it has been assumed that treasury bill issuance through auctions--both the volume of issuance and interest rates

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<sup>1/</sup> Alternatively, a large buildup of government deposits could be appropriately sterilized on the balance sheet of the central bank in a "special account" which would not be available for government expenditure but would be remunerated by the central bank.

determined by auction--is the main monetary policy instrument, which is supplemented by other instruments to manage bank reserves; in addition, the central bank is given sufficient operational autonomy to manage the treasury bill auction volumes for both debt and monetary management purposes. Insofar as such an approach--and the implied cooperation between monetary and fiscal authorities--proves difficult to achieve, the central bank could choose to issue its own securities strictly for monetary purposes. In that case, treasury bill auctions would be used mainly to support debt management objectives. The experience of countries where central bank securities (or securities issued solely at the discretion of the central bank) have been used for monetary management is summarized in Appendix II. 1/

When both central bank bills and treasury bills coexist, coordination of the maturity of issuance can be a factor limiting potential conflict between the debt and monetary authorities. Thus, it may be desirable to limit central bank bills to a fairly short initial maturity (say, one month to three months), given the objective of liquidity management, and issue treasury bills in longer maturities (three to six months). Such an institutional arrangement minimizes the direct competition between treasury and central bank bills.

In principle, at the initial stage of transition, it would be preferable to use one type of security for both budgetary and monetary management. This would avoid segmentation of the secondary market, promote faster development of short-term markets in the initial stages of financial sector reform, and avoid complications arising from differences in yields on otherwise identical instruments. However, if the needs of monetary management are pressing and cannot await the resolution of coordination issues between the MoF and the central bank, it may become necessary to issue central bank bills. This has been the case in many countries. Central bank bills can be seen as useful transitional arrangement until secondary markets in treasury bills (as in Poland), or other instruments to manage bank reserves, are fully developed. These other instruments include, as noted earlier, credit auctions and repurchase agreements.

b. Central bank credit auctions

In most transition economies, for a variety of historical reasons, commercial banks depend heavily on central bank credit. Providing a significant portion of such direct credit through auctions, can be used as an important and indirect monetary instrument. 2/ The need to rely mainly on treasury bill auctions for monetary management may then be less pressing, and treasury bill issues may be managed simply from a budgetary perspective. In this case, credit auctions would be the main monetary instrument to transmit the authorities' monetary policy intentions. The auction volumes

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1/ For further details on the choice between central bank and treasury securities, see Quintyn (1994).

2/ See use of credit auctions, Saal and Zamalloa (1994).

would be varied from week to week as needed to influence bank reserves, and the credit auction rate would provide the key signal to the market and thus influence other short-term interest rates. It is important to note that credit auctions may be partially or wholly collateralized using treasury bills which would, in turn, support the further development of that market.

c. Government deposits

In the absence of well-developed secondary markets and given the limitations in the use of treasury bills for monetary purposes, the authorities in some countries (e.g., Malaysia, Indonesia) have used the transfer of government deposits from the central bank to commercial banks (and vice versa), either occasionally or on a regular basis, to influence the level of bank reserves and conditions in short-term money markets. Among developed countries, the Bank of Canada uses daily transfers of government balances as its principal monetary tool. The transfer of government balances to commercial banks can be determined either by an allocation formula, by auctions, or by placing them in interbank markets through brokers or agents. A major disadvantage of the use of switching of government balances is that it does not encourage holding and trading treasury bills, nor, if determined on the basis of a formula, does it stimulate market-based arrangements. Nonetheless, such a mechanism can facilitate monetary management by "neutralizing" reserve changes--arising from say government operations--in conjunction with more market-based instruments directed at "dynamic" or policy changes in reserves for monetary management purposes. Effective use of this instrument will clearly require prior agreement between the central bank and the MoF.

4. Design of primary auctions

In the early stages of financial sector reform, a common issue in the management of primary issues of treasury bills (and other government securities) is whether the central bank should participate in the auction and, if so, how. In general, arrangements whereby a minimum price is set beforehand (which may or may not be preannounced) and the central bank is required to take up the amounts that remain unsold is an undesirable practice. At the least, it complicates monetary management, at the worst it creates pressures to finance the government, undermining the stabilization efforts as well as the progress toward market-based mechanisms. It is preferable, therefore, not to have the central bank participate in the auctions and to acquire treasury bills through the secondary market. If for reasons of limited absorptive capacity of the market the central bank is required to participate, it should not do so as a competitive bidder, since this will reduce the confidence in and transparency of the auctions. Instead, the central bank should participate on a noncompetitive basis at the weighted average auction price; preferably, the central bank should preannounce the amount to be purchased or, at the least, the market should be informed upon announcing the auction results of the amount purchased by the market and the

central bank. Such arrangements will help to convince market participants that awards at the auction are truly based on market-clearing prices, which will build up confidence and encourage more active participation in markets.

The use of both credit auctions and treasury bill auctions for monetary management requires coordination of technical aspects. Experience suggests that the maturity of credit auctions should generally be less than the minimum initial maturity of treasury bills. This improves control over bank reserves and short-term interest rates, and thereby permits smoother management of treasury bill auctions. The synchronization of settlement for treasury bills and credit auctions and the timing of auctions in relation to banks' reserve maintenance period are both important for efficient management of money markets. The management of the interest rate structure--the relationship between the credit auction rate, the interest rates on direct central bank credit, the treasury bill auction rate, and the central bank's bid/offer rate for treasury bills in the secondary market--also requires careful coordination. For example, under normal market conditions, credit auction rates should be higher than treasury bill yields of similar maturity; if not, central bank financing may be used for market arbitrage. In addition, the rediscount rate or the bid rate quoted by the central bank in the nascent secondary market for treasury bills might be less than the credit auction rate, in order to foster liquidity in the secondary market, particularly in the initial stages; it might also encourage the establishment of yield spreads reflecting differences in credit risk--credit to commercial banks versus credit to government.

#### IV. Secondary Market Development--The Role of Central Banks and Coordination Issues

Secondary markets in government securities provide liquidity for investors--the ability to move from securities to cash (and vice versa) at a reasonable cost--and continuous interest rate determination--price discovery. This is supported by the financing and arbitrage activities of market participants, bringing about closer links between the various segments of financial markets and facilitating the transmission of monetary policy. The development of secondary markets supports the process of interest rate liberalization, whereby the authorities achieve progressively greater flexibility in interest rates by strengthening monetary operations and money and interbank markets and by promoting competitive and closely integrated markets. Secondary market development also helps to widen the range of holders of government securities and facilitates more efficient (primary market) pricing of debt securities and more flexible debt management operations.

The central bank and the MoF will need to help create a supporting framework for secondary markets. This involves introducing appropriate legislation and regulations facilitating the emergence of sound institutions and efficient systems (e.g., dealers, brokers, clearing systems, and

custodial arrangements), instruments (e.g., intervention arrangements, rediscount and repurchase facilities), and information systems (for transparency of price and other information, and to monitor and supervise markets and market participants).

Active and sound secondary markets in government securities are typically associated with the following features:

- a. An absence of price and tax distortions or other inefficient portfolio regulations that foster market segmentation and the involuntary holdings of government securities;
- b. Efficient primary market arrangements in which both the central bank and the MoF are willing to sell securities at market clearing prices;
- c. A sufficient volume of outstanding government securities with a broad distribution between a large number of holders;
- d. Active liquidity management by the central bank--supported by appropriate fiscal policies--designed to manage the overall liquidity of the banking, money, and securities markets and ensure adequate flexibility in interest rates, while avoiding excessive volatility or instability;
- e. Strong interbank and money markets supported by an efficient clearing and settlement system for interbank transactions. Well-functioning money and interbank markets--and the supporting clearing and settlements system--provide the foundation on which secondary markets are built;
- f. The existence of a well-defined microstructure for the secondary market--where buyers and sellers can become aware of each other or where competing "market-makers" (dealers) in government securities quote firm bid and ask prices and are prepared to deal in sufficient volumes at the stated prices; and
- g. A transparent and equitable regulatory and supervisory framework to foster sound institutions and well-capitalized dealers, and to support the components a to f noted above.

1. Actions to develop the market

In light of the considerations enumerated above, the authorities' actions to stimulate the secondary market, discussed below, can be viewed as either affecting the market value and the process of price discovery, i.e., how the price and interest rates are determined by coordinated monetary and fiscal policies and primary market arrangements (items a-d above), or as affecting the secondary market structure and its operational efficiency, i.e., how the buyers and sellers interact through the microstructure of secondary markets (items e-g above). There are a number of measures that can be taken.

- Measure a. Provide a transparent and equitable system for regulation and supervision of secondary markets

A transparent and equitable regulatory framework is essential. In recent years, most countries have tended to favor establishing a single centralized authority--such as a securities commission (by various names)--which is responsible for promulgating securities laws and is the primary and final authority on securities market regulation and supervision. Some of its powers are formally delegated by specific acts to either the treasury or the central bank, or to self-regulatory organizations, which may have a comparative advantage in terms of expertise, information, resources, and independence. 1/ Specific institutional arrangements are established regarding the participation and interaction of the central bank or the MoF, or both, with other bodies involved in securities market regulations and supervision.

