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**Central Banking in Transition Countries**

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**Abstract**

In the 1990s, the issues of central banking and central bank independence have gained increasing attention, in part owing to the role of the future European central bank, but also owing to the emergence of transition countries and the role of central banks in these countries. The main focus of the paper is on the preconditions of disinflation and successful stability policy in transition countries, paying special attention to the institutional requirements and to the choice of nominal anchors.

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	Page
Summary .....	3
I. Introduction .....	4
II. Institutional Conditions of Establishing Successful Central Banking in Transition Countries .....	6
A. Institutional central bank design .....	7
A two-tier banking system .....	7
Control mechanisms on the central bank .....	7
B. Reform of environment .....	9
Thorough restructuring of the banking system .....	10
A stable legal and administrative framework .....	11
Establishment of control mechanisms on the fiscal authority .....	13
Institutionalization of control mechanisms on wage-negotiating And price-setting groups .....	14
C. Implementation problems and potential solutions .....	15
III. The Role of Nominal Anchors .....	18
A. Exchange rate targeting .....	19
B. Monetary targeting .....	22
C. Inflation targeting .....	24
D. Nominal income targeting .....	26
E. Crawling exchange-rate bands .....	29
IV. Resumé .....	31
Appendix I. Institutional Solutions to the Inflation Bias Problem .....	32
1. Central bank independence as a solution to the inflation bias .....	32
2. Prescribing a specific inflation target to the central bank .....	35
3. Contract solution .....	36
Appendix II. Some Charts and Tables .....	38
1. Seigniorage .....	38
2. Exchange rate regimes .....	39
History of exchange rate regimes in selected transition countries, 1990-95 ..	41
3. Capital flows .....	43
References .....	44

## Summary

The paper argues that reducing or avoiding high inflation in transition countries implies some institutional and functional changes, the main elements of which include a two-tier banking system, control mechanisms on the central bank, thorough restructuring of the banking system, a stable legal and administrative framework, the establishment of control mechanisms on the fiscal authority, and the institutionalization of control mechanisms on the groups responsible for negotiating wages and setting prices.

A major problem in evaluating central banking and offering prescriptions for successful banking is that only the transition to a two-tier banking system and the legal establishment of an independent central bank can be implemented in a short period of time. Whether the decision of most of the transition countries to give their central banks legal independence without simultaneously having been able to implement the other institutional preconditions has been right or wrong is an open question.

One way to strengthen the position of the central bank and to enhance the credibility of its announcements when establishing a two-tier system is to choose an appropriate nominal anchor. The question of nominal anchors is important because the credibility of the monetary policy strategy eventually determines the success of the central bank, in this case an attainable inflation rate. Credibility, however, is dependent not only upon the well-known time inconsistency aspects (namely, the incentives of the central bank to deviate from its goal or announcement ex post), but also upon the expected implementability of the strategy, which is a function of the reform stage.

The paper concludes that, to tame inflation, exchange rate or monetary targeting is preferred for non-advanced transition countries, crawling pegs (bands) are better for advanced transition countries, and inflation targeting or even nominal income targeting should be considered for very advanced transition countries.

## I. INTRODUCTION

“Central banking, more than any other branch of economics, is a uniquely complex amalgam of ideas, traditions, institutions, techniques and operations which does not yield a corpus of settled unambiguous conclusions.” (Chandavarkar 1996, 240) This conclusion of a recent book on „Central banking in developing countries“ not only refers to developing countries but also to so-called highly developed countries. Jürg Niehans (1978, 294) writes: “Economists should be under no illusion that central banking will ever become a science (...) However far monetary theory may progress, central banking is likely to remain an art.” These hypotheses may be questioned as general characterizations, but they certainly adequately describe central banking in formerly centrally planned economies that are implementing the transition to market-oriented financial systems, a complex process that involves not merely the issue of new currencies and the creation of independent central banks but also far-reaching financial reforms and a radical reconstruction of the basic financial infrastructure. Nevertheless, it is the task of academic researchers to come as close as possible to a scientific approach to central banking.

Central banks usually perform a variety of functions. Among them are:

- determining market interest rates through their control over the monetary base
- managing the payments system
- managing the foreign exchange reserves
- promoting the stability of the financial system, by supervising the banks and by serving as lender of last resort
- acting as the government’s banker
- determining the exchange rate (in full or joint responsibility).

The establishment of all these functions demands a huge effort from central banks and governments, especially in the transition countries, because many of the necessary institutional preconditions have not been available there before, or are still in an infant stage.

In this paper I can only take a narrow perspective on central banking by concentrating on the essential central bank function, i.e. monetary policy (management of the supply of credit and money, and thus of money market interest rates).<sup>2</sup>

The purpose of this paper is to work out decisive aspects of successful central banking, defined as disinflating and, afterwards, guaranteeing low inflation (with a minimum of output or unemployment costs).

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<sup>2</sup>The function of lender of last resort typically cannot be separated from this responsibility. In addition, management of the exchange rate and foreign reserves is difficult to divorce from determination of interest rates.

The central problem in the transition countries has proved to be one of controlling inflation.<sup>3</sup> High inflation can be regarded as a hindrance to economic growth and development.<sup>4</sup> Inflation in CEE and the NIS has up to now broadly followed three stages, each corresponding to a phase of reform.<sup>5</sup> “The first, during the early months of liberalization, involved the release of the monetary overhang (excess money supply) that had accumulated under central planning. The second, spanning years two and three of liberalization (in some cases longer), has been linked mostly to the speed with which subsidies to enterprises were phased out and prices not previously freed were decontrolled.<sup>6</sup> The third stage, usually reached once inflation has fallen below 40 percent per year, concerns mainly the more

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<sup>3</sup>Cf. Aslund, Boone and Johnson (1996, 217).

<sup>4</sup>See, e.g., Fischer (1994). Most recent empirical studies show that double-digit inflation is bad for economic growth. However, the results leave the nature of the relationship at lower rates uncertain. Bruno and Easterly (1996), for instance, show that 40 percent annual inflation is a threshold above which a country is likely to go into a high-inflation, low-growth crisis. Their results also show that high inflation is bad for growth, and that stabilization to below 40 percent is good for growth. However, they do not establish the nature of the ceteris-paribus relationship between inflation and growth at lower inflation rates. Sarel (1996) finds a breakpoint in the estimated non-linear inflation-growth relationship at about 8 percent inflation. The relationship is found to be zero (or slightly positive) at lower inflation rates, and negative at higher inflation rates. See Gosh (1997) as well.

<sup>5</sup>CEE = Central and Eastern Europe(an)

NIS = Newly Independent States (former Soviet Union without Baltics); a synonym is

CIS = Commonwealth of Independent States

<sup>6</sup>The main reason for prolonged high inflation was rapid monetary expansion. While slow reformers permitted rapid growth in the money supply, thus ending up with the highest inflation rates, the more advanced reformers had the smallest money supply growth and hence recorded the lowest rates of inflation. In order to ease budget pressures, many governments mandated the banking system to undertake quasi-fiscal activities, mostly by extending highly subsidized credits to state enterprises. Since it was not easy to finance these fiscal and quasi-fiscal deficits in a non-inflationary manner, most ended up being funded through seigniorage, i.e. by printing money. In order to bring inflation under control, a sustained reduction in the growth of money supply was required. In particular in the NIS, tightening monetary policy meant that banks could not transfer net resources to the enterprise sector over a longer period of time. Tight monetary policy had to be supported by sharp cuts in subsidies, in particular those subsidies provided to enterprises through cheap central bank credits. This, in turn, required a strengthening of the liberalization process in order to eliminate the losses due to price controls and other governmental interventions and to break up the close link between governments and enterprises.

advanced reformers and involves exchange rate policy and capital flows.<sup>7</sup> The essence of the inflation story in most CEE countries and NIS is that free market reforms first turned high, repressed inflation into high, open inflation, and then further liberalization and tight financial policies brought inflation down by containing persistent domestic subsidy pressures.“ (World Bank 1996, 35)

In section II, I shall first analyze the functional or institutional conditions for establishing successful central banking, i.e. sustaining (relatively) low inflation, in a transition economy, in this case a market-oriented former state economy. In section III, I will then investigate the operational conditions, in particular which monetary policy strategies or nominal anchors might be appropriate for different types of transition countries to be successful in the above sense. I shall argue that the appropriate anchor is dependent upon the stage of establishment of institutional conditions. In section IV, I shall draw some conclusions.

## **II. INSTITUTIONAL CONDITIONS OF ESTABLISHING SUCCESSFUL CENTRAL BANKING IN TRANSITION COUNTRIES**

There has been a wide consensus among economists that many institutional requirements have to be satisfied simultaneously in order to transform successfully a former state economy into a market economy. A catalogue of these requirements will often also include an autonomous central bank. The argument, which is derived from the modern theory of monetary policy, usually runs as follows: Owing to lack of credibility, governments favor inflationary policies. This inflation bias can be mitigated by delegating monetary policy to an independent central bank.<sup>8</sup> Creating an autonomous central bank is the only way to make money supply exogenous (at least in the long term), thereby creating the central bank's credibility and thus reducing the private sector's inflationary expectations that determine wage and price contracts and thereby also the exchange rate. We may conclude from this that each transition country should develop its central bank into an institution that formulates and conducts monetary policy independently. If this is done, it is claimed that the monetary authority will be protected from the influence of the fiscal authority and other political interest groups, and thus can prevent high inflation more easily.

In centrally planned economies, however, monetary policy typically had to play a mainly passive role. Under the regime of “soft budget constraints” it provided the financial assets required to finance the real sector transactions prescribed by the central plan. Transforming such centrally planned economies into market-oriented economies, and thus

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<sup>7</sup>A major obstacle to bringing inflation down further has been incomplete price reform.

<sup>8</sup>For more details, see the huge amount of literature on the time inconsistency of optimal policies and on credibility building.

trying to use monetary policy as an instrument for macroeconomic stabilization, has to change its character fundamentally. It implies a switch from a complete accommodating to a non-accommodating policy. This, in turn, implies some institutional and functional changes. The elements of such changes could be divided into: (1) aspects that concern central banking as such, and (2) aspects that concern the general economic, legal and political environment in transition countries.

### **A. Institutional Central Bank Design**

Two aspects are important here. The first is a technical precondition, the second describes the control of autonomous central banks that may be necessary.

In the following, I shall briefly describe these aspects.

#### **A two-tier banking system**

A “technical” requirement of autonomous central banking is the transition to a two-tier banking system. This means that the prior “monobank” system has to be turned into one based on a central bank and a large number of competitive commercial banks. This reform step toward a ‘two-tier’ banking system was initiated in most transition countries between 1987 and 1989. In Yugoslavia it had already taken place in 1965, whereas in the former USSR it was decided on or scheduled only in 1990. The first commercial banks emerged mostly from the separation and partial privatization of different functional areas of the State Bank and specialized financial institutions.<sup>9</sup> In short, this institutional innovation has been implemented in all CEE and NIS transition countries.

