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Disinflation Strategies in Transition Economies and Their Effectiveness[1]

Most of economies of the Central and Eastern Europe (CEE) and the former Soviet Union (FSU) experienced a very high inflation or even hyperinflation in the onset of transition process. It was caused by two major factors: (i) price and exchange rate liberalization that unfroze earlier accumulated stock of money (so-called monetary overhang) resulting from extensive price control, and at least temporarily increased velocity of money in circulation; (ii) weak current monetary and fiscal control. The second factor became particularly acute in the last few years of communist regimes and first years of democratic governments when most of state institutions were significantly weakened and political elites looked dramatically for popular support often giving up macroeconomic stability. Additionally, a large output decline resulting from deep structural distortions inherited from the command economy did not help in fiscal and monetary adjustment on the one hand, and created strong temptation to use demand type anti-recession instruments (such as monetary and fiscal expansion) on the other.

However, it became clear very early that fast disinflation was a basic precondition of possible progress in structural reforms[2], and macroeconomic stabilization one of three major pillars of effective transition and growth strategy[3].

1.1. Economic rationale of disinflation

Before starting the analysis of speed of disinflation process and factors its determining we should answer the question why disinflation is so important for any economy and

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[2] Many authors and studies showed the importance of early and fast disinflation for a good quality of privatization and restructuring processes, creating favorable condition for a new private sector, mitigating cumulated output decline, avoiding massive rent-seeking, social pathologies, and too big differentiation of income and wealth [see – e.g. Aslund, 1994, Balcerowicz and Gelb, 1995; de Melo, Denizer and Gelb, 1996, Dabrowski, 1996; Aslund, Boone, and Johnson, 1996].
[3] Apart from liberalization and privatization [see – e.g. Fischer, and Gelb, 1991].

particularly for an economy in transition, and why fast disinflation is better than a slow one. The analysis of costs and benefits of disinflation will be carried out separately for the case of high/ very high inflation and for moderate/low inflation level.

There is no one definition of "high inflation" and "very high inflation". For purpose of this chapter I consider "high inflation" as exceeding 12 months level of 40% and "very high inflation" as reaching at least three digits annual level. Hyperinflation is a special case of a very high inflation when monthly inflation exceeds the level of 50% during at least 3 subsequent months [see – Cagan, 1956]. Similarly, both moderate and low inflation may be defined in various ways. For example, Dornbusch and Fischer [1993] suggest price increase between 15 and 30% annually as a definition of moderate inflation. Again, for purpose of this chapter moderate inflation is defined as annual inflation between 10 and 40 percent, and low inflation as annual inflation below 10%.

1.1.1. Damaging effects of high/ very high inflation

Economic and social disadvantages of high and very high inflation are widely known. Generally speaking, it destroys money in its basic functions as a mean of transaction, saving and calculation. High or very high inflation discourages saving and demand for domestic money. In high inflation economies a saving rate is generally, other things equal, lower than in low inflation ones. One must remember that transition economies are rather generally short of domestic savings for number of historical and structural reasons.

In the high inflation environment economic agents move from domestic currency to foreign currencies or to money substitutes. This seriously limits using seigniorage and inflation tax[4] for financing public expenditure what is the original reason of a high / very high inflation. Number of empirical research shows that there is an `optimal' level of inflation from the point of view of seigniorage / inflation tax maximization [see – Budina, 1997], which usually is located in the high or very high inflation zone. This creates initial temptations to resort to this source of deficit financing especially when other sources are not available (and this was the case of the beginning of transition process in most of the post-communist countries). However, the seigniorage / inflation tax maximizing level of inflation is not stable. As economic agents realize that they are subjects of inflation taxation they decrease their demand for domestic money balances narrowing in this way the base for inflation tax. If policymakers respond in this moment with higher rate of inflation tax, economy faces the danger of dramatic acceleration of inflation, leading very often to hyperinflation.

Additionally, high or very high inflation can erode the conventional tax base. It relates, for example, to the so-called Olivera-Tanzi effect, i.e. a real depreciation of part of tax obligations fixed in nominal domestic currency terms (for certain period of time) or due to time lag between the date of tax accrual and its effective payment. Gaidar [1997] also underlines the negative effect of demonetization process for the real tax collection capacity of the government, and demonetization is unavoidable result of each high /very high inflation episode. Thus, from the point of view of fiscal and monetary balances high inflation is a self-fulfilling and self-accelerating process.

High inflation also destroys the information function of prices, and thus, worsens allocation of resources [see – Dabrowski, and Rostowski, 1992]. Economic agents have difficulties in finding whether the particular price increase reflects an average price increase

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[4] Differences between seigniorage and inflation tax are extensively discussed by Cukrowski, and Janecki [1998].

only or signals a change in relative prices. The very high inflation or hyperinflation distorts the relative prices structure in accidental way, simply because the various frequency and schedule of indexing prices of individual goods according to inflation (so-called Taylor rule).

Any credit in the high inflation environment must have a short-term character only, and form an up-front barrier of high nominal interest rates (even if they are negative in real terms). These are additional channels, apart from destruction of savings, of negative influence of high inflation on economic growth.

Finally, we must mention about negative social consequences of high and very high inflation. In most historical cases, high inflation hurt mainly poor people. It increases income and wealth differentiation, and stimulates numerous social pathologies.