The key objectives of financial sector regulation and supervision are to monitor and enforce sound operations, ensure that there is adequate capital in relation to risk, create efficient trading systems, and at the same time, encourage competition and innovation. These objectives require that the regulatory constraints on specific activities be applied uniformly across various institutions and in a flexible manner so as not to stifle innovation.

Typically, countries have endeavored to modernize their government securities markets by adapting the basic regulatory framework to the needs of investors and market professionals with respect to liquidity, transparency, and the adequacy and efficiency of trading facilities. These adaptations have often resulted in the creation of a new securities commission or in a broadening of the supervisory powers of the existing commissions and a clearer delineation of responsibilities between various official bodies. 2/ Appendix III summarizes the regulation of securities markets in a selection of countries.

While the overall regulatory and supervisory framework for securities markets and the delegation of powers to central banks and the ministries of finance in specific areas vary from country to country, central banks are typically involved in the prudential supervision of securities activities and the asset-liability management of commercial banks, as well as those of nonbank financial institutions with whom central banks directly interact in implementing monetary policy.

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1/ The government and the central bank are normally exempted from the various provisions in securities laws related to public offerings and disclosure.

2/ Countries which have, in recent years, created new regulations (or reformed existing ones) and/or created new regulatory bodies include Australia, France, Greece, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, the United Kingdom, and the United States.

- Measure b. Develop an efficient and secure clearing and settlement system for transactions in government securities

As lender-of-last-resort to the banks and given the responsibility for ensuring the soundness of the payments system, central banks have a clear interest in ensuring that clearing and settlement systems for securities are well-designed to control credit, liquidity, and operational risks, and to ensure that systemic risks are minimized. As fiscal agent to the government, central banks have to help ensure the marketability and distribution of securities; and, as a market participant, the central bank, just as any player in the market, is concerned that securities trades are completed properly, with delivery of securities matched by receipt of payments.

There are four key elements for a clearing and settlement system for securities: (i) trade comparison and clearing arrangements; (ii) a depository, which handles securities and maintains a book-entry securities transfer system; (iii) a money transfer system; and (iv) a custodial/safekeeping arrangement where members of the depository can safely keep securities on behalf of clients.

The central bank may participate in the clearing and settlement system by providing all or some of the above services. However, regardless of whether the central bank is a provider of any of these services, it should ensure that the architecture of the system is sound. In particular, the movement of securities by the depository and the opposite movement of funds through the money transfer system should be simultaneously combined so that the clearing and settlement system ensures "delivery versus payment" (DVP). This eliminates "principal risk" which can arise when either securities are transferred before funds are received or vice versa. Appendix IV outlines the systems of a number of countries.

Since, typically, central banks organize and operate large value transfer systems (LVTS) for interbank funds, the development of clearing and settlement of government securities in book-entry form could be integrated with the large value transfer system to ensure delivery versus payments and support security market development.

- Measure c. Foster an appropriate microstructure of money and securities markets, and support the role of "market-makers" in government securities

The central bank and the MoF should play an active role in fostering an appropriate market microstructure and price discovery process.

Most secondary markets for government securities have in recent years tended to be modeled on that of the United States, where authorized primary dealers are charged with making continuous markets in government securities through continuous bid and offer quotations and are given certain privileges



to match their market-making obligations. Primary dealers are also required to keep the government debt manager and the central bank (in its function as fiscal agent) up-to-date on market developments, assisting the authorities in the design of market-based debt and monetary operations and the smooth functioning of the market, thereby increasing the depth and breadth of the government securities market. The role of such dealers is highlighted in Appendix V.

Dealers provide "immediacy" of execution by purchasing and selling securities as principals, at quoted prices. Thus, successful dealer markets tend to be characterized, and sometimes dominated, by institutional investors who transact in large block sizes and attach a premium on immediacy of execution. At the same time, the promotion of dealers that are prepared to transact at quoted prices facilitates the central bank's liquidity management using open market operations, which also requires immediacy of execution. The licensing of market-makers, the definition of their privileges and obligations, and their subsequent supervision is, in many countries, the responsibility of the central bank in view of the importance of such market-makers in the implementation of monetary policy.

Government securities may also be traded on exchanges (e.g., Ireland) which provide a secondary "auction" market. These markets direct buy-and-sell "orders" (limit orders or market orders) into a single location (on an exchange floor or electronic order matching system), where they are executed at the market clearing or "best price." Auction markets rely on the flow of buy-and-sell orders to assure that markets are continuous and that sufficient market depth exists. When order flow is insufficient, a large block order can destabilize auction markets resulting in "execution risk" for the buyer or seller.

In nascent markets, sufficient order flow is likely to be lacking. In such a case, the encouragement of a group of dealers to support, maintain, and promote secondary markets will benefit market development and enhance secondary market liquidity. Alternatively, auction markets can be organized along the lines of a "call auction" where securities are traded at a particular time of the day or week. The concentration of orders in a batch (periodic) market helps stabilize prices and ensures liquidity to the investor through the accumulation of orders over time. In addition, the costs of execution and settlement are lower, while the existence of a single price per day, or trading period, reduces the risk of settlement errors.

In the initial stages of market development, when the size of the market is not sufficient to support several market-makers, central banks have often established a secondary market window by standing ready to buy and sell government securities. The buy-and-sell prices in these cases could either be set by the central bank itself, or the central bank could respond at its discretion and on a dynamic basis, depending on market developments and in response to quotes provided by the market. The latter method is generally preferable, since it permits the central bank more

flexibility and encourages the development of market-making by participants. Importantly, the development and experience gained in setting up and operating a secondary market window prepares the central bank for full-fledged open market operations as the market develops.

In some countries, the authorities have established a discount house, which could be jointly or wholly owned by the central bank, to act as market-maker. A line of credit would be extended to the discount house to help provide financing for inventory. This approach is an extension of the secondary window method and has the advantage of clearly separating monetary policy functions from dealer functions. However, as a monopoly "market-maker," the discount house could discourage the emergence of competing market-makers in the nongovernment sector. In general, therefore, the above transitional secondary market arrangements should be replaced as soon as possible by a more competitive structure of secondary markets, with central banks indirectly supporting the market through monetary operations.

Where transparency of price information or communication systems are problematic, some central banks (for example, Italy and Poland) have supported secondary markets by providing a trading system, often as part of facilities to clear and settle government securities transactions. This approach can offer improved transparency as compared to telephone over-the-counter markets and operational efficiency by linking the trading system with the clearing and settlement system.

- Measure d. Manage liquidity actively with market-based instruments using government securities

Central banks should manage bank reserves actively to minimize excessive volatility in banking system liquidity, while maintaining sufficient flexibility in interest rates. Excessive volatility in banking system liquidity, and consequently in short-term interest rates, will discourage market participants from taking positions in longer-term treasury bills given the increased liquidity risk--the risk of being unable to borrow overnight (or short-term) in order to fund longer-term securities positions.

In the initial stages, central banks use simple market-based instruments--as discussed in Chapter III--to manage the level of bank reserves in line with monetary policy objectives, and in the process build up active interbank markets, laying the foundation for secondary markets in government securities. <sup>1/</sup> While the specific mix of indirect monetary policy instruments will vary according to the evolution of bank reserves, the state of development of money markets, and the details of the clearing and settlement system, the authorities can use their monetary operations to

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<sup>1/</sup> As already noted, effective management of bank reserves and interest rates requires a monetary programming and debt programming framework that calls for close coordination between the central bank and the MoF.

stimulate markets in treasury bills. For example, treasury bills (or other government securities) may be required as collateral for credit auctions, or equivalently, the central bank may auction repurchase agreements (repo) against treasury bills. This would stimulate the treasury bill market. The central bank would also maintain a sufficient stock of treasury bills in its own portfolio, if necessary by converting part of its outstanding claims on government into treasury bills, which could then be sold on a repurchase basis for a short period; this would be a supplementary means of sterilizing bank reserves, in addition to outright sales of treasury bills and adjustments in the volume of credit auctioned. Thus, progressively greater use of government securities in monetary operations--as indicated above--would foster further development of government securities markets.

The use of repurchase operations in treasury bills to manage money market liquidity is an important way in which central banks can support the development of interbank and treasury bill markets. As markets develop, central banks mostly use repurchase agreements in government securities--and occasionally outright sales and purchases--to influence overall liquidity conditions in the money markets, and to provide financing support to dealers in government securities, and thereby influence the level and volatility of interest rates. The central banks' monetary operations have an immediate impact on interest rates in interbank markets and money markets, which will, in due course, influence long-term rates, since dealers in long-term government securities typically finance their securities holdings for distribution and market-making activities in the money markets and investors adjust their portfolio of assets in response to changes in relative yields. During the initial stages of market development, some central banks may intervene in securities markets directly through a secondary window or a discount house.