#### **Control mechanisms on the central bank**

An autonomous central bank can mean an independent central bank such as the Bundesbank for example. By establishing such an independent central bank the inflation bias in the economy is supposed to be lower, since the aversion to inflation of the independent central bank can be expected to be lower than that of the government or the median voter (Rogoff 1985; see for more details, appendix I.1). Simply establishing or changing central-bank law may, however, be insufficient to guarantee structurally low(er) levels of inflation. There are at least two major problem aspects, one of which stems from central bankers’ incentives.<sup>10</sup> Monetary and financial stability can only be achieved if not only laws but also the authorities are stable and/or trustworthy. The delegation of authority by the government to the central bank may help to stabilize an economy and to overcome the inflation bias problem regarding

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<sup>9</sup>For an analysis of the special case of East Germany see Wagner (1993).

<sup>10</sup>The other one results from pressures from the fiscal policy side and from other interest groups, for this see section B below.

the time inconsistency of optimal monetary policy, because it can be regarded as an act of partial commitment. For various reasons, central bankers are often more conservative or averse to inflation and have a longer time horizon than governments. However, delegating monetary authority to a 'weight-conservative' central banker (as proposed in Rogoff 1985, see appendix I.1) or choosing an appropriate type of central banker with the "right" desired inflation level or target (as proposed in Svensson 1997b, see appendix I.2) may be not enough, and may simply not be possible. Political principals may not be able to identify *ex ante* the levels of inflation potential candidates for central-bank management may desire. And even if one could be sure that central bankers are more averse to inflation than the median voter or the government respectively, this may imply higher output fluctuations than in the discretionary case (see again appendix I.1).

Hence there should be a control mechanism that gives the central banker an incentive to attain the goal of price level stabilization and simultaneously sustains the flexibility of monetary policy that is necessary in the transition process. Recent work appears to have discovered an optimal way to create such an incentive and ensure the necessary flexibility. Instead of delegating monetary policy authority to an agent with different preferences, as in the mentioned Rogoff proposal, government, understood here as "the social planner", is supposed to draw up a contract with an agent with non-distorted preferences. This contract specifies a penalty if a certain pre-set inflation goal is not attained. The contract will also contain the following aspects as its essential contents. The central banker must pay a linear tax for any inflation result which lies above the inflation goal pre-set in the contract. However, a linear reward is paid, if the inflation result lies below the target. Beyond this, the central bank has absolute discretion or freedom. It can manage its policy in a totally free and variable manner (i.e., it has full instrument independence). What is important is that the pre-determined goal is achieved. It has been shown that there is a well-specified contract which erases the inflation bias perfectly without restricting the potential of the central banker regarding stabilization policy (see, e.g., Walsh 1995; see also appendix I.3). However, there are some problems regarding such a proposal, in particular if applied to transition countries. The main problems there are:

(i) Nobody knows the exact optimal rate of inflation. The main reason is the uncertain and changing condition of financing the government's budget. This tends to make any such contract time inconsistent and incredible. If there is no clear signal for an exact optimal rate of inflation, governments in transition countries may be inclined to test around and renegotiate contracts after a while, in particular if subsequent disinflation costs prove to be higher than expected. This renders any contract time-inconsistent and hence (if anticipated or recognized) not credible.<sup>11</sup>

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<sup>11</sup>Here one should emphasize that there is also a problem of precommitment in the case of independent central banks, because, in particular in countries in the early stages of transition, there is a fear that the formal independence granted to the central bank may be withdrawn in a  
(continued...)

(ii) In general, one should reflect that in designing the institutions of monetary policy, it is not enough to consider the incentives that the institutions induce for fully informed, optimizing individuals. It is also important to take into account the limitations of knowledge.<sup>12</sup> For example, even if the optimal inflation rate is known, the transmission mechanism may not be known in (early) transition countries. Hence there may ex post be an incentive for the government to re-negotiate. Therefore the government will not be able to commit credibly to implement or enforce such a contract, because the government will ex post be interested in conducting a dynamically or time-inconsistent policy. The public should be able to recognize this incentive so that the time-inconsistency problem is not going to be dissolved but only shifted from the central bank (the agent) to the government (the principal).

In addition, Walsh's proposal (1995) assumes that there is a social planner oriented to the social welfare. Reality, however, does not correspond to this assumption but rather shows the existence of politicians oriented to their own benefit and pursuing the interests of special groups relevant to their own re-election. In transition societies in particular, the intermingling of private and public interests is dominant. Setting-up and enforcing a Walsh-type contract within such a political environment, with governments oriented to their own benefit and usually changing after a few years, seems to be nearly impossible. Moreover, for the simple form of the Walsh-type contract, it is important that the inflation bias in the Barro-Gordon-type of game is not contingent. If it is contingent, the inflation tax also has to be contingent. Setting-up and enforcing such a contract, however, appears to be even more difficult. Hence one could conclude that a Walsh-type contract is not likely to be implementable in most societies as they include contingent inflation biases.

This means there has to be a different control mechanism on the central bank. This should not (only) refer directly to the non-attainment of a final target, but rather to the adherence to an appropriate intermediate target. This will be explained in the following sections, in particular in section C. In any case, the above-mentioned arguments show that the applicability of contract solutions or other institutional elements of central bank design have to be considered within the respective economic, socio-cultural and political framework. Therefore the following paragraph is concerned with elements of this general background during the process of transition.

## **B. Reform of Environment**

The well-known analyses of central banking in the literature usually assume the conditions of fully market-based, mature western economies, whereas the conditions of transition give rise to further restrictions on central banking. Even if one assumes

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<sup>11</sup>(...continued)  
very shaky and uncertain political environment.

<sup>12</sup>For this, see Romer and Romer (1997) as well.

arrangements of “optimal” central banking that may avoid credibility problems in the West, these arrangements might fail due to technical impediments in a transitional economy and give rise to another sort of credibility problems. To eliminate such impediments, major reforms are necessary in the following fields in particular:<sup>13</sup>

- thorough restructuring of the banking system,
- a stable legal and administrative framework,
- the establishment of control mechanisms on the fiscal authority,
- the institutionalization of control mechanisms on the groups or partners responsible for negotiating wages and setting prices.

### **Thorough restructuring of the banking system**

A main precondition for an efficient conduct of monetary policy is a well-functioning, market-based banking system. It is not enough to commercialize specialized state-owned banks and assign them new tasks and, in addition, let a number of new private banks emerge, as has been done in all transition countries. In order to enable commercial banks to function effectively under market conditions, practically the entire institutional and operational framework has to be overhauled or changed. In many NIS countries in particular, shortcomings in legislation, prudential norms and accounting frameworks, and a general lack of adequate supervisory capacity is still acute.<sup>14</sup> In addition, many banks have accumulated significant amounts of nonperforming loans in the early years of transition. This bad loan problem, however, distorts credit allocation and thus impedes structural adjustment.<sup>15</sup>

In general, weaknesses in the banking system complicate the conduct of monetary policy: they distort the transmission mechanism of monetary policy because unsound banks that are not able to control their balance sheets are less responsive to changes in reserve money or interest rates. In addition, the central bank may be pressured to create credit for bailing out ailing banks and to loosen monetary conditions, thereby undermining monetary control.

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<sup>13</sup>Besides, nearly all the reforms usually listed as necessary for a successful transformation process are also relevant to a greater or lesser extent for the success of central banking in transition countries, in this case for sustainable low-inflation. (See, e.g. Wagner 1996; World Bank 1996).

<sup>14</sup>Cf. Sundararajan, Petersen, and Sensenbrenner (eds. 1997), and IMF (1997): Status of Market-Based Central Banking Reforms in the Countries of the Former Soviet Union. Report prepared for the tenth coordination meeting of cooperating central banks and international institutions, Basle.

<sup>15</sup>See, e.g., Begg (1996), 24ff.

There is still another problem with unsound banks. There is a general consensus among economists that indirect instruments of monetary policy are more effective than direct instruments and that they promote more efficient financial intermediation.<sup>16</sup> In the presence of unsound banks, however, introducing indirect instruments such as a credit auction or similar market-based facilities may induce adverse selection and moral hazard effects because unsound banks may be willing to borrow at any cost to avoid illiquidity. What is needed are institutional innovations such as collateralized transactions as well as a careful design and sequencing of specific supervisory policies and bank restructuring schemes.<sup>17</sup> As emphasized above, there are still many transition countries, especially in the former Soviet Union, which still have substantial need of reforms in this area.

### **A stable legal and administrative framework**

The classical Soviet-type system operated in the virtual absence of economic legality.<sup>18</sup> Economic legality, however, is a prerequisite to a successful monetary policy and, beyond that, to a successful transition to a market economy. In the absence of legality, it will not be able to implement a credible commitment to private property rights or any effective market incentive mechanism.<sup>19</sup>

The construction of a legal system, however, usually takes time. During this period of time the investment process in the real sector, as well as in the financial sector, is hampered by great uncertainty. As long as a stable legal framework has not been established, socially necessary private investments are regarded as very risky by potential investors. Thus, private domestic investments tend to be very low and urgently-needed foreign investments are delayed. This has been the experience in all transition countries.

A stable legal framework is also decisive for the attainment of financial stability.<sup>20</sup> In East Germany, for example, the existence of a rigid banking law and of a strict bankruptcy law and bankruptcy proceedings adopted from West Germany helped to avoid the problem of

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<sup>16</sup>See, e.g., Alexander, Balino, and Enoch (1995), or DeMelo and Denizer (1997).

<sup>17</sup>See Enoch and Green (eds. 1997).

<sup>18</sup>The term 'economic legality' refers to laws in the economic sphere, especially contract, tax, and bankruptcy laws.

<sup>19</sup>See, e.g., Litwack (1991).

<sup>20</sup>This also refers to the foregoing section above.

uncontrolled credit expansion in 'informal credit markets'.<sup>21</sup> This problem is widely known in the transition countries and consists of a complex web of interfirm credit that links the fortunes of efficient and inefficient enterprises. This, together with the imperfect information structure in these countries<sup>22</sup>, has presented a major obstacle to a successful transformation process in the transition countries. It may, as Calvo and Frenkel (1991) emphasized, result in a 'bad' equilibrium in which socially profitable long-term investments are crowded out by socially less profitable short-term investments. Moreover, such informal credit markets prevent the newly-built central banks in these countries from controlling the money supply that is necessary for a stable currency (see also in section A above).

However, it is not only the legal environment that counts, the administrative and the 'psychological' environment as well are also important.<sup>23</sup> Administrative inefficiency and corruption impose essential restrictions on the feasibility of projected monetary policy, rendering the assessment of a central bank's performance very difficult, however independent and credible it may be.

A perhaps even more important point is the fact substantiated by wide evidence that only a central bank which can count on a broad public support for its autonomy and its anti-inflationary policy can succeed in attaining its final targets. So each society gets the central bank it deserves. This implies that merely establishing or changing laws governing the central bank is insufficient for price stabilization. Inflation can only be effectively reduced and kept at a low level within an environment of widespread and overwhelming support for anti-inflation policy pursued by the independent central bank. The success story of the German Bundesbank compared to that of other central banks that are formally no less independent tends to prove this.