1.1.2. Moderate and low inflation: danger of inflation inertia

The above very brief review of various negative consequences of high / very high inflation shows that it is very difficult to find any good argument against strong disinflation policy when inflation exceeds annual level of 40-50%. However, the balance of arguments may change when country enters the zone of moderate or low inflation. Some of the destroying characteristics of high/very high inflation disappear or play significantly weaker role. This relates, for example, to relative price changes argument, danger of self-fulfilling demonetization, destruction of tax base, social pathologies, etc. However, some impediments to growth connected with inflation are still in place: they relate mainly to negative incentives to saving and high nominal costs of credit. This has further negative implications. Inflation differences with low inflation countries together with low saving ratio, and remaining inflationary and devaluation expectations lead to even greater differences in nominal interest rates. When economy becomes at least partly open for international financial flows (what seems to be unavoidable at some stage of transition process) it makes country very vulnerable to short term capital flows and changing investors sentiment. Lower inflation differences and closer convergence of macroeconomic fundamentals with those of developed country decrease the level of macroeconomic risk.

On the other hand, problem of the economic and social costs of disinflation becomes more important when country approaches a low inflation level. The main argument against disinflation or at least against fast disinflation refers to downward nominal price and wage rigidities. Under lower inflation a room for decrease of real prices or wages is much more limited than under the higher ones. Therefore, a necessary adjustment in this sphere takes more time and costs more in terms of output decline and unemployment [see e.g. Calvo and Coricelli, 1992; Nuti and Portes, 1993]. Thus, according to this argument, slow disinflation is less painful for the economy than a fast one.

The above argument can be, however, challenged on the same ground. Downward price and wage rigidity is, to significant extent, a product of past inflation experience [Leidy and Tockarick, 1998]. Moreover, if inflation has a persistent character, economic agents try to protect themselves against real income decrease through various forms of anti-inflationary indexation. It leads to a phenomenon of inflationary inertia when nominal rigidities become even more serious than before. Attempt to carry out a negative real price or wage adjustment needs in such a situation the additional unexpected inflation impulse. This increases bias towards *ex ante* indexation of nominal variables. Moreover, if economic agents do not trust macroeconomic policy and are afraid that they will be cheated by additional unexpected

inflation, they try to protect themselves by the additional indexation margin[5]. Thus, when moving in this direction, one can expect only inflation acceleration without any serious output and employment gains. On the contrary, nominal rigidities can be limited significantly (and real sector can become much more flexible) as result of credible and sustainable anti-inflationary program though implementation of such a program needs breaking up the existing rigidities and inertia what is connected with certain loses in employment and output. Liberalization of foreign trade and labor market as well as market-oriented structural reforms can diminish these loses.

The same concerns also the so-called money illusion in the original Keynessian model. Additional nominal demand injection can lead to increasing output only if is unexpected and if profit-maximizing economic agents have free and complementary production capacities. This is not certainly the case of transition economies with strong inflation inertia, lack of complementary free production capacities, low saving rate and serious problems with the incentive system on the micro-level. Again, stopping the use of money illusion stimulating mechanism is connected with certain costs though is beneficial from the point of view of microeconomic flexibility of a given economy.

Discussing costs and benefits of disinflation policy the real dilemma concerns their time mismatch: costs must be paid immediately (in a short-term horizon) when benefits will come later (in medium and long-term perspective). This can create political cycle problem [see – Alesina, and Perotti, 1994] when the given government does not have political time to wait for economic and social gains coming from the disinflation policy[6].

However, a slow disinflation strategy does not seem to be a remedy here. Slow disinflation still involves some costs when benefits are very limited and diluted in time. In order to reach certain final low inflation target[7], painful disinflation measures will have to be repeated several times and positive effects will come much later. Additionally, slow disinflation will further support the existing nominal rigidities and inflationary inertia. It will delay the perspective of macroeconomic convergence of a given transition economy with the developed countries what involves, other things being equal, higher risk premium for investment and higher real interest rate for both servicing public debt, and private sector financing [see – Maliszewski, 1998]. Thus, the cumulated economic, social, and political costs of slow disinflation do not need to be lower (than in the case of fast disinflation), while benefits are certainly delayed and somewhat diluted.

1.1.3. Results of empirical research

The above findings have been supported by results of numerous empirical researches conducted in 1990s. Usually, these studies covered a large group of countries (more than one hundred) and long time horizon (over thirty years). Most of them analyzed the relationship between average rates of annual inflation and GDP growth. Some of them also tried to investigate the dynamic relationship, i.e., how pace of disinflation influenced changes in a rate

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[5] One of possible scenarios of such a game can be connected with fiscal gains in the case of unexpected inflation. Nominal revenues and expenditures, including wages, social transfers, and subsidies are planned under assumption of certain projected inflation level. If inflation is higher than expected, budget gets more nominal revenues than it was planned, while most of nominal expenditure remains on the previously planned level. Of course, budget beneficiaries try to protect themselves against such a maneuver by additional indexation. This kind of game was carried out, for example, in Poland in 1993-1996.

[6] Central bank independence is considered as the main cure that can help to overcome a political cycle constraint.

[7] For the transition countries aiming to become the EU members it will be the level comparable with inflation in the EURO zone.

of economic growth.

The comparative analysis of 127 countries for the period of 1960-1992 carried out by Bruno and Easterly [1995] shows that annual inflation higher than 40% is obviously damaging for economic growth. The highest rate of growth of GDP per capita was recorded in countries representing average annual inflation between 5 and 10%, the next one was the group of the average inflation between 10 and 15% (see **Figure 1.1**).

Subsequent similar analyzes [Sarel, 1996; Gosh and Phillips, 1998] estimated the `optimal' level of inflation lower than in Bruno and Easterly [1995] study. This seems to reflect general disinflation trend of the world economy in the last decade. Ten years ago frequency of low inflation cases was much lower than now, particularly among developing countries. Sarel [1996] gave evidence that annual inflation higher than 8% harms the economic growth while inflation below this threshold is neutral for the rate of growth.