Some countries have agencies that intervene in the secondary market, on behalf of the government, for price stabilization purposes. In these cases, intervention is carried out either by the central bank or through a joint body involving both the central bank and the MoF. In several countries, the MoF (or a national debt office charged with the role of debt manager) also intervenes in the secondary markets occasionally, to buy up illiquid securities and replace them with more liquid securities with desirable technical features.

#### V. Supporting Arrangements for Monetary and Debt Management Operations

Effective coordination of monetary and debt management requires a variety of supporting organizational, legal, and operational arrangements. The operation and settings of indirect monetary instruments (as described in Chapter III) has to take into account projections of government cash flows based on programmed debt sales. Appropriate organizational arrangements are needed to facilitate such projections and related decisions on instruments. Effective coordination also requires legal and operational arrangements

relating to constraints on central bank credit to government, disposition of central bank profits, and a division of various debt management functions between different agencies. These institutional issues are discussed in this Chapter.

1. Coordination of debt and monetary policies and its execution

a. Coordination committees

The establishment of coordination committees--either formal or informal--for debt management purposes is common in most countries. <sup>1/</sup> These committees meet on a regular basis to exchange information on the government's financing requirements, to discuss and analyze the results of the government's cash balance projections, to monitor overall liquidity and market developments, and to discuss the strategy for achieving debt and monetary management objectives. Committees (or groups) to coordinate monetary and public debt management issues take different forms in different countries, but they are normally composed of officials of the government (MoF), Treasury, or Debt Office, and the central bank. The exact mandate of these coordinating bodies will vary across countries but the following topics are representative of the practice in several OECD countries:

(1) the planning of the regular sale of securities, including setting quarterly and yearly targets. The setting of these targets requires estimates of government cash-flow needs, assessments of the absorption capacity of the market (i.e., the likely development of the demand for government securities), taking into account monetary policy considerations;

(2) discussing the results of consultations with financial institutions (including dealers) and their customers regarding their preferences on existing and planned debt instruments;

(3) changes in secondary market arrangements, including clearing and settlement systems, issues concerning automation, and regulatory and supervisory questions;

(4) changes in primary market arrangements, including auction procedures, the frequency of offerings, and the introduction of new instruments; and

(5) studies and recommendations on longer-term issues, such as the use of distinct debt instruments for monetary management purposes, modernization of the government securities market, etc.

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<sup>1/</sup> In some cases, it has been further argued that formal coordination arrangements should be avoided as they may create a moral hazard for central banks to provide indirect support in government debt issues through monetary management.

In addition to the above inter-institution coordination committee, central banks generally establish a monetary management committee in order to ensure that various factors affecting bank reserves and money supply are consistently projected and to derive the implications for the stance of monetary policy. Thereafter, the translation of monetary policy stance into the day-to-day settings of monetary policy instruments and the daily strategy for market intervention is typically entrusted to a monetary operations department (or Committee) of the central bank. As markets develop, the day-to-day sharing of information between the market operations department and the Treasury on government cash flows will assume increasing importance.

The above coordination of debt and monetary policy and operations is highlighted in a stylized example in Appendix VI.

b. Intervention instruments for monetary management

Coordination of operating arrangements help to achieve debt and monetary policy goals. In particular, in countries with rudimentary financial markets, a higher degree of coordination is required, since both the monetary authorities and the fiscal authorities operate in the primary market and, in many cases, government securities may serve a dual purpose--monetary and debt management.

Three general types of operating arrangements for the conduct of debt and monetary management can be described: Arrangement I (*same market/different instrument*) uses the primary market for both monetary and debt management but different securities--for example, central bank securities, special-issue treasury securities, or credit auctions for monetary management, while government securities are used for debt management purposes only. Arrangement II (*different market/same instrument*) uses the primary market for new-issue government securities for debt management purposes, while the central bank operates in the secondary market through open market operations in outstanding government securities--this is the dominant arrangement in developed countries. Arrangement III (*same market/same instrument*) uses the primary market for government securities for both debt and monetary management purposes, in the absence of developed secondary markets. Table 2 shows the operating arrangements for the conduct of debt and monetary management in a sample of countries.

These arrangements differ according to the extent of day-to-day coordination required of volumes, prices, and forecasts by monetary and fiscal authorities. Arrangement II, typical of OECD countries, requires a lower degree of coordination, because deficit financing takes place in primary markets and monetary management in secondary markets.

It can be argued that the need for coordination is also minimal in Arrangement I, when the central bank intervenes by using specifically designed instruments, such as nongovernment paper (i.e., central bank bills,

such as in New Zealand); or distinct government securities (i.e., treasury bills of a specific maturity that are exclusively used for monetary management purposes, such as in the United Kingdom). Although specifically tailored instruments may seem to require a lower degree of day-to-day coordination, clear arrangements that specify the joint and individual responsibilities are essential for transparency and effectiveness. The need for both policy and day-to-day operational coordination is clearly the strongest in Arrangement III, common in many developing countries in the process of liberalization. An important principle, essential for the effectiveness of all three arrangements, is that the Treasury regards the interest rate (price) as endogenous--influenced jointly by monetary management of the central bank and by market conditions.

Table 2. Operating Arrangements for Debt and Monetary Management in Selected Countries

Arrangement I	Arrangement II	Arrangement III
Different Instruments	Same Instrument	Same Instrument
Same Market	Different Market	Same Market
Many economies in transition	Most developed economies	Many developing countries
Russia	U.S.	
Romania	France	
New Zealand	Spain	
Poland (initially)	Poland (presently)	

In many economies in transition, two key factors need to be considered when deciding on the most suitable arrangement for monetary operations: (i) the undeveloped primary and secondary markets for government securities; and (ii) commercial banks' heavy dependence on central bank credit. This suggests that it may be best to use Arrangement I, under which the MoF initially develops the primary treasury bill market to finance the deficit while the central bank uses credit auctions to implement monetary policy.

However, sales of government securities--regardless of their purpose--may still have a monetary effect which needs to be taken into account, for instance when proceeds or subscriptions for sales of government securities are temporarily deposited with the central bank. Also, on occasion, debt can be issued to serve a monetary objective, for example, the sterilization of excess reserves. Thus, government securities would supplement monetary management, coordinated with the MoF, as in Arrangement III. Moreover, where appropriate, Arrangement III is preferred in order to avoid market segmentation created by introducing two similar-but-different instruments.

c. Institutional arrangements for public debt management and the relationship between the central bank and the Treasury

The legal framework for public debt management generally authorizes the Treasury or the MoF to borrow on behalf of the government. In addition, the Treasury or MoF are empowered to delegate debt management functions to the central bank. In this way, the Treasury can focus on its primary responsibilities--financial planning of government operations, control of budget execution, and cash management--while delegating other aspects of debt management to the central bank or, alternatively, to a separate statutory agency--the Debt Management Office.

The rationale for dividing various debt management functions between the MoF and the central bank is discussed below, followed by a brief discussion concerning the establishment of a Debt Management Office.

(1) The allocation of debt management functions

Public debt management comprises a number of separate but related functions; these are highlighted in Table 3. Different institutional arrangements for the division of labor of debt management functions is possible. <sup>1/</sup> This is likely to be influenced by historical and socio-political factors that can, in part, explain the division of labor of debt management functions between the Treasury, or MoF, the central bank and, where applicable, the Debt Management Office.

Economic factors, however, can be equally important. For example, the allocation of debt management functions between institutions may depend on economies of scale in performing a particular function, thereby minimizing the operational cost (in terms of hiring personnel or purchasing resources) of performing the functions. For example: the post offices in a number of

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<sup>1/</sup> See Kalderen (1993) for a discussion of debt management functions and possible choices of institutional arrangements for the locations of these functions.

Table 3. Debt Management Functions

Debt Management Functions	Description of Function
Policy	<ul style="list-style-type: none"><li>• formulation of debt management objectives</li><li>• setting of instruments to meet those objectives</li><li>• coordination with monetary management</li><li>• approval of debt program</li></ul>
Planning	<ul style="list-style-type: none"><li>• projection of fiscal requirements</li><li>• formulation of debt program regarding frequency, volume, and issuance by instrument</li></ul>
Primary issuance	<ul style="list-style-type: none"><li>• short-term management of primary market including management of issuance volumes and borrowing calendar</li></ul>
Fiscal	<ul style="list-style-type: none"><li>• management of cash balances</li><li>• short-term projection of cash balance requirements</li></ul>
Selling	<ul style="list-style-type: none"><li>• management of selling arrangements (auctions, subscriptions, etc.)</li></ul>
Secondary market	<ul style="list-style-type: none"><li>• management of outstanding stock in secondary market for active debt management policy</li><li>• development of secondary market depth and liquidity</li></ul>
Advisory	<ul style="list-style-type: none"><li>• debt management agent(s) may provide advice to the Treasury (or MoF) on the above debt management functions</li></ul>
Issuance/redemption	<ul style="list-style-type: none"><li>• administration of delivery and redemption of security versus receipt/payment</li></ul>
Accounting	<ul style="list-style-type: none"><li>• management of records of debt instruments and stock of debt</li></ul>



countries are used to distribute debt instruments to the public; and the central bank's agency network used for servicing currency distribution may also be used for issuing and redeeming debt. In addition, comparative advantage is an important economic factor. For example, in light of its monetary policy role, the central bank may be made responsible for the secondary market function, given its greater access to information about money, bond, and credit markets, and its developed expertise in interpreting and analyzing market developments.