In CEE, and especially in NIS countries, however, one has to doubt whether public support is sufficiently anchored yet.

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<sup>21</sup>Cf. Wagner (1993).

<sup>22</sup>In centrally planned economies, there were no incentives to accumulate information about the creditworthiness of investments. Losses of enterprises were automatically financed and the government, as a 'lender of last resort', provided extensive insurance without charging the appropriate premium.

<sup>23</sup>Cf. World Bank (1996, Ch. 5), Freyhold, Gessner, Vial, and Wagner (eds. 1995), and Wagner (1997a).

### **Establishment of control mechanisms on the fiscal authority**

Central banks are more or less permanently under the pressure of fiscal authorities to ease their restrictive (dis- or anti-inflationary) monetary policy under adverse circumstances. This has been explained in the literature in different ways. In the still most prominent “older” public choice view, central banks are regarded as being exposed to strong political pressures to behave in accordance with the government’s preferences.<sup>24</sup> The point is that restrictive monetary policy aggravates the budgetary position of the government. Since a (temporary) slowdown of economic activity induced by restrictive monetary or disinflation policy reduces tax income and receipts from seigniorage, and since a (short-term) increase in interest rates means a burden on public debt that worsens the deficit, the government may prefer “easy money” and hence collect public support to push the central bank in this direction. Some evidence exists that even the relatively independent U.S. Federal Reserve has often complied with such pressures.<sup>25</sup> Hence it seems to be very likely that the relatively less independent central banks in transition countries will not be able to withstand such a pressure for a longer term.

A second argument for a control mechanism on fiscal authorities, first put forward by Sargent and Wallace (1981), distinguishes between fiscal and monetary authorities. The inflation rate there depends upon the relative dominance of monetary or fiscal authority respectively. If fiscal policy is dominant, which means that the central bank cannot influence the size of the government’s budget deficit, money supply becomes endogenous. If the public is not able or willing any more to absorb additional government debt, the central bank will be forced to finance the deficit by creating money (seigniorage), as follows from the government budget constraint. If, however, monetary policy is dominant, the fiscal authority will be forced to reduce the deficit or repudiate part of the debt. The relative dominance of monetary or fiscal authority can be influenced by guaranteeing independence to the central bank. However, as emphasized above, this does not eliminate the likelihood that the fiscal authority can exert a strong enough pressure on the central bank by gaining the support of the public in recessionary or stagflationary situations.

There are several signs that indicate that fiscal dominance is still relatively high in some of the transition countries. The most important sign probably is the relative size of seigniorage (see chart 1 in appendix II.1).

Such pressures from the fiscal policy side can make the commitment of a central bank to follow a steady anti-inflationary course incredible since the sustainability of such a course is

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<sup>24</sup>See, for instance Buchanan and Wagner (1977).

<sup>25</sup>See, for instance Akhtar and Howe (1991), Havrilesky (1993). See also Allen (1986) and Alesina (1988).

doubted. This has also been the reason for supplementing the Maastricht Treaty by the so-called “Stability and Growth Pact”, agreed on in Dublin in December 1996 and confirmed at the Amsterdam summit in May 1997. This pact provides a framework for maintaining and enforcing the Maastricht fiscal criteria after EMU has begun. It restates the commitment to a maximum budget deficit of 3 percent of GDP and, except in special circumstances, applies sanctions to countries with deficits exceeding this level. Similar regulations could be conceivable in transition countries (between different regions of countries, for instance). Other proposals, such as independent fiscal boards and constitutional restrictions on state indebtedness, are described in section C below.

### **Institutionalization of control mechanisms on wage-negotiating and price-setting groups**

One main problem of the high costs of disinflation seen empirically in transition countries that want to push inflation into the one-digit range is inflation inertia based on coordination problems between different social or distributional groups. This is well-known from many empirical studies on disinflation, in particular in developing countries.<sup>26</sup> Orthodox stabilization programs - based only on restrictive monetary and fiscal policy - usually lead to high real interest rates that drive many debtors into bankruptcy and thus produce high unemployment. Here, incomes policy could help to avoid such a process and reduce the sacrifice ratio respectively. Prompt stabilization with the aid of incomes policy would avoid a deep recession, at least for the moment, so giving governments willing to reform a breathing space, during which the structural adjustments necessary for the reform could be successfully started.

As is well known, incomes policy measures tend to be the more effective in the short-run the “stricter” or more market adverse they are, for example wage and price controls. These “strict” measures are often objected to on the basis of apparent microeconomic distortions. While this objection may be adequate in developed market economies with inflation rates that are already low, it is less relevant in the case of those transition economies where inflation rates are still high and where market mechanisms still function insufficiently anyway. Furthermore, a strong argument in favor of implementing incomes policy in transition countries is that firms will tend to pay out excessive amounts to workers and other stakeholders as long as the ownership of enterprises is ambiguous. Incomes policy would help a government committed to controlling inflation to avoid such wage-cost pressures and thus induced price increases within government-owned firms. Nevertheless, it would be better to create some “softer” forms of incomes policy with less microeconomic distortions. Such “softer” forms include tax-based incomes policies such as those implemented in several transition countries, for instance in Poland and in the Czech Republic. Some studies also found that the incomes policy in Poland did inhibit pay increases, although wages beyond the ceiling were paid. Without question, the best form of incomes policy would be the creation of an institutionalized *concerted action* where the government, trade unions and enterprise

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<sup>26</sup>See, for instance, Dornbusch, Sturzenegger, and Wolf (1990).

managers would meet regularly to discuss and consent to sectorally and macroeconomically acceptable wage and price increases. The main function of incomes policy here would be to provide a focal point for inflationary expectations in the economy by leading to a simultaneous conclusion of nominal contracts for a longer period of time.<sup>27</sup> If “concerted action” of this nature were possible, and this is questionable, given the incentives to opportunistic or free-rider behavior, inadequate stable homogenous bargaining groups/partners, etc., that may prevent credible commitment, “stricter” or distorting forms of incomes policy such as direct price or wage controls would not be required.

### C. Implementation Problems and Potential Solutions

In a perfect world, all of the above institutional changes could be implemented instantly. But as each reform element has its own preconditions that require different periods of time for implementation<sup>28</sup>, the points of time when the central bank reforms should be introduced have to be carefully chosen, because they depend crucially on the general circumstances. This means that the evaluation of central banking and the prescriptions for successful banking depend on what central banks may be able to achieve in the respective stages of transition in order to protect the new central banks from being blamed for damage beyond their control.

A major problem is that only the transition to a two-tier banking system and the *formal* establishment of an independent central bank can be implemented in a short period of time, whereas the restructuring of the banking system and the establishment of a stable legal and administrative environment takes a much longer period of time. And even the implementation of workable control mechanisms, i.e. the implementation of institutional preconditions takes quite a while. Therefore the question arises whether it is wise first of all only to establish an independent central bank before the other conditions described are fulfilled. However, most transition countries, including most countries in Central and Eastern Europe, Estonia, Russia, and most other countries of the former Soviet Union have followed this way, i.e. they have established a “formally” autonomous or independent central bank without simultaneously having been able to implement the other institutional preconditions that are necessary to make this central bank effective or successful with respect to inducing sustaining disinflationary effects.

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<sup>27</sup>As Simonsen (1988, 261) has pointed out: „Governments should play the role of the Walrasian auctioneer, speeding up the location of the Nash equilibrium, namely, using the visible hand to achieve what rational expectations models assume to be the immediate performance of the invisible hand. As such, the central function of incomes policies is not to constrain individual decision-making but to tell each actor how others will play“.

<sup>28</sup>because of democratic procedures, traditional attitudes etc.

Recently enacted laws have brought central bank independence to countries that had lagged behind, including Romania and Georgia. Only the central banks in Belarus, Tajikistan, Turkmenistan and Uzbekistan remain obligated to provide directed credits to finance fiscal deficits.<sup>29</sup> In Bulgaria, Estonia and Lithuania, however, currency boards tie the hands of the monetary authorities.

This does not mean that these countries that have given autonomy<sup>30</sup> to their central banks without sufficiently implementing the other requirements have failed in bringing down inflation. This is not the point here. Evidence from transition economies appears to confirm the worldwide finding that greater central bank independence, including the right not to finance the government and to set interest rates without government intervention, is correlated with lower inflation and more effective monetary policy. There is, however, no proof respecting a causal relationship. Furthermore there is as yet no convincing proof that central-bank independence enhances economic growth and/or reduces the costs of disinflation.<sup>31</sup> From a theoretical point of view, the problem lies in the fact that simply giving central banks independence may be counterproductive insofar as it then is an easy way for the government or fiscal authority (as well as for particular interest groups) to shift the responsibility for not attaining certain inflation targets to the central bank, which is de facto still powerless. Under asymmetric information and contract-bound decisions this may turn into a socially ineffective redistribution game where the “independent” central bank is blamed for missing social targets. In other words, by itself the central bank is too weak to attain the disinflation target (or to stabilize the economy) but has to bear the responsibility for missing the target because of its formally independent status. This means formal or legal independence may be a necessary element in the transformation process of a prior state to a modern market economy. However, without the simultaneous implementation of other necessary elements it may prove ineffective or even counterproductive.

It would therefore be desirable to implement all reform elements simultaneously. This, however, is wishful thinking. The problem of sequencing<sup>32</sup> and of making a wrong decision respecting the sequence of reform steps cannot be surmounted. Whether the decision of most of the transition countries to give their central banks (formal) independence has been right or wrong is an open question (see Mas 1995 as well). And it is also not worthwhile to analyze it

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<sup>29</sup>Cf. International Monetary Fund, *World Economic Outlook*, October 1997, p. 117.

<sup>30</sup>The terms independence and autonomy are not precise, as Fischer (1994, 292) has emphasized. It may, therefore, be useful to draw a distinction between ‘goal independence’ and ‘instrument independence’, as Fischer has done.

<sup>31</sup>Cf. Eijffinger and De Haan (1996).

<sup>32</sup>The literature on sequencing of reform steps of transition will not be discussed here, because the focus in this paper is on what transition means for central banking.

here in detail because the decision has already been made, and reversing the decision may be very problematic with respect to the credibility of the announcement of future disinflation policy. Now the only thing possible is to think about institutional and operational requirements that may help to minimize the damage (of a higher than necessary inflation bias) or to maximize the positive, disinflation-inducing, effects (if the decision was right) of having formally independent central banks without sufficient institutional support. In order to strengthen the position of the central bank and to enhance the credibility of its announcements, there are two ways to improve the situation:

- One way is to implement appropriate institutional control mechanisms in order to control the inflation-driving authorities or groups (such as the fiscal authority and wage-/price-setting groups). Independent fiscal boards are conceivable here, e.g. in the role of the IMF (Mas 1995, 1649)<sup>33</sup>, or the introduction of constitutional restrictions on government debt (such as in the German constitution, Art. 115).
- The other way is to choose an appropriate nominal anchor in order to conduct monetary policy successfully, i.e. to induce a (locally) maximum disinflationary effect. The question of nominal anchors is important because the credibility of the monetary policy strategy eventually determines the success of the central bank, in this case the attained inflation rate. Credibility, however, is dependent not only upon the classical time inconsistency aspects (namely the incentives of the central bank to deviate from its goal or announcement ex post), but also upon the expected implementability of the strategy that is a function of the reform stage.