Gosh and Phillips [1998] made similar exercise taking data of most of the IMF members for the period of 1960-1996. Their estimates for upper- and upper-middle-income countries showed that the highest rate of GDP growth is recorded for annual inflation between 0 and 3%, and between 3 and 5%. With higher inflation intervals the rate of growth systematically declined (see **Figure 1.2**). The similar picture concerns the group of lower- and lower-middle-income countries (**Figure 1.3**). However, the highest rates of growth were recorded for inflation between 3 and 5%, and between 5 and 10%.

Khan and Senhadji [2000] examined the sample of 140 countries for the period of 1960-1998. They estimated the threshold level of inflation above which inflation significantly slowed growth at 1-3 percent for industrial countries and 7-11 percent for developing countries (although it does not mean that lower inflation hurts growth prospects).

Figure 1.1: Annual Inflation and Per Capita Growth Rates, 1960-1992
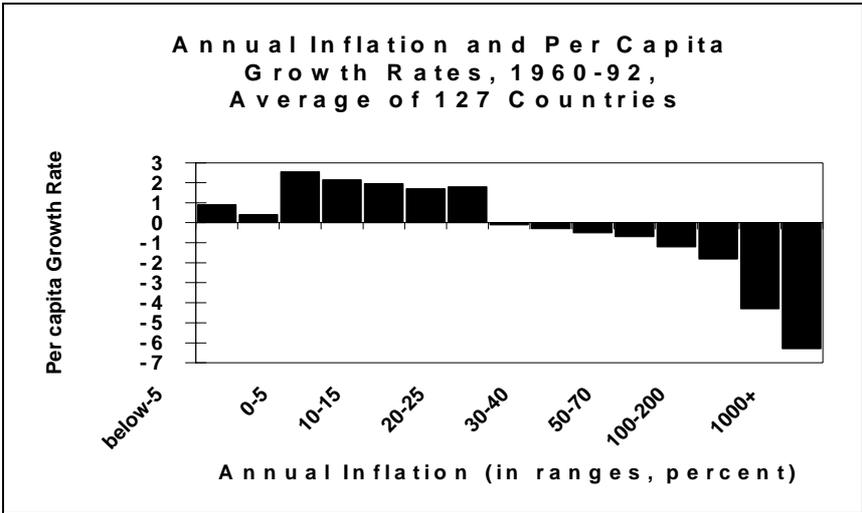
Source: Bruno and Easterly [1995].

Christoffersen and Doyle [1998] analyzed 22 transition economies for the period 1990-1997[8]. They found that inflation above 13% is associated with GDP losses. This is a bit

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[8] For other research related to transition economies see, among others, Fischer, Sahay, and Vegh [1996]; Cottarelli and Boyle [1999].

higher than Sarel [1996] result for the wider sample of market economies. However, Christoffersen and Doyle's result may be influenced by a small number of low inflation cases in the group of transition economies. Probably, as more countries will reach single digit inflation zone for longer period of time, future empirical research may estimate the inflation-growth threshold at a lower level.

Figure 1.2: Inflation and GDP growth in upper- and upper-middle-income countries, 1960-1996

Inflation range in %	Number of observations	Inflation in %		GDP growth in %	
		Average	Mean	Average	Mean
$0 < \pi < 3$	180	2.0	2.1	3.6	3.2
$3 < \pi < 5$	183	3.9	3.9	3.5	3.5
$5 < \pi < 10$	244	7.2	7.1	2.8	2.9
$10 < \pi < 20$	177	14.0	13.5	2.0	2.0
$20 < \pi < 40$	66	26.0	25.0	2.1	2.2
$40 < \pi < 80$	37	56.6	56.6	2.5	2.4
$\pi > 80$	50	497.1	168.2	−0.7	0.1

Source: Gosh and Phillips [1998].

Gosh and Phillips [1998] also investigated the dynamic relationship between speed of disinflation and its cost in terms of deterioration of growth rate. As they found when the initial inflation rate is above 6.3 percent a year, only the most severe anti-inflationary programs - cutting the inflation rate by more than 63 percent – are associated with lower growth. An increase in the rate of inflation was associated with lower GDP growth. When the initial inflation rate was below 6 percent a year, only the most severe anti-inflationary programs – reducing the inflation rate by more than half - were associated with lower GDP growth. The same concerned increases in inflation rate by more than 70 percent. Moreover, disinflation costs were usually short living and were quickly compensated by benefits brought by the lower inflation level.

Figure 1.3: Inflation and GDP growth in lower- and lower-middle-income countries, 1960-1996

Inflation range in %	Number of observations	Inflation in %		GDP growth in %	
		Average	Mean	Average	Mean
$0 < \pi < 3$	141	1.5	1.7	1.4	1.8
$3 < \pi < 5$	120	4.0	4.1	1.8	2.3
$5 < \pi < 10$	326	7.6	7.8	2.4	2.5
$10 < \pi < 20$	391	13.8	13.0	1.5	1.4
$20 < \pi < 40$	206	27.7	26.6	0.1	0.7
$40 < \pi < 80$	67	56.5	54.5	0.2	0.5
$\pi > 80$	43	969.9	161.0	−3.5	−3.5

Source: Gosh and Phillips [1998]

What concerns transition economies, Christoffersen and Doyle [1998] did not find any evidence that even the most drastic anti-inflationary programs could diminish the rate of economic growth.

Generally, lower is inflation level better are conditions for sustainable economic growth. The modern economy generally rejects a hypothesis on a possible long-run trade-off

between inflation and GDP growth. The modern growth paradigm, known as "the Washington consensus", points out at a low inflation as a factor promoting growth [see – e.g. Barro and Lee, 1993]. However, many empirical studies show a non-linearity of the relation between inflation and growth. Marginal output gains decrease with lower inflation level. Short-term disinflation costs are connected with the most severe anti-inflationary programs only, in economies representing initial low inflation level but even in these case they are quickly compensated by the benefits coming from lower inflation.