The primary debt management objective may also determine the location of debt management functions. For example, in the case where development of the secondary markets is the primary debt management objective, or where debt issuance is tailored to institutional maturity preferences or subject to "timing of market developments," the central bank (as in the U.K.) may have considerable scope in determining debt management, decisions concerning issuance type, size, and timing. On the other hand, where debt service or interest cost minimization is the primary objective, or where debt issuance is according to a regular and invariant program, the MoF or Treasury generally manages most aspects of the debt policy (as in the U.S. and France).

Finally, the operating arrangements for monetary management, discussed in the previous section, will play a key role in the allocation of debt management functions.

The minimum responsibilities a central bank normally performs in debt management are highlighted below.

As advisor, the central bank informs the MoF on the liquidity situation in the banking system, interest rate movements, and evolution of money and credit aggregates. The advice of the central bank on the volume, structure, and timing of government securities is important both for the financing of the budget deficit and achieving monetary policy targets. Coordination between the central bank and the MoF to maintain orderly market conditions--by neutralizing unanticipated changes in the supply of reserve money--is important to the government debt manager to ensure the continued flow of funds from investors to the government securities market, notably the new issue market.

As issuing agency and redemption agent, the central bank sets procedures for issuing government securities (e.g., auctions), delivery of securities, and collection of payments for the MoF, as well as for redemption of securities on maturity.

As fiscal agent, the central bank makes payments (including the servicing of principal and interest payment to investors) and receives payments. The government cashier role of the central bank is an additional

reason for government deposits to be held at the central bank. The second reason is based on monetary policy considerations, as explained further below.

In summary, a diverse combination of institutional arrangements and allocation of debt management functions exist and are influenced by socio-political as well as economic factors, such as economies of scale and comparative advantage, the debt management objective, and the intervention instrument for monetary policy.

## (2) Establishment of a Debt Management Office

In economies with well-developed markets, there is increased scope for more "micro" objectives of debt management, such as cost minimization. In general, pursuit of such an objective is supported by a separation of debt and monetary instruments, and/or by institutional arrangements which enable the monetary and fiscal authorities to operate in different segments of well-developed financial markets (for example, Arrangements I and II discussed earlier). In addition, a separate Debt Management Office may be established to achieve a more formal institutional separation of objectives, instruments, and functions.

New Zealand, Sweden, and Ireland have established a Debt Management Office, and offer an example of an institutional separation of debt and monetary management objectives and responsibilities. However, this does not lessen the need for coordination arrangements in these countries. For example, the Reserve Bank of New Zealand makes recommendations regarding the volume, terms, and timing of primary market operations. In addition, it acts as fiscal agent and cashier of the government. In Sweden, senior officials of the Central Bank and the Debt Office are members of two advisory groups--one for domestic currency operations and one for forex borrowing operations--that discuss the financing of government borrowing requirements. In Ireland, the Debt Office keeps the Central Bank fully informed of its day-to-day transactions in order to ensure that its operations do not conflict with central bank monetary operations. In times of currency crisis, the Debt Office and the Central Bank, together with the MoF, will coordinate their intervention and other market activities.

## 2. Collecting the required information

For monetary and debt management operations, reliable projections of the major components of the central bank balance sheet, as well as of government cash balances and net credit to the government, are essential.

### a. The central bank balance sheet

For day-to-day liquidity management, the central bank needs timely information on changes in the components of its balance sheet. These will

include discretionary changes in central bank assets or liabilities, such as auctions of credit or sales of securities in the open market, and "autonomous changes" over which the central bank exercises little direct control--changes in credit to government and net foreign assets--or elements that are essentially demand determined--the provision of credit to banks at preannounced terms, and the demand for currency. These autonomous changes will need to be projected--the liquidity forecast--by the central bank with inputs from the MoF (for example, in developing projections for net foreign assets and government cash balances).

The liquidity forecast discussed above serves two important purposes: (i) it provides an indication of the size of the required withdrawal/injection of bank reserves--i.e., discretionary changes needed--and thus helps to guide the use of indirect monetary instruments by the central bank, and (ii) it is an important indicator of the likely demand for government securities by the banking system.

In most countries, variations in government accounts with the central bank are a critical factor affecting day-to-day liquidity conditions in the money markets, requiring a focus on information systems for monitoring and forecasting, on a daily or weekly basis, the evolution of the government accounts (claims on government and government deposit balances at the central bank). Such information systems, and forecasts of bank reserves based on them, are the basis for day-to-day management of money markets by the central bank. Also, timely provision of information on commercial bank balances in current accounts at the central bank is important for the effective functioning of interbank money markets, including the treasury bill market. 1/

b. Outstanding government debt and activities  
in the secondary market

The development of a database covering the type and volume of outstanding government securities and their maturity profile is important to facilitate the formation of public debt management policy as well as providing important information to market participants. Although arrangements vary from country to country, the central bank is typically responsible for maintaining such a database in its Public Debt Department, when appointed as fiscal agent for the government. Also, data on the

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1/ In many transition economies, central bank policy concerning the account structure of commercial banks has undergone major changes. This has a major impact on demand for reserves and money market securities, such as treasury bills. The consolidation of current accounts of banks into a single or limited number of accounts per bank (instead of separate accounts for each branch) reduces the demand for excess reserves, and increases the demand for treasury bills, and facilitates the establishment of efficient and timely interbank funds transfer system in support of money and treasury bill markets.

volumes and prices of transactions in the secondary market needs to be closely monitored, as part of information systems for both monetary and debt management. The latter is also typically undertaken by central banks.

c. Government cash balances

A projection of the government's cash flow based on the execution and control of the budget and the accounting for government operations is essential to plan the issuance of government debt, to monitor and control the growth in central bank credit, and to manage the balances in the Treasury account with the central bank. It is important, therefore, both for debt and for monetary management. In some countries such as Canada, the central bank and the MoF independently forecast government net disbursements. In other countries (such as the U.K.), the central bank relies on the Treasury for projections of government net disbursements. In either case, regular meetings between the MoF and the central bank should be held to discuss whether forecast errors are the result of temporary shortfalls/surpluses or due to more fundamental and permanent events. The preparation of such projections also facilitates regular public disclosure of the size of the government's financing requirements and its plans for meeting them. Such disclosure can enhance the credibility of stabilization plans and promote forward planning.

The MoF typically prepares monthly forecasts from the annual budget, on the basis of the historical and expected spending and revenue patterns. This monthly projection can be used to monitor progress on the implementation of the budget, while also providing the basis for the daily or weekly projections of government cash balances. Short-term projections can be undertaken by either or both the Treasury and the central bank. As the clearing agent for the government, the central bank generally maintains government accounts, into which government receipts and disbursements flow. Based on the information provided by these movements, the central bank can prepare daily or weekly projections of the government's cash balances and net central bank credit to the government. In whichever case, information on the short-term forecast will need to be shared: the central bank will be primarily concerned with the liquidity management consequences of changes in government cash balances, while the Treasury is responsible to manage cash balances so as to minimize the cost of debt service.

3. Other operational and legal arrangements

Legal and operational arrangements relating to management of government cash balances, central bank credit to the government, and the treatment of central bank profits and losses have special significance for central bank government relations; they can also have an impact on the effectiveness of monetary and debt management.

a. Arrangements for the management of government cash balances

The effect on liquidity of changes in government deposits and its importance depend on two factors: (i) the absolute variability of government cash balances relative to the variability in bank reserves; and (ii) the institutional arrangements for the management of government cash balances. While in principle, the effect on the level of bank reserves of changes in government deposits with the central bank can be offset by other monetary policy operations, special arrangements for the management of government cash balances exist in some countries where the impact of variability of these balances on bank reserves has been found to be substantial, such as in the U.K., the U.S., Canada, and Malaysia. Typically, the central bank act gives the bank the role of fiscal agent for the government's banking arrangements. From this point, further arrangements can be negotiated with the government and commercial banks for the purposes of addressing the monetary and the government debt management issues that arise in the management of cash balances. See Appendix VII for a listing of practices in selected countries.

b. Institutional arrangements for central bank credit to the government

Borrowing from the central bank is one of the alternative means for governments to satisfy their financial requirements; indeed, it is usually the main source of domestic financing when securities markets are undeveloped. If central bank lending is at more favorable terms than other domestic financing, it may appear to be a very convenient means of financing budget deficits. However, extending unlimited credit to government at below-market rates will fuel inflation, limit the independence of the central bank, and have an adverse impact on its financial position. Moreover, the availability of cheap central bank credit may encourage governments to spend more, thereby exacerbating inflation.