Under this aspect it may be claimed, for example, that during the early stages of transition controlling central banks by establishing a Walsh-type contract or a special selection mechanism of central bankers (Rogoff, Svensson) is not an adequate way of gaining credibility. It appears to be better to install an indirect control mechanism by setting a (consensually chosen) intermediate target and by controlling whether the central bank adheres to its commonly accepted intermediate target or not. Choosing the “right” intermediate target, however, poses a question very similar to that of the timing of central bank independence: it has to be asked whether the intermediate target is controllable conditional on the respective transition or development stage and whether it is credible (because implementable). This will be discussed in Chapter III. I shall conclude there that, in order to tame inflation,

- exchange rate or monetary targeting is to be preferred for non-advanced transition countries,

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<sup>33</sup>Such an independent fiscal board could be set up analogously to an independent central bank. Its mandate could be devised in a number of ways. For example, it could „determine only the size of the budget deficit and the government would decide the overall level and composition of revenues and expenditures subject to the budget deficit constraint“ (ibd.).

- crawling pegs (bands) are better for advanced transition countries,
- inflation targeting or even nominal income targeting should be considered for very advanced transition countries.

### III. THE ROLE OF NOMINAL ANCHORS

In Section II, I argued that the implementation of certain institutional innovations or fundamental changes is a necessary precondition for successful central banking in transition countries, i.e. for sustaining low-inflation policies. However, implementation of even a few institutional reforms takes some time, and one may ask what the central banks can do in the meantime to support a disinflation or stabilization process. In other words, what are their operational choices? Here, in particular two operational lines are of importance: one is the choice of nominal anchor(s), the other is the choice of monetary instruments. I shall here concentrate on the comparison of different nominal anchors. For a discussion of monetary instruments (in particular direct versus indirect instruments) see for example Alexander, Balino, and Enoch (1995), DeMelo and Denizer (1997), or Begg (1996, 44-56).

The conventional wisdom in 1990 among Western economists resulted in the suggestion of multiple anchors, attaching primacy if possible to an exchange rate. Besides an exchange rate peg, money and/or credit ceilings and wage (and possibly also price) controls were also proposed. Seven years later we can state that the experiences or advantages of exchange-rate-based stabilization were not overwhelming. On the other hand, the success of money-based stabilization is also usually assessed to be very uncertain for theoretical as well as empirical reasons. For this reason, other nominal anchors, including inflation targeting and even nominal income targeting, have recently been discussed as possible alternatives for transition countries, or at least for the most advanced of them.

I shall discuss and compare these various nominal anchors in general and with respect to their appropriateness for transition countries where the circumstances and the achieved progress of individual transition countries have to be taken into consideration. Disappointments and/or hopes with respect to specific nominal anchors can only be explained before the background of institutional restrictions. This is also the reason why I first analyzed the necessary institutional changes in part II of this paper and I will frequently refer to this in part III. Most transition countries in Central and Eastern Europe initially (or after a while) chose an exchange rate target as their nominal anchor. They often fixed the exchange rate against the deutsche mark or a basket of currencies including the deutsche mark and the dollar. Estonia used a currency board arrangement from the beginning of its transition in 1992, while Bulgaria entered into such a system in July of 1997. Countries with smaller foreign exchange reserves, and thus less confidence in their ability to maintain a fixed exchange rate, have generally chosen money-based stabilizations, although often with an informal management of the exchange rate. Russia, Latvia and Lithuania, and other countries of the

former Soviet Union followed flexible exchange rate strategies during their initial stabilization attempts. (In 1994, however, Lithuania adopted a currency board, and Latvia introduced a de facto peg against the SDR.) For the currently adopted exchange rate regimes in the individual transition countries see table 1 in appendix II.2. For the history of exchange rate regimes in selected transition countries see table 2 in the same appendix.

### **A. Exchange Rate Targeting**

Exchange rate targeting is usually associated with expectations in regard of the following effects:

- (i) a signalling effect
- (ii) a disciplinary effect, and
- (iii) a nominal anchor effect.

(i) The announcement of a nominal exchange rate target for the domestic currency is expected to provide the private sector with very transparent information about the future inflation rate, at least in the short run.<sup>34</sup> If the respective foreign currency is already used as an implicit unit of account in the domestic country (as in many transition countries), the signalling properties of an exchange rate target are especially high. The announcement of a stable foreign exchange rate is then seen to be almost identical with stable domestic prices.<sup>35</sup> At least in comparison with a central bank's commitment to a monetary target, an exchange rate target may reflect a stronger commitment to macroeconomic stabilization since it can be controlled by the public daily and without any delay. Moreover, the exchange rate is regarded to be "a more visible and 'saleable' target vis-à-vis the wage-setters in the economy".<sup>36</sup>

(ii) Moreover, fixed exchange rates are expected to exert a disciplinary effect on both monetary and fiscal policy.<sup>37</sup> If the domestic country has a higher inflation rate than the country to which its currency is pegged, real appreciation evolves. This reduces the demand for domestically produced goods and increases the demand for imports which leads to recessionary effects in the domestic country and tends to lower the price level (or its rate of increase). Ultimately, the domestic country must adopt the same low inflation rate as the

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<sup>34</sup>Cf. Agenor (1993).

<sup>35</sup>Cf. Dornbusch (1990, 27).

<sup>36</sup>Bruno (1993, 135).

<sup>37</sup>Cf. Obstfeld (1985).

foreign partner country. However, this is only combined with disciplinary effects on monetary policy if no coordinated monetary expansion takes place. Furthermore, fixed exchange rates may even induce procyclical and thus destabilizing monetary policy, as has recently been put forward.<sup>38</sup> With respect to the expected disciplinary effect of fixed exchange rates on fiscal policy, the common argument runs as follows: in a fixed exchange rate system, expansionary fiscal policies induce a balance of payments deficit that will eventually force the government to abandon the peg. Because this may lead to high costs for the government, it deters it from pursuing lax fiscal policies in the first place.<sup>39</sup> Regarding recent theoretical and empirical work on fixed exchange rate regimes in sum, however, the disciplinary effect of fixed exchange rates remains ambiguous. The main body of knowledge on both fixed and flexible exchange rate regimes suggests that the ultimate objective of price stability can only be achieved through credible economic policies which, in turn, are a function of adequate fiscal policies that must be compatible with the inflation target and supported by institutional factors related to monetary policy (i.e. central bank autonomy) and wage policy (i.e. labor market flexibility).

(iii) Many developing and/or transition countries have used a fixed exchange rate system in order to reduce inflation. A nominal exchange rate system makes their inflation rate exogenous insofar as the price increases of tradables are brought down to the world market inflation rate. This, however, will only stabilize inflation in the long term if it exerts a stabilizing effect on price increases of nontradables too. As theoretical work by Calvo and Vegh and others has shown, there may be an initial output increase as a result of the implementation of the stabilization efforts which, however, eventually fuels inflation of nontradables and thus leads to real appreciation of the domestic currency. Once the boom fades, it becomes increasingly difficult to sustain the peg. The loss of competitiveness in the tradable goods sector and a possible loss in foreign reserves can eventually create a credibility problem, and a currency crisis may develop.

It may be questioned, however, whether this process which has originally been derived for high-inflation developing countries has played a substantial role so far for transition countries. Here the role of rapid “dollarization” may have been more important. If the foreign currency is widely used as an implicit unit of account in the domestic economy (as apparently during the first stages of the transformation process<sup>40</sup>), the implementation of exchange rate pegging immediately reduces inflation, since the inflationary effects of devaluation of the domestic currency are erased. The question, however, arises how long such a nominal anchor can be sustained.

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<sup>38</sup>Cf. Giavazzi and Spaventa (1990).

<sup>39</sup>Cf. Frenkel et.al. (1991).

<sup>40</sup>Cf. Sahay and Vegh (1995b).

Even with a deep initial devaluation and the start of productivity growth, nominal exchange rate targeting has the disadvantage that stabilization to annual inflation rates of, say, 10-40 percent will normally imply the eventual erosion of competitiveness, because a continued inflation higher than that of the trading partners implies an appreciation of the real exchange rate. The resulting export sector difficulties often induce calls for depreciation that can lead to the very inflation the peg was designed to prevent. Insofar the main issue for transition countries may not be whether the exchange rate peg should be abandoned but at what stage it should be replaced, and what with.<sup>41</sup> A crawling peg is here likely to be preferred to ad hoc devaluations, in particular because it provides guidelines for prices and wages. I shall come back to this variant in section E below.

Once macroeconomic stability has been achieved, additional exchange rate flexibility exhibits some advantages: it allows the authorities to use the exchange rate as a policy indicator; in addition, the exchange rate can be used as a signal to take corrective actions in monetary and fiscal policy before imbalances lead to crisis. Furthermore, a more flexible exchange rate regime facilitates the management of capital inflows because inflows lead to an exchange rate appreciation that stabilizes their volume. Under a pegged exchange rate regime, however, capital inflows tend to lead to a growth in monetary aggregate and higher inflation. Moreover, they may threaten the soundness of the financial system insofar as they may lead to an increase in bank deposits and thus induce an unwarranted expansion of bank credit.

From 1993 on, when macroeconomic stabilization was being consolidated, several countries in Central and Eastern Europe and the Baltic began to receive substantial capital inflows (see table 3 in appendix II.3). These inflows peaked in 1995 at around 7 percent of GDP for the region as a whole, with particularly large inflows into Hungary and the Czech Republic. While monetary authorities in countries less advanced in transition have allowed capital inflows to increase the money supply, those in many countries more advanced in transition such as Croatia, the Czech and Slovak Republics, Hungary and Poland, have carried out sizeable sterilization operations in response to the capital inflows. These operations have involved substantial fiscal costs because of the wide differentials between the interest paid on monetary authorities' domestic debt and the yields earned on foreign reserves. Moreover, they were only partially effective in restricting monetary expansion, with the effectiveness eroding as the sterilization continued.

To sum up, we can state that the main danger of exchange rate pegging lies in sustaining this strategy for too long a time, i.e. in missing the right point of departure. As experience has largely shown, this usually results in deep currency crises and (especially with respect to currency boards) deep bank crises. The less coordinated monetary and fiscal (and wage)

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<sup>41</sup>Missing the right point in time to get rid of an exchange rate peg usually results in a currency crisis. The same applies to a currency board although the crisis there will reveal itself more as a banking crisis. A currency board rules out the lender-of-last-resort function of the central bank and thus may allow the onset of banking panics in fragile circumstances.

wage) policies are, and the smaller the international reserves of a country are, the sooner the right point of departure will come.