1.2. Different Speed of Disinflation

1.2.1. The size of initial destabilization

Individual countries experienced different size of the initial macroeconomic destabilization in the beginning of transition process. Serbia and Montenegro's hyperinflation of 1992-1994 as the second fastest in the world history amounted to 310,000,000% monthly in January 1994 [Rostowski, 1998, p. 87]. Georgia with 50,654% 12-months inflation in September 1994, Armenia with 29,600.9% in May 1994, and Ukraine with 10,155% in December 1993 represent three others hyperinflation cases.

On the other extreme, Hungary, the Czech Republic, Slovakia, and Slovenia never had three digits 12-months inflation. Hungary always stayed in the zone of moderate inflation but until the end of 1997 did not manage to decrease CPI below 18%. Czech Republic and Slovakia experienced relatively limited and short lived inflation jump coming from price liberalization (end of year inflation of 52.0% in the Czech Republic and of 58.3% in Slovakia in 1991). From 1994 12 months inflation rate stabilized for several years at the level 8-10% in the Czech Republic and on the level of 6-7% in Slovakia [Cottarelli and Boyle, 1999, table 1].

1.2.2. Timing of disinflation programs

Transition countries also differed in timing of disinflation and its effectiveness. Poland and former Yugoslavia started to fight their hyperinflations in the end of 1989. Poland's IMF supported program started officially on January 1, 1990 but several preparatory steps were taken earlier, in the last quarter of 1989. After few months the positive results of this effort were already visible. Yugoslav program started officially in December 1989 and was quite successful. However, the political disintegration of Yugoslavia brought another serious macroeconomic crisis in the end of 1990 and in 1991.

Other countries followed these two leaders. Former Czechoslovakia and Bulgaria started their stabilization cum liberalization programs from the beginning of 1991 but only the former succeeded in the first approach. Slovenia, one of successors of the former Yugoslavia, renewed successfully the stabilization effort in the end of 1991. Albania, Estonia, Latvia and Lithuania launched their stabilization policies in 1992, while Croatia, Moldova, and Kyrgyzstan in the end of 1993. Caucasus countries –Armenia, Georgia and Azerbaijan – could start to fight very high inflation or hyperinflation in 1994-1995 only after stopping the military conflicts.

Romania, Bulgaria and many CIS countries repeated stabilization effort several times. Russia managed to stop a very high inflation with fourth attempt (in 1995) only, and Ukraine a year later. Unfortunately, in both countries so hardly achieved stability occurred to be fragile and short living damaged by 1998 financial crisis (see below).

Bulgaria went through two serious financial crises – in the end of 1993/ beginning of 1994 and 1996-1997. The second crisis was extremely severe, involving not only a deep devaluation of leva but also dramatic collapse of almost all the banking sector and default on public debt. Only after introduction of the currency board regime in mid-1997 and carrying out a radical fiscal adjustment and accelerating structural reforms Bulgaria has become a low inflation country. Romania, in fact, never reached the moderate inflation zone and represents a typical case of chronic high inflation country.

Belarus, Uzbekistan and Turkmenistan never followed a serious anti-inflationary policy and resisted any serious liberalization and structural reform effort trying to find some kind of `a third way' between a typical command economy and the market one. Tajikistan had only short episodes of lower inflation (for example, in 1998) but the economic situation of this country is, to significant extent, determined by its internal political instability and continuing civil war.

1.2.3. Speed of disinflation until 1997

Generally, successor countries of the former USSR and former Yugoslavia started their stabilization policies later then Central Europe as the consequence of delayed start of transition process and political instability including military conflicts in some cases. However, starting from 1994 some of the FSU and FY countries intensified their disinflation process sometimes outperforming such transition leaders as Poland, Hungary, the Czech Republic or Slovenia. This was illustrated by the IMF comparative analysis covering the period of 1993-1997 [Cottarelli and Boyle, 1999].

In this analysis the subsequent disinflation thresholds were set at the levels of 60, 30, 15, and 7.5% see **Figure 1.4**). Thresholds were defined as the annualized three months inflation rates. The country were classified to have crossed the threshold when first fell below threshold, and remained in the new zone for a year, and if the 12 months inflation rate fell below that level during the following year without rising above it again in that year. The latter rule does not relate to countries that crossed the threshold during 1997.

Figure 1.4: Speed of the disinflation process until 1997

Country	Number of months needed to cross the threshold of			
	60%	30%	15%	7,5%
Albania	5	3	23	2
Armenia	6	10		
Azerbaijan	5	1	7	7
Croatia	4	1	2	0
Czech Republic	3	1	2	
Estonia	18	8	23	
Georgia	3	17	1	
Kazakhstan	17	13	11	
Kyrgyzstan	23	24		
Latvia	9	27	12	
Lithuania	21	26	2	11
Macedonia	6	8	5	5
Moldova	9	9	14	
Poland	18	33	21	
Russia	9	3		
Slovakia	3	1	2	46
Slovenia		3	27	

Ukraine	18	1	11	

Source: Cottarelli and Boyle [1999]

Crossing down the highest threshold (60%) took 23 months for Kyrgyzstan, 21 months for Lithuania, 18 months for Poland, Ukraine, and Estonia, 17 months for Kazakhstan, 9 months for Russia, Moldova, and Latvia, 6 months for Armenia, and Macedonia, 5 months for Albania and Azerbaijan, 4 months for Croatia, and 3 months for Georgia, Czech Republic and Slovakia[9], all from the date of starting the stabilization effort assumed as the date of beginning of the IMF supported program (usually Stand-by arrangement or Systemic Transformation Facility).

Reaching the next threshold (30%) took 33 months for Poland, 27 months for Latvia, 26 months for Lithuania, 24 months for Kyrgyzstan, 17 months for Georgia, 13 months for Kazakhstan, 10 months for Armenia, 9 months for Moldova, 8 months for Estonia and Macedonia, 5 months for Russia, 3 months for Slovenia and Albania, and 1 month for the Czech Republic, Slovakia, Azerbaijan, Croatia, and Ukraine (all from the date of reaching the threshold of 60%).