In order to avoid the adverse consequences of excessive government borrowing from the central bank, it is common practice to include in the central bank laws a provision establishing limits on the total amount of outstanding central bank credit to the government. The establishment of such limits is an important institutional arrangement designed to enhance central bank autonomy and contain the risk of inflation.

Statutory ceilings are typically imposed on advances/overdrafts to the government and on purchases of newly issued government debt by the central bank. Indirect credit is usually not explicitly limited, in recognition of the fact that the central bank may need to buy government securities in the open market for monetary management purposes. A formal constraint on central bank credit to the government can be expressed as a fixed amount (including zero), which can be revised by the legislature from time to time, or as a percentage of some aggregate (such as government revenues, government expenditures, or central bank liabilities). In other cases,

explicit limits are not established, but approval by the legislature for any funding of the government by the central bank is required. 1/

It is important to note that the effectiveness of such statutory ceilings in achieving central bank independence is diminished when the fiscal stance is inconsistent with stabilization objectives and the capacity of markets to absorb government debt is strained. Experience has shown that there are various ways in which statutory ceilings can be circumvented: for example, a central bank may provide the required credit in an indirect manner by lending to banks which on-lend funds to the government. Therefore, in economies in transition with rudimentary financial markets, quantitative ceilings must be strictly enforced in the context of stabilization efforts and, as markets develop, progressively tightened. Instituted in this manner, ceilings are a key component of coordination arrangements, promoting monetary restraint and helping to establish central bank credibility and operational autonomy. Access to central bank credit should be extended only at market rates and preferably through the purchase by the central bank of government securities, which could then be sold into the market.

The Maastricht Treaty is a good example of an institutional arrangement designed to enhance the independence of central banks when economies are at the developed stage. It prohibits overdraft facilities or any other type of credit facility from the (future) European Central Bank (ECB) or with existing central banks of the European Union (EU) in favor of EU governments. Moreover, the Maastricht Treaty forbids the direct purchase of government securities in the primary market by the ECB or EU central banks.

The Maastricht Treaty allows only indirect central bank credit to the government, i.e., by voluntary purchases of government securities in the secondary market (outright open market operations, repurchase agreements, and the acquisition of government paper as collateral for the refinancing of the banking system). In most advanced market economies, there is no formal constraint on indirect central bank credit to the government. However, in many countries, there are indirect constraints on the creation of indirect central bank credit:

(1) by stating that open market operations can only be performed for monetary policy reasons (e.g., in Austria, Germany, and Portugal); and

(2) by prohibiting the transfer of seignorage to the government (in most countries part of the seignorage is transferred to the government, that is, central bank profits are used to maintain the real value of capital and reserves as the central bank, while legal provisions in several

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1/ Cottarelli (1993) and Leone (1990) have surveyed practices and experiences in a large sample of developed and developing countries and note that the most commonly used base for the statutory ceilings are government revenues.

countries stipulate that central bank profits should also be credited against the central bank's holdings of government securities; in almost all countries, the remainder of the profits is transferred to the government).

Appendix VIII highlights institutional arrangements to limit central bank credit to government in some industrial countries.

c. Institutional arrangements for the treatment of central bank profits and losses

Central banks are not--and should not be--profit-maximizing entities. Nonetheless, in the course of the pursuit of their primary objective, or objectives, they will make profits and, more occasionally, losses. These profits and losses can be substantial and their treatment can have important implications, sometimes perverse, for monetary policy and public debt management. It is, therefore, important that appropriate arrangements be made, preferably in advance, to ensure that profits and losses and their subsequent treatment do not interfere with central banks' primary objectives. Therefore, many central bank laws and regulations contain provisions regarding the treatment of profits and losses; 1/ and losses should normally be covered by the government, since such losses are generally the result of the central banks exercising various quasi-fiscal functions or due to the implementation of monetary policy.

With high inflation, nominal interest rates will tend to rise *pari passu*. The central bank's interest income received on loans will increase as a result, but most of the monetary base (e.g., currency in circulation) will continue not to be remunerated. The central bank may, therefore, make substantial profits. However, if these profits were to be transferred to the government which then spent them, the effect could be perverse since it could further exacerbate inflation. Profits from earnings on foreign exchange reserves, expressed in local currency, will also tend to rise rapidly in an inflationary environment, since the currency will tend to depreciate *pari passu* with inflation.

At the other extreme, in some cases, often in an economy in transition, the central bank may have little or no foreign exchange holdings--it may not even be the repository of the foreign exchange reserves. At the same time, the central bank may be forced to carry out some fiscal or quasi-fiscal functions. For example, in some cases, governments have required the central bank to assume foreign liabilities, whether via guarantees of foreign borrowing or by assuming responsibility for servicing government and government-guaranteed external debt. Similarly, central banks have been required to service domestic government and government-guaranteed debt. In addition, there can be a situation in which the central bank is the only

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1/ However, out of a sample of 60 central bank laws, one third did not have any explicit provisions regarding the treatment of profits and losses (Vaez-Zadeh (1991)).

credible issuer of securities and in order to undertake effective monetary policy, it may need to issue substantial amounts of its own paper at high interest rates. In these situations, the central bank could make substantial losses. 1/

(1) Profits

Central banks in developed economies typically make profits. This is so because of the seignorage that they receive since they issue non-interest bearing liabilities, namely currency, while typically receiving income from interest on credits to government and to banks, as well as interest and other earnings from foreign exchange reserves. A basic principle is that, in a high inflation environment, the allocation of residual central bank profits (after replenishment of the central bank's capital and reserve funds to offset their erosion by inflation) should not give rise to additional spending (spending that would not take place otherwise).

When profits accrue from real output growth, spending central bank profits reinjects into the economy the liquidity that was withdrawn when interest payments on central bank credit were made. This liquidity is needed to ensure a neutral monetary stance. However, under high inflation, central bank profits typically result from an "inflation tax" on money balances, rather than from the increase in demand for money that would accompany an increase in real income. If central bank profits are transferred to the government which then spends them, this will contribute to an inflationary spiral. Thus, such "inflation profits" should not be transferred. Thereby, the interest income received on central bank credit is sterilized, helping to stabilize inflation.

To support stabilization goals, central bank profits, when distributed to the Treasury, should be immediately netted out against treasury debt to the central bank rather than deposited into the Treasury's current account at the central bank. The budget law, on the other hand, should consider central bank profits as extraordinary revenue that should only be used to repay treasury debt to the central bank.

When the central bank can conduct an active and flexible monetary policy, central bank profits could also be used to repay government debt outside the central bank. In this case, the central bank could sell its holdings of treasury securities to third parties to offset the expansionary impact of debt repayments. The public would then end up holding these

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1/ For example, during the second half of the 1980s, the Bank of Jamaica's (BOJ) losses exceeded 5 percent of GDP each year. These losses resulted from both foreign and domestic operations. The BOJ issued domestic certificates of deposit to contain inflation and also accumulated substantial foreign liabilities at a time when the currency was depreciating sharply.



treasury securities instead of the original claims on government. The macroeconomic impact would be essentially the same as in the alternative situation, where the government repurchases debt directly from the central bank. In practice, however, in an economy in transition, the alternative where the government can only repurchase debt owed to the central bank should be preferred, at least initially.

The general principle is that profits above those "necessary" to maintain the resources of the central bank should normally be transferred to the government. 1/ However, transfers should be based upon realized (cash) profits, not notional (accrued) profits. Therefore, "paper" profits on the central bank's foreign exchange holdings should not be transferred. Moreover, profits which are needed to reconstitute reserve funds in real terms should also not be transferred.

## (2) Losses

Although central banks typically make profits, there are cases where they can have substantial outgoings, (e.g., interest payments on securities that they have issued or liabilities for credits that they have guaranteed on behalf of the government, or real losses on their foreign exchange operations) while at the same time, they have only limited income (e.g., if they have little or no foreign exchange holdings). 2/

As with profits, it is important to distinguish between the "cash" and "accrual" positions of central banks where losses are concerned. As a general rule, the "cash" position should determine whether or not transfers to cover losses are made.

The basic principle is that central bank cash losses generally lead to a monetary injection which should be offset. Moreover, if these losses are not covered, the day-to-day operations of the central bank can be hampered. Therefore, central bank losses should be charged to the Treasury, typically in the form of a loan or placement of securities carrying market rates to be repaid within a specified period of time.

Appendix IX shows the treatment of central bank profits and losses in a sample of countries.

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1/ Robinson and Stella (1988) argue that "If central bank net profits go to the Government, then central bank net losses should result in a transfer from the Government."