### **B. Monetary Targeting**

The analysis in the foregoing section has indicated that exchange rate pegging is not an appropriate strategy if a country suffers from (i) insufficient international reserves, and (ii) insufficiently tight fiscal policy or fiscal dominance. Both aspects make disinflation and/or stability policy announcements incredible and the life expectancy of any nominal exchange rate peg brief. Many transition countries, however, suffer under these two hindrances, especially under the fiscal dominance syndrome, as has been emphasized in part II above. The problem of insufficient reserves, however, could principally be overcome by the help of international agencies such as the IMF. Nevertheless, this was apparently the reason that some countries with smaller reserves, and thus less confidence in their ability to maintain a fixed exchange rate, chose money-based stabilization, although often with informal management of the exchange rate (see table 2 in appendix II.2).

Despite some apparent successes with money-based stabilization (see below), most economists doubt the adequacy of monetary targeting in transition countries. These doubts are based mainly on two arguments: the inevitable instability of money demand during transition (particularly as a result of the on-going processes of financial market deregulation and financial innovations in transition countries as well as common dollarization)<sup>42</sup>, and the possibility of exchange rate overshooting during money-based stabilization.<sup>43</sup> Moreover, given that transparency and credibility are the most important conditions for the success of any stabilization program,<sup>44</sup> money-based stabilizations do not provide good chances for a rapid disinflation. Targets for the NDA and the money stock suffer under a lack of transparency, because monetary targets, even if published, do not provide an easily understood message to the public about what monetary authorities intend to do and what inflation outcome can be expected. Furthermore, restrictive monetary targets usually cause high costs,<sup>45</sup> as shown by

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<sup>42</sup>For an analysis of the velocity of money in transition countries see, for instance, De Broeck, Krajinyak, and Lorie (1997).

<sup>43</sup>A further factor that has undermined the use of money as an anchor in the early phase of transition is the lack of instruments of monetary control.

<sup>44</sup>A fully transparent and credible stabilization program could in principle lead immediately to a downward revision of inflation expectations so that in all new contracts prices would be set on the basis of the targeted inflation rate (Bruno 1993).

<sup>45</sup>The likely costly way inflation can be reduced in transition countries runs as follows. The monetary authority has to generate a „credit crunch“ (see Calvo and Vegh 1992) with high  
(continued...)

related experience from developing countries.<sup>46</sup> In contrast to exchange rate pegging, these costs occur immediately, in particular when the money-based stabilization program is credible. When disinflation is expected, the demand for real-money balances increases (for a given real interest rate). If, in a money-based stabilization program, nominal money supply remains unchanged, and domestic prices are sticky downwards for some reason, real money supply cannot increase sufficiently so that the real interest rate will rise. This, in turn, will reduce real output. These costs, if expected, may weaken credibility by raising expectations that actual policies will soon be relaxed.

Given these wide-spread objections, the obvious success of money-based stabilizations in countries as diverse as Albania, Croatia, Slovenia, Latvia and Lithuania may have surprised many academic observers. This “success”, however, may reflect only the following reasons. First, some officially money-based stabilizations in fact paid considerable attention to the exchange rate as well. Second, when nominal targets were set at wrong levels, they were simply adjusted ex post. Third, perhaps this apparent success proves the hypothesis referred to sometimes that whatever the nominal anchor, fiscal stance is responsible for the ultimate success.<sup>47</sup> Or, in other words, tough announcements about exchange rate as well as monetary targets only have an effect if other components of the policy package support them. Otherwise, if an inappropriate mix forces the abandonment of the announced target (whether exchange rate or monetary) tough announcements may indeed be counterproductive.<sup>48</sup> In particular, if ad-hoc adjustments become routine accommodation of past shocks, nominal anchoring will soon lose its effectiveness. Given these problems, new forms of nominal

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<sup>45</sup>(...continued)

nominal and real interest rates. This reduces demand in the whole economy and thereby exerts a dampening influence on price and wage increases. This will also then reduce inflation expectations. The „sacrifice ratio“ of such a stabilization program is dependent upon the interest elasticity of credit demand and the price elasticity of aggregate supply. In transition countries both elasticities tend to be very low because of the high share of state-owned enterprises there. A dampening effect on prices then requires large interest rate variations and large output declines.

<sup>46</sup>“In contrast to exchange-based programs, ... money-based programs appear to cause a sharp, though short-lived, contraction in economic activity and a sharp initial rise in real interest rates.” (Sahay and Vegh 1995, 37).

<sup>47</sup>- which in my eyes appears to be a bit too extreme. Not only fiscal policy matters but also wage policy and the credibility of the monetary policy strategy (see below).

<sup>48</sup>See Drazen and Masson (1994) or Sachs, Tornell and Velasco (1996). The main idea here is that the ability to peg the exchange rate depends not only on government’s desire but also on given external circumstances. It may even be possible that a devaluation improves the credibility of stabilization policies.

anchor regimes have recently been discussed. These will be analyzed in the following two sections.

### C. Inflation Targeting

In the past few years several industrial countries (such as New Zealand, Canada, United Kingdom, Sweden, Finland, Australia and Spain) have adopted a new monetary policy strategy that has become known as “inflation targeting”. In most cases the adoption of this framework was a practical response to difficulties with their use of an exchange rate peg or some monetary aggregate as the main intermediate target.<sup>49</sup> The most important characteristic of inflation targeting is an explicit, quantitative (low) inflation target and the primacy of this inflation target based on the hypothesis that monetary policy has no enduring real effects but only affects the price level and the inflation rate in the long term. Merely prescribing an inflation target, however, is not enough.<sup>50</sup> Inflation reacts to changes of monetary policy only with long and variable time lags. This makes simple inflation targeting (i.e., without an intermediate target) difficult. Not only inflation control, but also controllability of monetary policy and accountability of the central bank would then be very imperfect. This, however, would restrict the credibility of the central bank. This problem can be overcome by implementing a specific operating procedure called “inflation-forecast targeting”.<sup>51</sup> The central bank here acts as follows. It uses its internal conditional inflation forecast as an intermediate target and as an indicator variable, and sets its instruments so that deviations of its conditional inflation forecast from the inflation target are erased or diminished. Suppose that interest rate  $i$  is the policy instrument; then we have the following endogenous instrument rule or reaction function:  $\Delta i_t = q(E_t \pi_{t+j} - \pi^*)$ , where  $\pi_s$  describes the inflation rate in period  $s$ ,  $E_t$  is the expectations operator conditional on information at the end of period  $t$ ,  $q$  denotes a feedback parameter, and  $j$  is the number of periods it lasts until the policy instrument exerts its maximum effect on inflation. If  $q$  is  $\infty$ , we call this operating procedure “strict” inflation targeting; if, however,  $q < \infty$ , we call it “flexible” inflation targeting.

In particular in transition countries, adopting “strict” inflation targeting would probably be unwise. During transition government will sometimes already be at the limit of the fiscal austerity that is politically feasible. Further raising of interest rates may then not be appropriate. Inflation targeting, understood as a “rule”, however, would require that these circumstances in which letting inflation slip is regarded to be the optimal response are - as far as possible - predetermined. The credibility problem arising from such escape clauses could be diminished with a high degree of transparency of the central bank’s inflation forecast and its

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<sup>49</sup>Cf. Leiderman and Svensson (eds. 1995).

<sup>50</sup>- although this is sometimes already interpreted as “inflation targeting”.

<sup>51</sup>For this, see Svensson (1997a).

reasons for referring to escape clauses. Such a high degree of transparency is in general seen as a precondition of successful (credible and implementable) inflation targeting.

In particular, three positive aspects of inflation targeting are expected:

- Inflation targeting provides a nominal anchor for monetary policy and inflation expectations. This is supported by the good “visibility” and the easy controllability of the inflation target and (if there is transparency) of the inflation forecast as well.
- Inflation targeting raises the transparency of the policy procedure and the accountability of the monetary authorities.
- Inflation targeting explicitly considers the role of time lags of monetary policy when setting the instruments.
- The most ambitious expectation with respect to inflation targeting is the solution of the time inconsistency problem.<sup>52</sup> An adequate choice of the inflation target is sometimes supposed to be not only superior to the Rogoff solution of an independent conservative central bank, but to provide the first-best solution (for the “proof” see appendix II.2). This aspect earns special consideration in the light of the central relevance of the time inconsistency problem for the theory of monetary policy over the past fifteen years.

The first-best solution derived in the appendix can, however, be questioned on the following grounds. The target to be prescribed and announced corresponds to the socially optimal inflation rate minus the inflation bias from discretion. It is not easy, however, to imagine that a central bank would actually target an inflation rate that it will on average never achieve.<sup>53</sup> Targeting such a rate would only be stable if the steady overshooting of the target had no influence on the expectations of the private agents. This, however, will only be the case if the public recognizes the relationship between realized and target inflation rates and therefore accepts the systematic overshooting. However, if they do not recognize this relationship, the target becomes incredible and the announcement of the target rate loses its inflation-dampening effect. Moreover, after inflation expectations are fixed there will be an incentive for a government that is not bound by the fixed target to set new targets and to announce that it will not be imposing sanctions if the target is not reached. In the end, the problem of time inconsistency is merely passed to the government.

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<sup>52</sup>For this, see Svensson (1997b).

<sup>53</sup>For this, see Green (1996) as well.

In general it seems to make sense to consider the adoption of inflation targeting only if the following institutional requirements are satisfied.<sup>54</sup>

- The central bank must be capable of conducting an independent monetary policy. In order to comply with this requirement, it is sufficient to have instrument independence. The main precondition is that a country does not show any symptoms of “fiscal dominance”. As I have argued above in part II, this is still not the case in many of the present transition countries, i.e. at their present stages of development or transition. There is always the real danger that the conduct of domestic monetary policy will be dictated by fiscal developments in the country (for example its indebtedness).
- The central bank must have a clear inflation target precept and must not be committed to simultaneously maintaining the nominal exchange rate at any pre-specified level or range. If such a mixture of commitments exists, the government and the central bank would very quickly come into a priority conflict when the margin of the exchange rate band is reached. As has been argued above, however, many transition countries have followed such mixed, discretionary strategies.
- The monetary authorities must possess the technical and institutional capacity to model and forecast domestic inflation.<sup>55</sup> Moreover, they need some knowledge or estimate of the time lags and the transmission mechanism of monetary policy. In other words, the effectiveness of inflation targeting depends upon the ability of the central bank to forecast accurately and control future inflation. It is doubtful whether the infrastructural conditions for this are already in place in the present transition countries of Central and Eastern Europe.

#### **D. Nominal Income Targeting**

One may argue that not only inflation targeting but also nominal income targeting might be an appropriate alternative nominal anchor for at least the more advanced and corporatistically structured transition countries.