The threshold of 15% was reached during 27 months by Slovenia, 23 months by Albania and Estonia, 21 months by Poland, 14 months by Moldova, 12 months by Latvia, 11 months by Kazakhstan and Ukraine, 7 months by Azerbaijan, 5 months by Macedonia, 2 months by the Czech Republic, Slovakia, Croatia, and Lithuania, 1 month by Georgia.

Finally, by the end of 1997, only 6 countries reached the threshold of 7.5% and it took 46 months for Slovakia, 11 months for Lithuania, 7 months for Azerbaijan, 5 months for Macedonia, 2 months for Albania, and 0 months for Croatia[10].

Another approach to measuring intensity of inflation processes and speed of disinflation was presented by Koen and De Masi [1997] who calculated the cumulative CPI increase during the first five years of transition in each country. The following starting dates were taken for this analysis: December 1989 for Croatia, Hungary, Macedonia, Poland, Slovakia, and Slovenia; October 1990 for Romania; December 1990 for Bulgaria, the Czech Republic; Estonia, and Latvia; January 1991 for Albania and Lithuania; December 1991 for Russia and other FSU countries. The smallest cumulative increase was recorded in the Czech Republic (138%), followed by Slovakia, Hungary, Albania, and Poland (1,341%). The highest figures were recorded by Turkmenistan (over 100,000 times), Georgia (over 86,000 times), Armenia, Ukraine, and Tajikistan. The absolute `leadership' belongs, however, to Serbia and Montenegro where prices increased over 78,000,000,000,000,000,000,000 times during the period from January 1992 to February 1994 (25 months).

1.2.4. Inflation developments in 1998-2000

In 1998-2000, transition economies experienced strong fluctuations in their disinflation process (partly illustrated in **Figure 1.5**). In the first half of 1998, inflation went down in most of countries, particularly those of the former USSR. Some of them recorded even the negative 12-months inflation (Caucasus countries). It was mainly a result of

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[9] As it was mention earlier the Czech Republic and Slovakia had the highest inflation levels only a few percents above this threshold when Georgia suffered the second highest hyperinflation among transition countries (after Yugoslavia).

[10] Croatia in its impressive disinflation process passed threshold of 7.5% in the same month (May 1994) as the 15% threshold. In fact, Croatia recorded negative inflation during several months of 1994.

declining oil and commodity prices on the world markets. In the second half of 1998, this anti-inflationary supply shock was continued. However, Russia, Ukraine, Belarus, Moldova, Kyrgyzstan, and Georgia (followed by Kazakhstan in 1999) suffered the currency crises, which caused a new serious inflation jump and reversal of the previous disinflation trend (see below).

Figure 1.5: End-of-year inflation in transition economies 1991-2000.

Country	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Central and Eastern Europe										
Albania	104.0	236.6	30.9	15.8	6.0	17.4	42.1	8.7	-1.0	4.2
Bulgaria	338.7	79.4	63.8	121.9	32.9	310.8	578.6	0.9	7.0	11.2
Croatia	...	937.0	1120.5	2.4	4.6	3.7	3.8	5.6	3.8	6.9
Czech Republic	52.0	12.6	18.8	9.7	7.9	8.6	10.1	6.8	2.6	4.0
Hungary	32.0	24.7	21.1	21.2	28.3	19.8	18.4	10.3	11.2	10.0
Macedonia	115.0	1935.0	241.8	55.0	9.0	-0.6	3.2	-3.1	2.5	6.1
Poland	60.3	44.5	37.7	29.5	21.6	18.5	13.2	8.6	9.8	8.6
Romania	223.0	199.2	295.5	61.7	27.8	56.9	151.6	43.8	54.8	40.7
Slovakia	58.3	9.1	25.0	11.7	7.2	5.4	6.4	5.6	14.2	8.4
Slovenia	247.0	88.2	22.9	18.3	8.6	8.8	9.4	5.7	8.8	10.6
Former Soviet Union										
Armenia	...	1241.2	10896.1	1884.5	32.1	5.8	22.0	-1.1	2.1	0.3
Azerbaijan	...	...	1293.8	1788.0	84.5	6.7	0.4	-7.6	-0.5	2.2
Belarus	...	1557.8	1994.0	1957.0	244.2	39.1	63.4	181.7	251.3	108.0
Estonia	...	942.2	35.7	41.6	28.8	15.0	12.5	4.5	3.8	5.0
Georgia	...	1178.5	7484.1	6473.0	57.4	13.7	7.2	10.6	10.8	4.6
Kazakhstan	...	2962.8	2169.1	1160.3	60.4	28.6	11.3	1.9	17.8	9.8
Kyrgyzstan	...	1257.0	766.9	95.7	32.0	34.9	14.7	18.3	39.8	9.5
Latvia	...	958.2	34.8	26.2	23.3	13.2	7.0	2.8	3.2	1.8
Lithuania	...	1162.5	188.8	45.0	35.5	13.1	8.5	2.4	0.3	1.4
Moldova	...	2198.4	836.0	116.0	23.8	15.1	11.1	18.4	82.7	18.5
Russia	...	2321.6	841.6	202.7	131.4	21.8	11.0	84.5	36.6	20.1
Tajikistan	...	...	7343.7	1.1	2133.3	40.5	163.6	2.7	30.1	60.6
Turkmenistan	...	...	...	1328.5	1261.5	445.9	21.8	19.8		
Ukraine	...	2001.0	10155.0	401.1	181.4	39.7	10.1	20.0	20.2	23.9
Uzbekistan	...	910.0	884.8	1281.4	116.9	64.4	50.0	26.0	26.0	28.2

Source: IMF, EBRD and PlanEcon data

Inflationary developments in 1999-2000 were determined by the contradicting trends. While CIS countries started to recover their disinflation performance after the end of 1998-1999 series of devaluation crises, other countries (mainly Central European ones) started to suffer from the reversal of the commodity and energy prices trend. Additionally, countries running the Euro-denominated currencies boards (Estonia, Bulgaria and Bosnia) and countries pegging their currencies to Euro (Croatia, Macedonia) suffered from the increasing rate of inflation in the Euro zone and gradual weakening of the Euro in relation to the US dollar. Finally, domestic economic policy problems and imbalances in several countries (Romania, Hungary, Poland, Slovakia, Slovenia, Czech Republic, Kyrgyzstan, Uzbekistan, and Moldova) also played a significant role.