2/ For example, the central banks of Argentina, Brazil, Chile, the Gambia, Ghana, Jamaica, Malaysia, the Philippines, and Turkey have all, at one time or another, recorded substantial losses.

## VI. Key Policy Coordination Issues

Structural debt management policies--measures to induce changes in the structure of domestic debt in terms of holders, maturity, and other nonprice characteristics--influence the demand for and supply of liquidity, the flow of funds to different financial markets, and the level and term structure of interest rates. For example, a shift away from central bank financing tends to strengthen the balance of payments and reduce inflation, but can raise short-term interest rates temporarily. The buildup of markets for treasury bills sold primarily to banks and other financial institutions will reduce the demand for unremunerated excess reserves and raise the money multiplier, and hence the growth in money supply for any given growth in reserve money. The possible impact on the demand for money due to increases in interest rates on government securities and due to changes in the maturity structure of government debt needs to be closely followed.

Insofar as the authorities wish to limit the growth in credit to government from the banking system--to avoid crowding out of bank credit to other sectors--the fiscal authorities will need to target potential nonbank markets for government securities, including small savers and institutional investors. The pricing and other technical features of government securities for such specific target markets should be closely coordinated with interest rates on other government securities, and with monetary policy objectives generally, and should strive to avoid segmentation of markets by types of holders. Otherwise, it will become difficult to widen the range of holders and build up secondary markets. In particular, the tax treatment of incomes and capital gains from securities should be uniform across various types of instruments and for types of holders. Interest rates and buy-back facilities for nonmarketable securities sold to small savers (who are averse to price risks) should not be so attractive that they cut into deposit markets and counteract interest rate policy.

Excessive reliance on short-term securities such as treasury bills could cause problems in refunding maturity issues (particularly when markets are not wide and depend upon a limited range of holders, mostly banks) and could lead to monetary consequences (a drop in the demand for money or an increased money multiplier) that are difficult to anticipate. Therefore, the authorities may wish to encourage medium-term securities.

In high-inflation countries such securities would need to be either based on adjustable rates (rates periodically adjusted according to treasury bills or other money market rates), or on an indexation of principal (principal adjusted in line with a price index), or stepped rate bonds (different rates in different sub-periods in the life of the bond). In devising such instruments in conditions of high inflation, considerable care should be exercised to ensure that they are part of a well-articulated stabilization program. In particular, indexed instruments may perpetuate inflationary expectations and raise the debt-service costs and the costs of containing inflation, and experience suggests that their use should be

avoided. The experience with commodity bonds in the former Soviet Union, which are effectively equivalent to indexed bonds is a case in point.

Adjustable rate instruments may avoid the adverse effects on inflationary expectations of indexed bonds but, in the absence of reductions in fiscal deficits and credible stabilization efforts, could also prove costly in terms of debt service, or in terms of the variability of interest costs, which could complicate treasury management, or constrain interest rate policy.

The authorities should thus strive to anticipate the monetary and fiscal consequences of structural debt management policies and take these into account in designing their debt management and monetary policy instruments and operations to ensure macroeconomic stability.

Indirect Instruments of Monetary Policy

1. Nonmarket based instruments

- a. Reserve requirements
- b. Liquid asset requirements
- c. Conventional central bank credit facilities at preannounced interest rates (e.g., Lombard facility, overdrafts, bill rediscount facility)
- d. Drawdown/redeposit of government deposits between the central bank and commercial banks based on an allocation formula for placing deposits with commercial banks

2. Market-based instruments

a. Primary market

- (1) auctions of government securities
- (2) auctions of central bank bills

b. Secondary market

- (1) open market operations in government securities through outright purchase and sales, and repurchase agreements in government securities (repo)
- (2) credit auctions using bills or securities as collateral (equivalent to repos)
- (3) Deposit auctions using bills or securities as collateral (equivalent to reverse repo)

c. Interbank deposit market

- (1) credit auctions without collateral
- (2) auctions of government deposits
- (3) drawdown and redeposit mechanism with market-based allotment ratios
- (4) intervention in interbank markets using government deposits funds

d. Foreign exchange market

- (1) foreign exchange swaps
- (2) outright purchases and sales of foreign exchange

Debt Securities Issued by the Central Bank--Practices  
in Selected Countries

Countries	Instrument	Purpose
Ghana (Bank of Ghana)	<ul style="list-style-type: none"> <li>Short-term central bank bills introduced in late 1988. The underdeveloped state of financial markets at the time, combined with the ineffectiveness of treasury bills to absorb the required amount of liquidity, prompted the Bank of Ghana to issue its own debt instruments.</li> <li>In late 1989, medium-term Bank of Ghana bonds were issued (180 days, one and two years) in an effort to address the persistent situation of liquidity overhang. Medium-term securities were not found to be attractive to holders and the Bank of Ghana has relied more on short-term central bank bills.</li> <li>Short-term central bank bills have been effective in the conduct of monetary management.</li> </ul>	Introduced to absorb excess domestic liquidity, owing to the prolonged use of credit ceilings. Central bank bills became the main intervention instrument for monetary policy, with decreasing policy intervention through primary markets for government securities.
Korea (Bank of Korea)	<ul style="list-style-type: none"> <li>The Bank of Korea began issuing its own debt instruments, Monetary Stabilization Bonds (MSBs), as early as 1961. MSBs carry maturities of one year or less. Under the Monetary Stabilization Act (1961), the Bank of Korea is authorized to issue them in its own name. However, the terms are set by the Monetary Board.</li> <li>Rigidities in the market for MSBs, as well as their narrow purpose, have limited MSBs' use as the main instrument for monetary control.</li> </ul>	For monetary management to deal with the liquidity absorption requirements at the time.
Nepal (Nepal Rastra Bank (NRB))	<ul style="list-style-type: none"> <li>Short-term NRB bonds (three-month and one-year central bank bills) introduced in February 1992 issued through competitive auction simultaneously with auctions of three-month treasury bills; at the discretion of the central bank.</li> <li>NRB bonds have been effective in sterilization operations.</li> </ul>	For monetary management purposes--primarily the sterilization of foreign exchange transactions by NRB.
New Zealand (Reserve Bank of New Zealand)	<ul style="list-style-type: none"> <li>Short-term Reserve Bank bills (63 days--changed from 91 days in February 1991) issued twice weekly by auction, nontraded and discountable with 28 days remaining to maturity. Because of the discount feature, the Reserve Bank bills yield slightly less than treasury bills.</li> <li>Reserve Bank bills have been effective in separating debt and monetary management operations.</li> </ul>	For monetary management purposes, used in conjunction with the discount margin (penalty) and open market operations (OMOs).
Poland (National Bank of Poland (NBP))	<ul style="list-style-type: none"> <li>Short-term NBP bills (one month) were introduced in July 1991 issued through auction. With the introduction of one month treasury bills, NBP bills of three-month and six-month maturities were introduced.</li> <li>Issuance of NBP bills was suspended in January 1992, in part because of lack of buying interest at the longer terms.</li> </ul>	Introduced as a monetary instrument and replaced by OMO repurchase and reverse repurchase auctions in January 1993.
Philippines	<ul style="list-style-type: none"> <li>Medium-term securities (three to five years) introduced in 1970 issued by auction and phased out in 1981.</li> <li>Short-term bills introduced in 1984 and phased out in 1986.</li> <li>Phased out in part due to central bank losses.</li> </ul>	To absorb excess liquidity in the banking system and increase central bank operational autonomy.
Germany (Bundesbank)	<ul style="list-style-type: none"> <li>Short-term treasury bills (three, six, and nine months) issued by the Bundesbank through auction to banks with operational accounts at the Bundesbank in accordance with Section 42 of the Bundesbank Act and up to a maximum amount of DM 25 billion.</li> </ul>	Were introduced in February 1993 to stimulate short-term secondary markets, and discontinued in July 1994 with the introduction of regulation permitting money market mutual funds.

Secondary Market Regulations in Selected Countries

**Canada**

Canada's regulatory framework is characterized by substantial institutional variety. Securities markets, dealers and brokers are regulated at the provincial level by provincial securities commissions. The Canadian Securities Administrators is an umbrella organization for these provincial authorities. It has issued a series of national policy statements in order to encourage a uniform approach to securities regulations.

**France**

Activities of primary dealers in government securities are regulated by the Treasury, but supervision is left to the Banking Commission. Money market brokers are regulated by the Bank of France. The Paris Stock Exchange and brokers active in the Stock Exchange are regulated by the Stock Exchange Commission (an official agency) and by the Association of French Stock Exchange, a self-regulatory body.

**Germany**

Securities business of banks, that is, securities trading for the account of clients, will be subject to supervision by the newly created Federal Securities Supervisory Office. Brokers and stock exchanges are supervised by the stock exchange supervisory authorities, in most cases, the Ministries of Economics in the local governments. The liabilities of stock exchange brokers deriving from own-account trading will be governed by regulations issued by the Federal Securities Supervisory Office.