Nominal income targeting means that the central bank chooses a nominal income level or growth rate as its intermediate target and decides on its monetary policy actions solely on the ground of comparisons between the target and actual developments of the nominal income level or growth rate. The *advantage* of nominal income targeting may be seen in its responses to a deeper cause of inflation neglected in other strategies. Insofar one may state

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<sup>54</sup>See Masson, Savastano, and Sharma (1997) as well.

<sup>55</sup>For this, see Cecchetti (1997) as well.

monetary targeting. Many proponents of nominal income targeting actually see the cause of the inflation problem less in a lack of discipline on the side of the central bank but more in a general coordination problem.<sup>56</sup> In a general way, the inflation process can be represented as follows:

$$\pi = \pi_{-1} + a(e-\pi) + b(s-\pi) + c(\Delta y),$$

where  $\pi$  is the current inflation rate,  $e$  is the depreciation rate,  $s$  the rate of increase of public sector prices, and  $\Delta y$  the output gap;  $a, b, c$  are parameters.

Here inflation today is what it was yesterday - through formal or implicit indexation or “inertia” ( $\pi_{-1}$ ) - except for the accelerating influence of real depreciation ( $e-\pi$ ), increasing real public sector prices ( $s-\pi$ ), or overheating of the economy ( $\Delta y$ ). Disinflation then requires a real appreciation of the exchange rate creating trade deficit risks, a reduced inflation in the public sector which produces budget deficit risks, and/or a recession resulting in unemployment. This may or should be accompanied by an incomes policy that may help to coordinate the disinflation. Inflation reduction here does not come automatically by announcing an inflation target. Several actors - monetary politicians, fiscal politicians, as well as unions and employers - have to contribute in a coordinated way in order to disinflate with minimal costs.

From the game theory aspect, inflation as well as unemployment may be described as the result of a non-cooperative interaction between main societal groups such as unions, central bank, government (state authorities) and entrepreneurs in the form of a several-players-game. Each player has several strategies at hand. For example, let us take the following two-player/two-strategy game with the central bank and the unions being the two players. The policy of the central bank may be expansive or restrictive, and the negotiation strategy of the unions can be cooperative or aggressive. Let us suppose further that the central bank follows the target “price level stability” and the unions have the target “full employment”. The targets “price level stability” and “full employment” are supposed to be valued differently by the central bank and by the unions. This game has a typical prisoner’s dilemma structure. Only the non-cooperative equilibrium solution which is not optimal for either player can be realized. Because of the uncertainty of expectations regarding business fluctuations and of the complexity of organizational behavior, we cannot expect to be able to find a stable cooperative solution to this game.

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<sup>56</sup>In other words, inflation here is not just the result of time inconsistency on the side of government or central bank acting. This means that further requirements are needed, insofar as not only the government or central bank must be subjected to institutional discipline. This has been worked out in part II above.

The structure of the above two-player/two-strategy game, however, is too simple. In reality, we have a multi-participant/multi-strategy game, in which a central role is also played in particular by entrepreneurs (strategies of high/low investment, etc.) and the government<sup>57</sup> (expansive v. restrictive fiscal policy, for example, or prospects of reelection). A cooperative solution therefore is even more unlikely.

The question arises here how to change the rules of the game so that the result becomes more satisfying. Proponents of nominal income targeting argue that this could be reached, for example, if the government credibly commits to supply a monetary frame large enough to “finance” a certain yearly nominal income growth corresponding to the expected growth of full-employment output plus an “unavoidable” inflation rate over a medium to long term. Splitting this long-term nominal income into a nominal component (price level, inflation) and a real component (real output, employment) would be left to the market forces and to the wage- and price-setting agents. The game would thus lose its prisoner’s dilemma structure. The credible announcement of a supply of sufficient money to finance full employment output at zero or low inflation would force wage- and price-setting negotiation partners to coordinate and adjust their behavior patterns leading, among other things, to more flexible wages and prices.

In contrast to the direct inflation targeting solution, this would be a nearly pure market solution of the stagflation problem. In contrast to the monetary targeting solution (e.g., the Friedman rule of fixing the growth rate of money supply over a long term), which is also a market solution directed to the inflation problem, this would not only try to solve the inflation problem in a free-market manner but would regard the inflation problem as being politico-economically associated with solving the unemployment problem. The latter is what we mean when we refer to what has been described as the stagflation problem.

However, there are serious problems with nominal income targeting. The two main objections are: firstly, the central bank would find it difficult to control nominal income because of the long and variable, and indeed different, time lags for the effects of monetary policy on price level and real output (transition countries at least are likely to have serious problems with this task); secondly, nominal income would be subject to substantial data revisions that are again different for price level and real output. In transition countries in particular, such revisions are likely to be substantial. This may be the main objection against recommending nominal income targeting to transition countries (at least to those that are not very advanced). Moreover, there are two further critical points:<sup>58</sup> nominal income targeting

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<sup>57</sup>In a democracy, the agent “government” splits into a complex body with a variety of authorities with different, and sometimes conflicting, interests.

<sup>58</sup>In addition, it has recently been argued that nominal income targeting would lead to instability of the final target variables, namely price level and real output (see Ball 1997, also (continued...))

could lead to misinterpretation of the ultimate goal of the central bank or government. This, however, could be largely avoided if monetary policy is transparent enough. Secondly, nominal income targeting might lead to an indeterminate price/volume division in the short run, thus creating uncertainty about the inflation performance of the economy. The latter point, however, does not sound very convincing, because this indeterminate division may even be considered as an advantage because it forces the wage- and price-setting partners to greater coordination efforts.<sup>59</sup> The question, however, arises as to how strong this incentive to coordinate is and whether some kind of incomes policy that fulfills the same function would not more easily be implementable. In general, the above arguments<sup>60</sup> lead to a confession that nominal income targeting is only recommendable for corporatist and rather advanced countries. Insofar it can hardly be considered as a practical alternative for today's transition countries.

### **E. Crawling Exchange-Rate Bands**

As we have seen, there are some fundamental problems with monetary targeting, at least for early transition countries with unstable money demand. In these countries exchange rate pegging may be the only reasonable choice of nominal anchor of monetary policy during early disinflation. However, exchange rate pegging tends to create increasing undesired effects as transition goes on. During later stages of transition productivity growth and emerging investment opportunities render adherence to a narrow exchange rate target not only inappropriate but also unsustainable. A powerful argument against the credibility and, thus, sustainability of fixed exchange rate systems is the fact that structural changes in the economies require real exchange rate changes. In other words, robust regimes require more exchange rate flexibility. Inflation targeting, however, is not an alternative for the present transition countries, because these countries do not yet satisfy the institutional requirements for the adoption of this monetary policy strategy. And nominal income targeting should, if at all, only be adopted in very advanced and simultaneously corporatistically structured

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<sup>58</sup>(...continued)

Svensson 1997c). It has, however, now been shown that this Ball-Svensson instability result stems principally from the Phillips curve specification used in their analyses (McCallum 1997). Its replacement with theoretically more attractive alternatives leads to a reversal of their finding. For a comparison between nominal income targeting and monetary targeting, however, see Asako and Wagner (1992).

<sup>59</sup>See, e.g., Weizsäcker (1978). See also Wagner (1989).

<sup>60</sup>These arguments have also recently been used by the European Monetary Institute as substantiation for its exclusion of nominal income targeting from the menu of monetary policy strategies offered to the future European central bank. The main political reason, however, probably was "the fact that nominal income targeting is not used at present in any EU Member State" (EMI 1997, 1).

countries. Consequently, we may ask which nominal anchor transition countries should choose until they are advanced or “mature” enough for those more ambitious nominal anchors.

The most plausible solution seems to be crawling exchange rate bands, which have become popular in moderate-inflation middle-income countries such as Chile, Colombia, Israel and Mexico, as well as in some transition countries such as Hungary, Poland and Russia. These countries, in particular those that have opted for a forward looking crawling parity, are trying to combine some nominal anchoring with sufficient flexibility to rule out enduring appreciation of the real exchange rate. If disinflation and structural adjustment continue, the rate of announced crawl is intended to be reduced.

After initial stabilization, such crawling bands may be useful in other transition countries as well.<sup>61</sup> The band width, however, should not be too narrow, because uncertainties remain high, the scope for fiscal responses to shocks is usually small, and capital inflows may happen. Those countries that have adopted crawling bands have typically chosen to widen the band over time, partly in response to such pressures. In addition, a band requires efforts to defend its edges. This may evoke sterilization, changes in interest rates (by changes in fiscal policy or unsterilized intervention), or tightening of controls on capital flows. Though bands must be supported by appropriate fiscal policies, reliance cannot be placed on changes in fiscal policy being quick enough. Inconsistencies between announced bands and fiscal stance, however, are likely to induce exchange market crises.

Implementation as soon as possible of the required institutional reforms discussed above in Part II would appear to be the obvious consequence of these difficulties. Central banks in transition countries could then switch over to more elaborate nominal anchors such as inflation targeting, which appears to be the most promising future anchor to be favored.

#### IV. RESUMÉÉ

For successful central banking in transition counties, the choice of the appropriate nominal anchor is important, as I have tried to make clear in this paper. More important there, however, is the rapid progress in implementing all of the institutional requirements discussed in part II. Only then will the positive effects of central bank independence that have widely been discussed in the literature for many years now become fruitful. And only then will central banks be able to adopt successfully elaborate nominal anchors such as inflation targeting or even nominal income targeting.

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<sup>61</sup>For this, see Rosati (1996) as well. In general, however, the literature on crawling exchange-rate bands is still rather scarce.

Besides establishing potentially successful central banks, controlling these banks should also play an important role for transition countries. Central banks there are too weak to attain specific price level or inflation level goals unless certain favorable conditions are fulfilled with regard to fiscal policies and other political/social/legal environments, and they will remain too weak as long as these conditions remain unfulfilled. Merely announcing a stable price level or a low inflation target is not credible. And backing up this announcement by means of a contract or a central bank selection mechanism will not be successful either. The public will naturally expect that the central bank will be unable to adhere to its announced targets, and that daily pressure from groups setting wages and prices, and from fiscal policy, will soon lead to the published or contractual policy being abandoned. Even if the central bank in fact succeeds against the odds in adhering to its (announced) target, the sacrifice ratio would probably be so great that a broad wave of public opposition would be expected. This means that both the program and the respective contract are unlikely to be credible.

This means that in particular in those transition countries where the pressure from the fiscal policy side is usually very high and where the political-social-legal environment is very uncertain and unstable, direct control of central banks is not an adequate way. Direct inflation targeting is therefore not a recommendable monetary policy strategy for present transition countries either, because central banks there cannot commit themselves with any credibility to attaining final price level or inflation targets. The control mechanism must therefore be indirect and control a monetary policy strategy based on an intermediate target, i.e. controlling whether the central bank adheres or not to its published and commonly accepted target. The question is then raised as to which intermediate target can be recommended. In the beginning, exchange rate pegging may be a reasonable choice in order to "import" low foreign inflation and to remonetize the economy, and because it is easily controllable and is least dependent on institutional conditions. After a while, however, the adherence to a narrow exchange rate target becomes inappropriate and unsustainable because of the problems of creeping overvaluation. As long as the institutional requirements for adopting more elaborate nominal anchors such as inflation targeting, or perhaps even nominal income targeting, are not satisfied, crawling exchange rate bands appear to be the appropriate solution for advanced, but not yet very advanced transition countries. Very advanced transition countries, and only those, may eventually try to adopt more ambitious nominal anchors, such as inflation targeting.