As result in 2000, six out of the ten CEE countries and eight out of the fifteen FSU

countries listed in **Figure 1.5** remained in the zone of low inflation. Three other countries, Hungary, Slovenia and Bulgaria had results close to this range, two of them (Slovenia and Bulgaria) seemed to go out of the single-digit inflation zone only temporarily.

Eight countries – Albania, Armenia, Azerbaijan, Czech Republic, Georgia, Estonia, Latvia, and Lithuania – were located in 2000 at the lower end of the low inflation zone, i.e. on the level of 5% or below. A year earlier this group consisted of nine countries: Albania, Armenia, Azerbaijan, Czech Republic, Croatia, Estonia, Latvia, Lithuania, and Macedonia. All the listed countries but the Czech Republic stick to the exchange rate target. The Czech Republic followed direct inflation targeting, from the beginning of 1998.

What is worth to notice that only three Baltic countries and the Czech Republic, among ten EU candidates, seem to be close to the Euro-zone level of inflation. Bulgaria having the Euro-dominated currency board has also theoretically a chance to join this group although this country still faces a large agenda of changes in the domestic price structure, which may bring an additional CPI increase. All other countries have still a long way to converge to the Euro zone inflation performance and to meet Maastricht inflation criterion, i.e. inflation not exceeding the average of the three best performers within EMU +1.5 percentage points[11].

1.2.5. Reversal of the disinflation trend and inflation instability

In order to have a complete picture of the speed of disinflation process in individual countries it is also necessary to take into consideration the cases of reversals in this process. Among countries, which achieved low or moderate inflation level major reversals happened in Albania (1996-1997), Armenia (1997), Russia, Ukraine, Georgia, Moldova, and Kazakhstan (in the second half of 1998 and first half of 1999). On the other hand, Hungary (1995), Czech Republic (1997), Slovakia (1997 and 1999), Kyrgyzstan (1996, the end of 1998 and 1999), Slovenia (1996-1997 and 1999-2000), Poland (1999-2000), Bulgaria (1999-2000), Croatia and Macedonia (both 2000) recorded some smaller inflation reversals or fluctuations.

Reversals have been caused by a number of reasons:

- serious political crises (Albania, Armenia, Macedonia);

- fiscal policy problems and its inconsistency with the monetary and exchange rate policies (Russia, Ukraine, Moldova, Georgia, Kazakhstan, Kyrgyzstan, Slovakia, and Hungary);

- balance of payments crisis caused by the weakness of the enterprise sector (Czech Republic);

- inconsequent and partly accommodating monetary policy (Slovenia, Hungary and Poland);

- outside inflationary impulses (increase in commodity prices, weakening of an anchor currency, higher inflation in the anchor currency zone).

The last problem becomes more and more serious for low inflation countries. Countries, which continue independent monetary policies (particularly it relates to direct inflation targeting variant) have two choices how to deal with the unfavorable external price

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[11] Difficulties with nominal convergence even more relate to long term interest rates.

shocks. They can either tighten the domestic monetary policy sticking to low inflation target (and risking some costs in terms of output and employment), or try to accommodate the shock, risking that a second round effect will push up inflation (and inflationary expectations) for a longer period of time. The situation is even more difficult for countries, which peg their currencies to euro or dollar. If they choose the so-called hard peg (see the next section) they do not have, by definition, any monetary policy instrument to react (they can rely on fiscal and income policy measures only). But even countries, which follow the so-called conventional (adjustable) peg, have very little room of maneuver. Their opportunities to sterilize the external inflationary impulse without a nominal revaluation of their currencies (vis a vis anchor currency) is very limited and costly.

There has been much more reversals and serious fluctuations caused by weak fiscal and monetary policies and slow pace of structural reforms in chronic high inflation countries, which only occasionally reached the moderate inflation zone during the investigated period. This relates to Romania, Belarus, Uzbekistan, Turkmenistan, and Tajikistan.

Observing the end of year inflation figures one can conclude that only Lithuania recorded continuos uninterrupted disinflation trend until the end of 1999[12]. Estonia had one minor reversal in 1993, Azerbaijan, Latvia and Poland - also one minor reversal in 1999. Croatia and Macedonia's inflation rates fluctuated a bit but remained on a very low level (below 5%) for several years. However, year 2000 brought some deterioration of inflation figures in all these countries, apart from Poland and Latvia.

Inflation fluctuations may be equally damaging for an economic growth as a too high level of inflation [see Fischer, 1993]. However, certain inflation variability is probably unavoidable in a small open economy, particularly when country chooses exchange rate as a stable nominal anchor. If such variability is limited enough and inflation is kept by a monetary authority in the low one-digit range in a credible way, economic agents should not experience serious problems with observing relative price changes and inflationary expectations do not need to be a problem.