**United Kingdom**

The Bank of England (BOE) is responsible for supervising the discount houses, the Gilt-Edged Market-Makers, and other participants in the gilt market. The BOE also supervises certain brokers and principals active in a variety of wholesale markets. Regulations are distinguished by institution, namely discount house or Gilt-Edged Market-Maker.

**United States**

The United States Treasury has rule making authority for the government securities market. As such, dealers and brokers in the government securities market must register with the Treasury or the Securities and Exchange Commission (SEC) and meet certain capital and other requirements. Enforcement of the regulations is carried out by the entity's relevant regulatory authority. The Federal Reserve Bank of New York carries out market surveillance and monitors the activities of dealers, but it does not have formal regulatory authority over them. The SEC enforces antifraud regulation under the securities acts.

Key Features of Securities Transfer Systems  
in Selected Countries

CANADA	
Name of system	Securities Settlement Service of the Canadian Depository for Securities (CDS)
1. Date operations commenced	1981 for equities; 1989 for government debt securities
2. Instruments	Debt securities, including government issues and "strips"; equities
3. Ownership	Six major banks; five trust companies; Investment Dealers' Association, Toronto and Montreal Exchanges--in three equal groups
4. Operator	CDS
5. Securities depository	CDS
6. Settlement bank for funds	Royal Bank of Canada
7. Participants	Regulated financial institutions (including dealers, banks, trust companies, insurance companies, clearing and depository companies); investment institutions (credit unions, unit trusts, pension funds, etc.)
8. Separation of accounts	Customer securities segregated en bloc by dealers only
9. Overseer or regulator	No federal regulatory agency; but Office of the Superintendent of Financial Institutions has been developing Memorandum of Understanding with provincial securities commissions and CDS to establish cooperative regulatory arrangements

Source: Bank for International Settlements.

Key Features of Securities Transfer Systems  
in Selected Countries

FRANCE		
Name of system	Saturne	Reglement-Livraison de Titres (RELIT)
1. Date operations commenced	September 1988	October 1990
2. Instruments	TBs, Cds, CP, medium-term notes	All securities quoted on the stock exchange (shares, bonds, government bonds), nonquoted securities for primary and grey market, SICAVs (mutual funds)
3. Ownership	A Department of the Bank of France	A nonprofit-making intercompany syndicate (GIE RELIT) has been set up with three tasks: developing and testing the system, informing participants of project requirements, and financing the whole project
4. Operator	Bank of France	Operational responsibility rests with SICOVAM (the French central securities depository) and Société des Bourses Françaises (SBF)
5. Securities depository	Bank of France	SICOVAM
6. Settlement bank for funds	Bank of France	Bank of France
7. Participants	Banks, securities houses, brokers, insurance companies, pension funds, foreign central banks, international financial institutions, Cedel/Euroclear	Commercial banks, securities houses, stockbrokers
8. Separation of accounts	Customer securities can be separately identified by system en bloc (or a series of blocks) or individually at participant's discretion	The securities holdings of participants include securities held for customers as well as the participant's own holdings. The customers' securities can be separately identified in the system's records
9. Overseer or regulator	No official oversight; Bank of France provides day-to-day management oversight	SBF and Conseil des Bourses de Valeurs (CBV)

Source: Bank for International Settlements.



Key Features of Securities Transfer Systems  
in Selected Countries

GERMANY	
Name of system	Deutscher Kassenverein AG (DKV)
1. Date operations commenced	1937 (legal arrangement for book entries); 1969/1970 (implementation of Delivery Versus Payment (DVP) system)
2. Instruments	Listed fixed interest and dividend-bearing securities
3. Ownership	Stockholders (banks)
4. Operator	DKV (seven branches)
5. Securities depository	DKV
6. Settlement bank for funds	Central Bank
7. Participants	All banks active in trading/custody of securities; securities brokers and trading firms in respect of own holdings. Admission criteria must be met.
8. Separation of accounts	DKV holds and identifies customer securities separately or collectively; the customer's rights are fully protected, and his securities cannot be pledged for liabilities of the intermediary.
9. Overseer or regulator	DKV is a specialized bank subject to official supervision by Federal Banking Supervisory Office.

Source: Bank for International Settlements.

**Key Features of Securities Transfer Systems  
in Selected Countries**

UNITED STATES	
Name of system	Fedwire (Federal Reserve Book-Entry Transfer System)
1. Date operations commenced	1967
2. Instruments	U.S. dollar-denominated securities of the Treasury, federal agencies and international organizations
3. Ownership	The twelve Federal Reserve Banks
4. Operator	Federal Reserve
5. Securities depository	Federal Reserve Banks
6. Settlement bank for funds	Federal Reserve Banks
7. Participants	Commercial banks, thrift institutions, federal agencies, and international organizations
8. Separation of accounts	System can support a limited number of segregated accounts, but does not attribute special significance to them or require segregation.
9. Overseer or regulator	Federal Reserve, overseen by the Board of Governors. U.S. Treasury also oversees Fedwire operation with regard to transfer and safekeeping of U.S. Treasuries.

Source: Bank for International Settlements.

Key Features of Securities Transfer Systems  
in Selected Countries

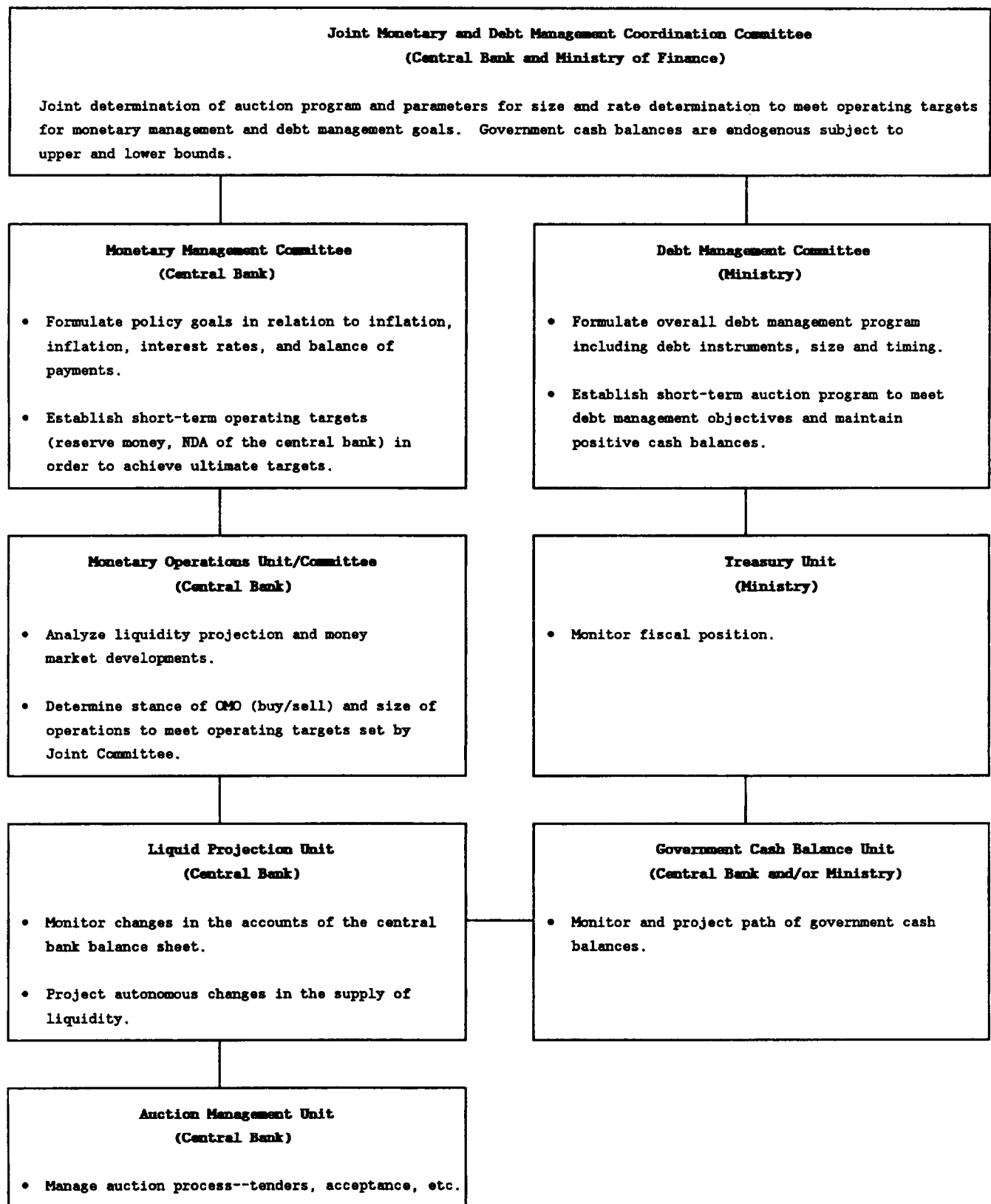
UNITED KINGDOM	
Name of system	Central Gilts Office (CGO)
1. Date operations commenced	1986
2. Instruments	Stocks registered at Bank of England
3. Ownership	Office of Bank of England, responsible to JMC, a joint Bank of England and Stock Exchange committee
4. Operator	CGO
5. Securities depository	CGO
6. Settlement bank for funds	Intraday claims on assured payment (or guarantor) banks; end-of-day settlement at Bank of England
7. Participants	All participants in gilt-edged market, including market-makers, brokers, discount houses, banks, nominee companies
8. Separation of accounts	Separation not required, unless under Financial Services Act. CGO cannot identify owners of participants' stock.
9. Overseer or regulator	CGO governed by Stock Transfer Act of 1982; no formal external supervision; JMC provides oversight.