### **Institutional Solutions to the Inflation Bias Problem**

In this appendix I shall briefly present the solution approaches to the time inconsistency or inflation bias problem discussed above, namely delegating monetary authority to an independent central bank (Rogoff 1985), prescribing a specific inflation target to the central bank (Svensson 1997b) and setting-up a contract between the government and the central bank (Walsh 1995). The results will then be compared with the discretionary and the optimal rule results.

#### **1. Central bank independence as a solution to the inflation bias**

The general problem to be solved is as follows:

Minimize the following loss function

$$L = E[a\pi^2 + b(U - kU^n)^2] \quad (1)$$

with  $a, b > 0$

subject to the constraint

$$U = U^n - c(\pi - \pi^e) - \varepsilon, \quad (2)$$

with  $c > 0$ ,

where  $L$ = loss,  $E$ = expectations operator,  $U$ = rate of unemployment,  $U^n$ = natural rate of unemployment,  $k < 1$ ,  $\pi^e$ = inflation expectation;  $\varepsilon$  is a transitory supply shock with mean 0 and variance  $\sigma_\varepsilon^2$ . We assume rational expectations:

$$\pi^e = E\pi. \quad (3)$$

#### *Optimal rule*

Optimal rule here is a rule that is credible and enforceable and explicitly describes conditional policy measures for all contingencies. Though not realizable in practice, it will be presented for reasons of comparison with other solution variants.

(2) in (1) implies the Lagrange function

$$V(\pi, \pi^e, \theta) = E\{a\pi^2 + b[(1 - k)U^n - c(\pi - \pi^e) - \varepsilon]^2\} + \theta(E\pi - \pi^e) \quad (4)$$

where  $\theta$  is the Lagrange multiplier.

The necessary conditions are:

$$\frac{dV}{d\pi} = 2a\pi_0 - 2bc[(1-k)U^m - c(\pi_0 - \pi_0^e) - \varepsilon] + \theta = 0 \quad (5)$$

$$\frac{dV}{d\pi^e} = 2bcE[(1-k)U^m - c(\pi_0 - \pi_0^e) - \varepsilon] - \theta = 0 \quad (6)$$

$$\frac{dV}{d\theta} = E\pi_0 - \pi_0^e = 0. \quad (7)$$

Solving (6) for  $\theta$  and inserting into (5) implies:

$$2a\pi_0 - 2bc[(1-k)U^m - c(\pi_0 - \pi_0^e) - \varepsilon] + 2bcE[(1-k)U^m - c(\pi_0 - \pi_0^e) - \varepsilon] = 0 \quad (8)$$

By using (7) we get:

$$\pi_0^e = 0. \quad (9)$$

Inserted into (8) and solved for  $\pi_0$  we get the optimal inflation rate

$$\pi_0 = - \frac{bc}{a + bc^2} \varepsilon. \quad (10)$$

If there is a positive supply shock, the inflation rate declines ( $\frac{d\pi_0}{d\varepsilon} = -\frac{bc}{a + bc^2} < 0$ ). By inserting into (1) and (2), the unemployment rate and the expectations value of the loss function can be calculated as:

$$U_0 = U^m - \frac{a}{a + bc^2} \varepsilon \quad (11)$$

$$L_0 = E\left\{ \frac{ab^2c^2}{(a + bc^2)^2} \varepsilon^2 + b[(1-k)U^m - \frac{a}{a + bc^2} \varepsilon]^2 \right\} = b[(1-k)U^m]^2 + \frac{db}{a + bc^2} \sigma^2. \quad (12)$$

The expected inflation rate corresponds to the target value, and the expected unemployment rate to the natural rate of unemployment. Inflation falls if there is a positive supply shock in order to limit the variability of the unemployment rate (see (2)).

*Discretionary solution*

By inserting the Phillips curve (2) into the loss function (1) and solving for  $\pi$  we get the necessary condition for a minimum:

$$\frac{dL}{d\pi} = 2a\pi_D - 2bc[(1 - k)U^n - c(\pi_D - \pi_D^e) - \varepsilon] = 0. \quad (13)$$

Forming the expectations value and inserting it into (13) implies the discretionary inflation rate:

$$\pi_D = - \frac{bx}{a + bc^2} \varepsilon + \frac{bx(1 - k)U^n}{a} \quad (14)$$

The unemployment rate with discretionary behavior of the central bank and the corresponding expected loss are:

$$U_D = U^n - \frac{a}{a + bc^2} \varepsilon \quad (15)$$

$$L_D = E\left\{a\left[- \frac{bx}{a + bc^2} \varepsilon + \frac{bx(1 - k)U^n}{a}\right]^2 + b[(1 - k)U^n - \frac{a}{a + bc^2} \varepsilon]^2\right\} \quad (16)$$

$$= \frac{db}{a + bc^2} \sigma^2 + b[(1 - k)U^n]^2 + \frac{[(1 - k)U^n]^2 b^2 c^2}{a}.$$

When we compare this with the above optimal rule, we see that the unemployment rate is the same, but now there is an inflation bias of  $\frac{bx(1 - k)U^n}{a}$ .

*Delegation solution*

This solution proposal implies that the government delegates its monetary authority to a “conservative” independent central bank (manager). “Conservative” here means that the relative inflation aversion, expressed by the quotient “a/b” in the loss function (1) of the independent central bank is larger than that of the government. The loss function then is as follows:

$$(1a) \quad L^*_{Del} = E[a\pi^2 + b^x(U-kU^n)^2],$$

with  $b^x < b$ . The central bank minimizes this function for  $\pi$  and gets:

$$\pi_{Del} = - \frac{b^x c}{a + b^x c^2} \varepsilon + \frac{b^x c(1-k)U^n}{a} \quad (17)$$

$$U_{Del} = U^n - \frac{a}{a + b^x c^2} \varepsilon \quad (18)$$

Inserting these values into the loss function (1) implies:

$$\begin{aligned} L_{Del} = E\{a[-\frac{b^x c}{a + b^x c^2} \varepsilon + \frac{b^x c(1-k)U^n}{a}]^2 + b[(1-k)U^n - \frac{a}{a + b^x c^2} \varepsilon]^2\} \quad (19) \\ = b[(1-k)U^n]^2 + \frac{[b^x c(1-k)U^n]^2}{a} + \frac{a[(b^x c)^2 + cb]}{(a + b^x c^2)^2} \sigma^2. \end{aligned}$$

From (17) we see that the inflation bias has declined compared to the discretionary solution above. However, the inflation bias cannot be perfectly erased as long as  $b^x > 0$ .<sup>62</sup> Moreover, the reaction to an unemployment shock  $\varepsilon$  is suboptimal. The inflation reaction to an unemployment shock is too low (compare (10) to (17)), whereas the unemployment rate now fluctuates more than optimally (compare (11) to (18)). While delegating monetary authority to a conservative independent central bank reduces the inflation bias, it increases the unemployment variability. The value of the loss function  $L_{DEL}$  therefore is higher than at the optimal rule, and lower than at discretion [compare (12), (16) with (19)].

## 2. Prescribing a specific inflation target to the central bank

The central bank here is assigned a specific objective function by the government, which it then has to minimize. Insofar, the independence of the central bank is restricted. The question arises as to which objective function or inflation target the government should prescribe to the central bank. It can be shown that an inflation target  $\pi^*$  that corresponds to the socially

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<sup>62</sup>One can show that the value of  $b^x$ , for which (19) is minimum, lies between 0 and  $b$ . This means that it makes sense to determine an inflation-averse central bank, but its inflation aversion should not be too high, i.e.  $b^x > 0$ .

optimal inflation rate<sup>63</sup> minus the inflation bias leads to a result that approaches that of the optimal rule.

The assigned loss function is as follows:<sup>64</sup>

$$(1b) \quad L^*_z = E[a(\pi - \pi^*)^2 + b(U - kU^m)^2].$$

The corresponding inflation rate realized by the central bank is:

$$\pi_z = \pi^* - \frac{bx}{a + bc^2} \varepsilon + \frac{bx(1-k)U^m}{a}. \quad (20)$$

If the target inflation rate is set equal to the negative value of the inflation bias at discretion which is

$$\pi^* = - \frac{bx(1-k)U^m}{a} < 0, \quad (21)$$

then the inflation rate, the output and the value of the loss function are equal to those of the above optimal rule:

$$\pi_z = - \frac{bx}{a + bc^2} \varepsilon = \pi_0 \quad (22)$$

$$U_z = U^m - \frac{a}{a + bc^2} \varepsilon = U_0 \quad (23)$$

$$L_z = E\left\{ \frac{ab^2c^2}{(a + bc^2)^2} \varepsilon^2 + b[(1-k)U^m - \frac{a}{a + bc^2} \varepsilon]^2 \right\} = b[(1-k)U^m]^2 + \frac{ab}{a + bc^2} \sigma^2 = L_0. \quad (24)$$

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<sup>63</sup>The socially optimal inflation rate has by now been assumed to be zero. Hence it could be neglected in previous calculations.

<sup>64</sup>The inflation aversion of the central bank here corresponds to that of the government, i.e. the parameter b remains unchanged.

### 3. Contract solution

It can be shown that there is a clearly specified contract between government (principal) and central bank (agent) that perfectly cancels the inflation bias without restricting the stabilization policy capabilities of the central bank.

This can be deduced again by using the above stochastic model structure. However, a linear tax  $f$  on the rate of inflation is now included in the loss function of the central banker:

$$(1c) \quad L_c^* = E[a\pi^2 + b(U - kU^n)^2] + f\pi$$

with  $f > 0$ .