1.3. Looking for an effective disinflation strategy

1.3.1. Stabilization strategies in the first stage of transition

In the very beginning of transition, macroeconomic policy in most of CEE and FSU countries had to concentrate on stopping high or very high inflation. This was the absolute priority and precondition of a progress in other fields of economic reforms. Looking at the historical experience of fighting high inflation or hyperinflation, particularly in developing countries one can distinguish three types of stabilization strategies based on different policy mixes [see e.g. Kiguel and Liviatan, 1992; Ades, Kiguel and Liviatan, 1995; Tomczynska, 1998]:

- money based orthodox programs (MBOP)

- exchange rate based orthodox programs (ERBOP)

- heterodox programs (HP)

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[12] It does not mean that it was no increases of 12 months inflation index in the course of subsequent years. The recorded statistics concerns end of December figures only.

Generally, orthodox programs consist of monetary and fiscal policy measures only while heterodox programs additionally use income policy measures (wage control) or sometimes also price control. The difference between two variants of orthodox programs relates to nominal anchor: money aggregates in the case of MBOP, and exchange rate peg in ERBOP.

Most of transition countries used *de facto* an exchange rate anchor even if only few of them declared it formally [see – Fisher, Sahay, and Vegh, 1996; Cottarelli and Boyle, 1999]. Informal pegging of exchange rate has an advantage of not risking central bank reputation and sometimes gives also central bank more real autonomy (formal pegging usually needs join decision with government). However, it does not allow exploiting all opportunities of fighting *ex ante* inflationary expectations what is connected with a formal and credible pegging.

Only some countries (Poland, Hungary, former Czechoslovakia, and FY countries) resorted in the first years of their transition to income policy instruments as additional anti-inflationary measure. However, taking into consideration slow pace of disinflation and strong inflationary inertia in countries such as Hungary, the Czech Republic (until 1997), Poland and Slovenia effectiveness of the heterodox approach can be seriously disputed. The idea of price control was completely irrelevant to the transition realities.

Price liberalization and removing price distortion were one of the preconditions of an initial fiscal adjustment (and, thus, success of stabilization program) and starting any structural and microeconomic reforms [see Dabrowski, 1996]. Hence, countries that delayed price liberalization or tried to come back to price control (for example, Belarus, Uzbekistan, Turkmenistan, Ukraine, and Bulgaria) recorded failures of stabilization programs or their serious delays. In fact, a successful orthodox program needs a widespread liberalization of all markets [see Rostowski, 1998].

Popularity of an exchange rate anchor should not be surprising. If we analyze 20th century history of fighting high inflation or hyperinflation, most of successful episodes involved this kind of anchoring. However, the actual advantages of ERBOP for most of CEE and FSU countries in the initial stage of transition were different from those for developing countries. Classical arguments in favor of ERBOP are connected with lower output costs of stabilization, fighting high inflationary expectations, currency substitution, etc. The latter was not a serious problem in most of transition countries at the beginning of 1990s. Apart from Poland, Hungary, and former Yugoslavia, peoples and enterprises in other former communist countries were not familiar with an open inflation and therefore, not prepared to protect themselves against an inflation tax. Additionally, dollarization was no so widespread as in many developing countries. Only after few years of transition economic, agents learned classical behavior from a high inflation economy. Thus, these countries, which either delay stabilization, or failed its first attempts, had to resort to exchange rate anchor in order to gain at least minimal credibility.

On the other hand, MBSP were technically very difficult for implementation. Radical price and financial liberalization, unfreezing monetary overhang and high inflation environment changed dramatically money demand function, which were very difficult to estimate. Central banks had very few monetary policy instruments in their hands, money and foreign exchange market only started to work, and two tiers banking system only began to be established. Most of economic agents did not understand basic macroeconomic categories, including monetary aggregates. Exchange rate target was easy to understand for everybody and easy to operate for monetary authorities. It was also expected to have a potentially

disciplining effect both for monetary and fiscal policy (what did not necessarily happen in each case, particularly in relation to fiscal policy – see below).

The above advantages of ERBOP were confirmed by transition experience. Even very superficial analysis shows that countries, which took down inflation quickly to single digit level (for example, Croatia, Macedonia, all three Baltic countries, Slovakia, Moldova, Georgia, Azerbaijan) used formally or informally an anti-inflationary exchange rate anchor. On the other hand, countries that subordinated exchange rate policy (and indirectly all the monetary policy) to balance of payments or export promotion targets (Hungary and Poland) recorded slow disinflation progress. Most of empirical research [e.g. Fischer, Sahay, and Vegh, 1996; Cottarelli, Grifiths, and Moghadam, 1998; Antczak and Gorski, 1998] confirms the importance of exchange rate policy for a speed of disinflation process.

1.3.2. Controversies around exchange rate targeting in moderate and low inflation environment

While using an exchange rate anchor for stopping high inflation or hyperinflation in the initial stage of transition is supported by many authors [see e.g. Sachs, 1996, Rostowski, 1998, Rosati, 1996], continuation of this regime in the phase of moderate or low inflation meets much more resistance. Stable exchange rate arrangements have become more frequently criticized after series of financial crises in emerging markets in 1995-1998 (Mexico, Thailand, Malaysia, Korea, Philippines, Indonesia, Russia, Ukraine, and Brazil)[13]. This led to a more fundamental debate about the monetary and exchange rate regimes in the world of a free capital movement.

Referring to Mundell-Fleming model and the principle of the 'impossible trinity' [Frankel, 1999] one can argue that any country must give up one of the three policy goals: exchange rate stability, monetary independence, and financial market integration. It cannot have all three simultaneously. Assuming that the increasing capital mobility is irreversible, the choice will be between monetary independence and exchange rate stability. In practice this means either retaining monetary independence under free floating exchange rate or giving up monetary independence by adopting an extreme version of exchange rate fixing, such as currency board, monetary union, or a unilateral adoption of a foreign currency.