Source: Bank for International Settlements.

Role of a Primary Dealer in the Secondary Market

Role of Dealer	Description of Role
Price stabilizer	Maintains an elastic inventory of securities (expandable & contractible) to absorb imbalances in the supply and demand for securities in order to keep markets continuous and maintain pricing of the security close to its equilibrium value.
Information processor	Incorporates available information into the pricing of securities by taking trading (principal) positions in the market; thereby, the market price reflects evaluation of all relevant information and is therefore efficient.
Supplier of immediacy	Provides firm bids and offers and is prepared to take principal positions; thereby providing traders with immediacy of execution.
Active sales distributor	Maintains a sales unit which actively solicits buying interest in the securities.
Educator	The dealer educates investors as to the characteristics of the security and their suitability, and the advantages of holding and trading securities.

Institutional Arrangements for Monetary and Debt Management  
(A Stylized Structure) 1/



1/ A committee is a decision-making body composed of various members of the institution. A unit is operations-oriented, with decision-making capabilities circumscribed by the institution, and can either represent a department or division of the institution.

Arrangements for Dealing with Variations in Government  
Cash Balances in Selected Countries

**United Kingdom**

The Government maintains its cash balances primarily in an account with the BOE. Net disbursements of the Government are a major determinant of changes in bank reserves. The BOE forecasts changes in the Government's position and announces at 9:45 a.m. each day its projection of net reserves for the system, while clearing banks give the BOE their target reserve balances. Intra-day open market operations are then conducted to "neutralize" or sterilize the effect of government operations on bank liquidity. In addition, credit facilities are available to discount houses for end-of-day extension of liquidity when required.

**United States**

The Federal Reserve is the clearing agent for the Government. However, the Treasury maintains cash balances with the Federal Reserve and the commercial banks (Treasury tax and loan accounts). Each day, the Treasury shifts balances between these two accounts in sufficient amounts to cover any expected net debit/credit changes in the account at the Federal Reserve while aiming to maintain a low balance at the Federal Reserve as it does not pay interest, while the commercial banks do. Hence, the "expected" change in reserves due to government transactions is neutralized by the Treasury. Nonetheless, variability in reserves from government transactions is significant due to "unexpected" changes in government transactions.

**Canada**

Like in the U.S., the Government maintains accounts in both the central bank and the commercial banks. Unlike the U.S. system, the central bank exercises discretion over how much is placed in the account of the central bank and the commercial banks through the drawdown and redeposit mechanism, and the Bank of Canada actively uses this mechanism to "neutralize" the effect of government transactions and other central bank transactions. In addition, the payment system and the timing of the drawdown and redeposit permits the Bank of Canada to achieve a target change in the level of reserves with precision. The drawdown/redeposit mechanism is the main instrument used to affect a "dynamic" or policy-induced changes in bank reserves. The discretion granted to the Bank of Canada (as fiscal agent to the Government of Canada), to alter the distribution of government deposits between the central bank and the commercial banks, is an example of a supporting operational arrangement for monetary management.

**Malaysia**

In 1981, a Money Market Operation Account (MMO) was created, enabling Bank Negara Malaysia to shift government deposits to and from the commercial banks and to and from the government's current account at the central bank. Since then, the instrument has been refined and coordination between the central bank and the fiscal authority has intensified. The Central Bank is given the authority to recycle the funds in the MMO account, by placing them directly with the market or through principal dealers, consistent with monetary policy objectives. As such, the central bank enjoys full control over the use of this policy instrument for short-term liquidity management.

**New Zealand**

Neutralization of the impact of government cash flows by the Reserve Bank of New Zealand is done through the issuance of Seasonal Treasury Bills. Although these bills are a government debt instrument, the Central Bank decides autonomously on their maturities, taking into account the forecast of liquidity flows.

Central Bank Financing of the Public Sector <sup>1/</sup>

Item	Belgium	Greece	France	Ireland	Italy	Sweden	U.K.
<u>Overdraft or other credit facilities by central bank to public entities</u>							
• legally possible	yes	yes	yes	yes	yes	yes	yes
• automatic access or on application	automatic	automatic	automatic	on application	automatic	automatic	automatic
• ceilings on outstanding amount (in billions of national currency or as a percentage of government expenditure/ revenue)	yes  (Bfr.20)	yes  (5%)	none	yes  (IR0.25)	yes  (14%)	none	none
<u>Actual use (in percent of GDP)</u>							
• flow in 1991	-1.6	1.0	-0.2	0.0	0.1	1.1	-0.1
• flow in 1992	n.a	n.a	n.a.	0.0	n.a	0.0	-1.0
• outstanding amount end-1991	0.0	3.4	0.4	0.0	4.8	0.0	1.3
• outstanding amount end-1992	n.a	n.a	n.a	0.0	n.a	0.0	0.3
<u>Direct purchases of public entities debt by central banks in primary market</u>							
• legally possible	yes	yes	yes	yes	yes	yes	yes
• gross direct purchases in 1991 (in % GDP)	0.0	2.0	0.0	0.0	0.7	3.7	1.3
• gross direct purchases in 1992 (in % GDP)	n.a.	n.a.	n.a.	0.0	n.a.	4.8	2.8

Sources: OECD and Cottarelli, Carlo "Limiting Central Bank Credit to the Government. Theory and Practice," Occasional Paper No. 110, International Monetary Fund, (December 1993).

<sup>1/</sup> On January 1, 1994, European Union central banks had to comply with Article 104 of the Maastricht Treaty which states that overdraft and other credit facilities by central banks to public entities are prohibited, as well as direct purchases of public entities debt in the primary market.

Treatment of Profits and Losses in a Sample of Countries

ARGENTINA	After replenishment of reserve funds, profits are transferred to the Treasury. Losses are earmarked to the reserves and, if that is not possible, they are earmarked to the capital. The Government has no obligation to replenish the capital.
BRAZIL	Central bank profits are distributed twice a year and, due to inflation, are generally large. <sup>1/</sup> Profits are immediately credited against the central bank's holdings of treasury securities. Losses are charged to a provision account and treated as an interest-bearing claim against the Treasury to be repaid during the following fiscal year, before any distribution funds are set aside to maintain the real value of capital and reserves.
GERMANY	20 percent of profits, or DM 20 million, whichever is higher, is transferred to the legal reserves until they reach 5 percent of the total amount of bank notes in circulation; the legal reserves may be used only to offset decline in value and to cover other losses. Up to 10 percent of the remaining net profit may be used to form other reserves. These reserves cannot exceed the Bank's capital. DM 30 million are transferred to a special fund for the purchase of equalization claims (to carry out open market operations). The balance is transferred to the Federal Government.
JAPAN	One twentieth of profits is appropriated for a reserve fund to cover losses and for dividends. Special reserve funds may be opened with the permission of the MoF. Dividends cannot exceed 5 percent of paid-in capital per annum. After deducting from the surplus, the reserve funds and dividends, the Bank of Japan must transfer the remainder to the Government within two months after the end of the fiscal year.
UNITED STATES	Stockholders of the Federal Reserve Fund are entitled to receive an annual dividend of 6 percent on the paid-in capital stock. After these dividends have been met, net earnings are paid to the surplus fund of each Federal Reserve Bank. At the discretion of the Secretary of the Treasury, the earnings can be used to supplement the gold reserves or can be applied to the reduction of the outstanding bonded indebtedness of the United States.
CHILE	Profits may be allocated to building up reserves (up to 10 percent of total surpluses) and to taxable profits. The Bank may ask the MoF for a capital increase or for the transfer of funds to its assets. Any losses are to be first absorbed by the constituted reserves.
VENEZUELA	10 percent of the net income is allocated to the General Reserve Fund until it reaches a limit established by the Board of Directors of the Central Bank. The remainder of profits is paid to the Treasury. If the Bank's equity capital declines, the Republic is responsible for replenishing the equity capital in the following fiscal period. If this is not possible because of the fiscal situation, the Congress may authorize the issuance of a special security at market terms with a maturity of five years or less.

<sup>1/</sup> The Central Bank of Brazil has assumed, however, a large foreign debt portfolio which reduces its profits substantially, as foreign exchange valuation adjustments are charged against profits.



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