By minimizing this loss function for the inflation rate  $\pi$ , using the same calculation steps as before we get:

$$\pi_c = - \frac{bx}{a + bc^2} \varepsilon + \frac{bx(1-k)U^n}{a} - \frac{f}{2a}. \quad (25)$$

A tax can be now imposed so that the central bank has an incentive to produce the optimal inflation rate (which the central bank is assumed to be able to produce). With

$$f = 2bc(1 - k)U^n > 0 \quad (26)$$

we get the following inflation rate, unemployment rate und loss function

$$\pi_c = - \frac{bx}{a + bc^2} \varepsilon = \pi_0 \quad (27)$$

$$U_c = U^n - \frac{a}{a + bc^2} \varepsilon = U_0 \quad (28)$$

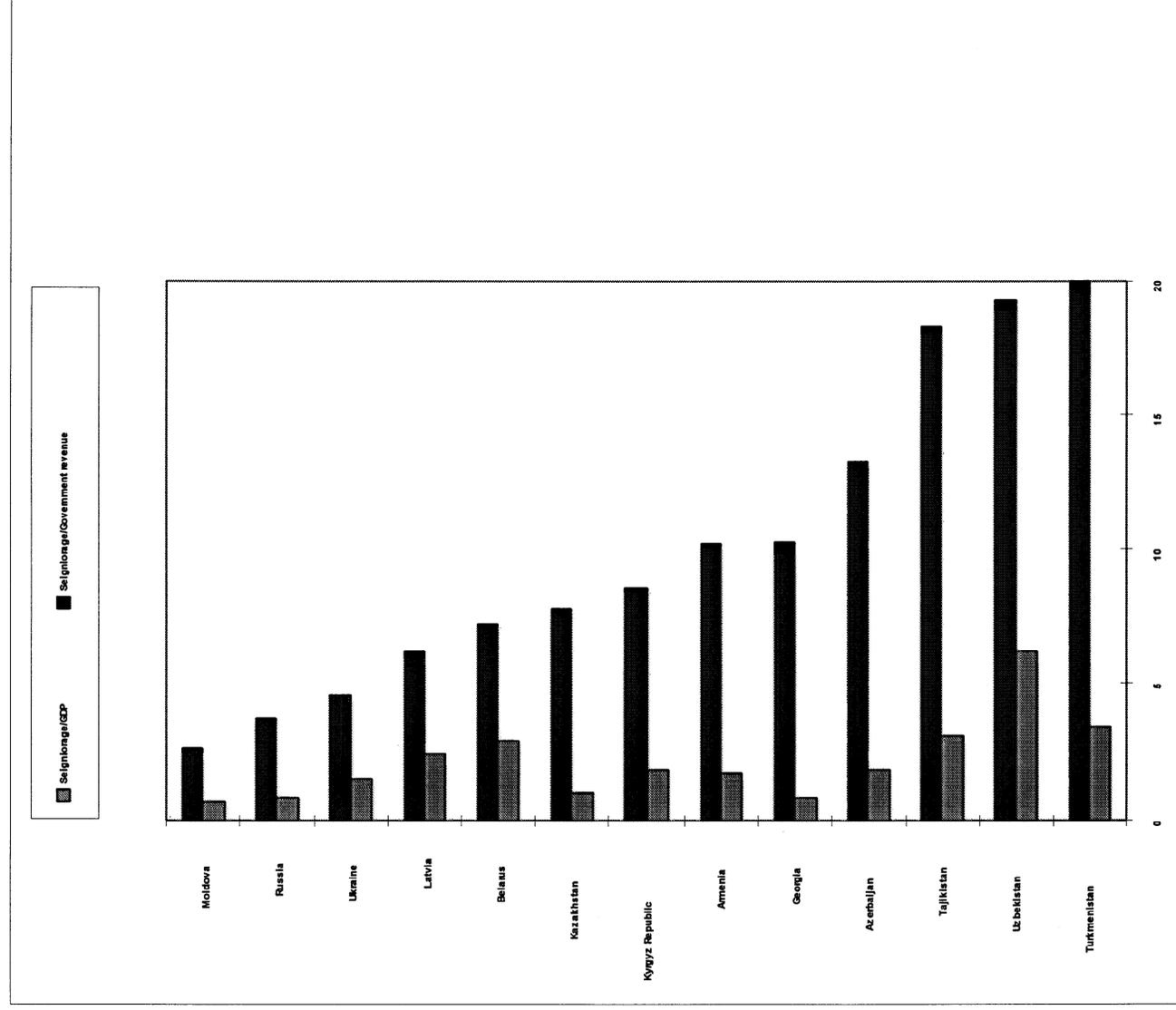
$$L_c = E\left\{ \frac{ab^2c^2}{(a + bc^2)^2} \varepsilon^2 + b[(1-k)U^n - \frac{a}{a + bc^2} \varepsilon]^2 \right\} = b[(1 - k)U^n]^2 + \frac{db}{a + bc^2} \sigma^2 = L_0. \quad (29)$$

A comparison with the optimal rule [compare with (10) to (12)] shows that an optimal contract can produce the same results.

Some Charts and Tables

1. Seigniorage

Chart 1. Importance of Seigniorage in Selected Transition Countries, 1996  
(in percent)



Source: International Monetary Fund (1997b, 116).

## 2. Exchange rate regimes

Table 1. Exchange Rate Regimes in Transition Countries in August 1997

Exchange Rate Regime	Focus of Exchange Rate Policy	Monetary Framework
<b>Currency board</b>		
Bosnia and Herzegovina	Deutsche mark	Currency board
Bulgaria	Deutsche mark	Currency board
Estonia	Deutsche mark	Currency board
Lithuania	Dollar	Currency board
<b>Targeted exchange rate</b>		
Croatia	De facto target band vis-à-vis deutsche mark	Exchange rate target
Hungary	Crawling band vis-à-vis dollar-deutsche mark basket, $\pm 2,25\%$	Exchange rate target
Latvia	Peg to SDR	Exchange rate target
Macedonia, former Yugoslav Rep. of	De facto peg to deutsche mark	Exchange rate target
Poland	Crawling band vis-à-vis currency basket, $\pm 7\%$	Exchange rate target, monitoring of credit expansion and money growth
Russia	Crawling band vis-à-vis dollar, $\pm 5\%$	Exchange rate target
Slovak Republic	Target band vis-à-vis dollar-deutsche mark basket, $\pm 7\%$	Exchange rate target
Ukraine	Target band of 1.7 to 1.9 hryvnia vis-à-vis the dollar	Exchange rate target

Table 1. Exchange Rate Regimes in Transition Countries in August 1997 (concluded)

Exchange Rate Regime	Focus of Exchange Rate Policy	Monetary Framework
<b>Managed floating rate</b>		
Belarus	Ad hoc pegs to various currencies	Monitoring inflation and exchange rates
Czech Republic	Ad hoc intervention to limit fluctuations against the deutsche mark	Money growth target
Georgia	Broad stability vis-à-vis dollar	Monitoring of credit growth
Kyrgyz Republic	Ad hoc peg to the dollar	Monitoring of money growth
Slovenia	Ad hoc intervention	Reserve money target
Turkmenistan	Multiple rates	Liquidity targets
Uzbekistan	Multiple rates	Monitoring of money growth
<b>Floating rate</b>		
Albania	...	Money growth target
Armenia	...	Money growth target
Azerbaijan	...	Money growth target
Kazakhstan	...	Reserve money target
Moldova	..	Reserve money target
Mongolia	...	Real interest rate target
Romania	...	Money growth target
Tajikistan	...	Bank credit ceilings

Source: International Monetary Fund (1997b, 99).

Table 2. History of Exchange Rate Regimes in Selected Transition Countries, 1990-95

<b>Date</b>	<b>Regime</b>	<b>Reason</b>
<b>Poland</b>		
1/90	fixed peg (after devaluation)	nominal anchor + initial competitiveness
5/91	fixed peg (devalued 17%)	restore competitiveness
10/91	preannounced crawl (1.8% a month)	combine anchoring and inflation adjustment
2/92	devalue 11%; crawl unaltered	restore competitiveness
8/93	devalue 7%; crawl now 1.6%	correct the level; toughen expected rate of change
2/95	reduce crawl to 1.2%	tougher anti-inflation stance
5/95	wide band (+/- 7%) same crawl	cope with capital inflows; greater flexibility; reconcile upward float within band and preservation of past exchange rate commitments
<b>Hungary</b>		
91	managed float/ frequently adjusted peg 2 devaluations, 21% in total	conflict between need for nominal anchor but lax fiscal policy; no commitment to rapid stabilization; concern for real exchange rate
92	3 devaluations, 6% in total	
93	5 devaluations, 15% in total	increasing emphasis on real exchange rate target
94	7 devaluations, 17% in total	despite need for nominal anchor
1-2/95	2 devaluations, 3% in total	
3/95	devalue 8% and move to preannounced crawl: 1.9% monthly declining to 1.3% by end 1995	renewed effort at nominal anchor (coupled with fiscal austerity); correct initial competitiveness; regime more robust to the surge of capital inflows experienced at start of 1995
<b>Czech Republic</b>		
1/91	devalue and fix exchange rate	nominal anchor, maintained unchanged throughout CSFR and to date in CR
4/95	tax on banks forex dealings with Central Bank	capital controls as sand in the wheels
7/95	quantitative limits on banks liabilities in foreign currency	further capital controls on short term borrowing by banks to try to stem capital inflows

Table 2. History of Exchange Rate Regimes in Selected Transition Countries, 1990-95 (concluded)

<b>Date</b>	<b>Regime</b>	<b>Reason</b>
<b>Slovak Republic</b>		
91-92	as above for Czech Republic	
7/93	10% devaluation of peg (6 months after CSFR breakup)	concerns about competitiveness; exchange rate peg maintained thereafter, no capital controls; as yet no strong pressure from capital inflows though current account surplus large in 1994
<b>Slovenia</b>		
91	managed float	monetary targets the principal nominal anchor, nevertheless, concern about real exchange rate, which reasonably constant 1992-94, prior to large capital inflows and large current accounts surplus despite which real exchange rate has appreciated since 1994 and monetary policy also relaxed
2/95	controls on inward capital flows (under 5 years maturity)	
<b>Croatia</b>		
93	managed float	though with strong emphasis on keeping the kuna within a narrow band of the DM
94		forced appreciate in response to forex inflows
<b>Albania</b>		
6/92	devalue and float	absence of reserves and credible track record
94-95		forex inflows allowed to increase money supply and appreciate the exchange rate

Source: International Monetary Fund; Begg (1996, 74).

### 3. Capital flows

Table 3. Net Capital Flows into Selected Transition Countries<sup>1</sup>  
(in percent of GDP)

	1992	1993	1994	1995	1996
Bulgaria	-5.7	-2.5	1.1	3.9	-8.9
Croatia	...	1.1	2.2	9.9	8.8
Czech Republic	-1.3	6.8	6.1	17.8	6.6
Estonia	5.0	13.4	7.6	7.1	13.3
Hungary	1.2	15.7	8.2	17.3	0.5
Kazakhstan	...	...	...	3.8	4.0
Latvia	5.6	8.6	7.5	1.7	8.0
Lithuania	4.8	7.5	3.6	4.7	3.3
Poland	-1.7	-0.9	-0.6	4.1	2.3
Romania	...	5.8	4.3	3.7	4.3
Russia <sup>2</sup>	...	...	-5.9	0.2	-2.6
Slovak Republic	-5.0	2.0	7.4	6.7	7.4
Slovenia	-2.4	-0.7	0.7	1.5	3.0
Ukraine	...	...	0.4	-10.8	5.3

1 Net capital flows are defined as the balance on financial account in the balance of payments, excluding changes in international reserves, plus net errors and omissions.

2 On a cash basis, excluding the impact of debt rescheduling.

Source: International Monetary Fund (1997b, 113).

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