Adopting one of the `corner' solutions means phasing out intermediate regimes, including the so-called fixed but adjustable (conventional) peg, crawling peg, crawling band, targeted band, and managed float. This view is gaining ground in the recent economic literature [Mundell, 1999; Krugman, 1999; Eichengreen, 1999].

Why the intermediate regimes will be difficult to run and will have probably to disappear in the future? The <u>first</u> and the most fundamental reason is that compromised solutions are unlikely to provide the advantages of both extremes, i.e. an exchange rate anchor and a sufficient discretion in managing domestic liquidity. On the contrary, they may bring both a substantial exchange rate variability (actual or expected when peg is not viewed as credible) and make money supply exogenous (i.e. being out of control of monetary authorities). <u>Second</u>, compromised regimes are technically very difficult because of

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[13] Sachs [1998] paper can serve as one of examples of the fundamental critique of a pegged exchange rate regime. Earlier the same author advertised the peg exchange rate as the main instrument in fighting inflation. Later on, he modified his view, arguing that exchange rate anchor can be useful for fighting very high inflation or hyperinflation only and for limited period of time, being replaced later by more flexible exchange rate arrangement in order to avoid overvaluation of domestic currency and a balance of payment crisis [Sachs, 1996].

fluctuating demand for money and changing market expectations. Moreover, the pressure from current economic and political conditions may bring temptation to go beyond the compromise. Third, transparency, and, therefore, credibility of intermediate regimes is lower than that of the extreme solutions. Exactly, this weakness of intermediate regimes, i.e. insufficient transparency and credibility has been strongly manifested during financial crises of the 1990s [Obstfeld and Rogoff, 1995; McCallum, 1999; Eichengreen and Hausmann, 1999; Institute for International Economics, 1999].

Taking the above arguments into consideration, one may argue that this not the exchange rate stability, which brings a danger of currency crisis (and reversal of the disinflation trend) but the attempt to manage simultaneously both exchange rate and domestic money supply, which can lead to depleting foreign reserves of the central bank or undermining credibility of the concrete exchange rate target and triggering a speculative attack.

Deciding on which `corner' solutions is better for the individual country should involve a careful assessment of advantages and disadvantages of both of them and country's specifics. For example, choosing monetary independence and floating exchange rate regimes can look attractive, for a number of reasons. First, country retains its monetary sovereignty what can be an important political and legal argument in many cases. Second, exchange rate remains as an ultimate shock absorber. Although government or central bank cannot use it as a direct policy tool (intentional devaluation or revaluation) under the floating exchange rate regime, it can expect that market exchange rate will follow changes in the trade flows unless they are counterbalanced by changes in financial flows (with the opposite sign). Third, if country represents a geographically diversified structure of its foreign trade choice of a concrete anchor currency (dollar or Euro in most cases) provides only partial external price stability and only partly eliminates the exchange rate risk in trade transactions. Currency basket reflecting country's structure of foreign transactions, which is the standard solution under the intermediate regimes is rather technically unrealistic under the currency board[14] not saying about adoption other country's currency. Fourth, there is also at least theoretical risk that foreign anchor currency will occur to be less stable in future than the domestic currency may be. Theoretically, this kind of danger does not seem to be serious and immediate for transition economies fighting still a low-credibility legacy of the past. However, if taken together with the previous one (diversified structure of trade payments) it can produce exogenous inflationary shocks what has been observed recently in transition countries anchoring their currencies to euro (see the previous section).

On the other hand, economic costs of running the independent monetary policy in the form of interest rate spreads and exchange rate risk (the former is, to a significant extent, the consequence of the latter) must be taken into account. This is strictly connected not only with the credibility of domestic monetary (and overall macroeconomic) policy but also with the phenomenon of currency substitution.

Increasing financial integration provides economic agents in most countries (also those applying partial capital controls) with an opportunity of effective currency arbitrage [see Dabrowski, 2000], regardless whether it is conducted between countries or between currencies in one country. As result, the monopoly power of the monetary authority to issue the national currency and to collect seigniorage becomes undermined.

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[14] However, in 2001 Argentine started to redesign its dollar denominated currency board into a currency board anchored to basket of dollar and euro (in 50-to-50 percent proportions).

Hence, it seems that an independent monetary policy and free floating is a very difficult and costly option for countries that suffer from high or moderate chronic inflation, have recent inflationary memory, low level of monetization, lack of sufficient political and institutional credibility what is the case of most transition countries. This implies that free float and independent monetary policy is a viable option only for large economies or economic blocks (for instance, US, Japan, and the Euro zone) and some other countries, which have managed to establish the international reputation with respect to their currencies and their monetary authorities (for example, Canada, Australia, New Zealand, Switzerland and UK, if decides to stay out of the EMU).

The above hypothesis is confirmed by the results of empirical research demonstrating the low credibility and high macroeconomic costs of floating and intermediate currency regimes in number of Latin American countries, opposite to Panama experience using the US dollar as a national currency [Eichengreen and Hausmann, 1999].

Arguments in favor of the ultimate fix corner solution are similar to those discussed in the context of the ERBOS programs: an exchange rate anchor allows for importing low inflation, and lower interest rates, provides an exchange rate stability and lower transaction costs. In addition, contrary to peg exchange rate under the intermediate regimes, it eliminates the devaluation risk and danger of using monetary policy for other purposes than achieving price stability. However, closing up all windows of central bank domestic credit and thus its lender of last resort function may create some problems for a banking sector stability.

This fundamental discussion has influenced, to certain extent, evolution of monetary/exchange rate regimes in transition countries. This relates particularly to Central Europe and Balkan region where some shift from intermediate regimes towards the so-called corner solutions can be observed. It is determined both by the unsatisfactory results of the previous hybrid regimes and, in some cases, by the political developments.

Responding to heavy currency and banking crisis in 1996 – early 1997, Bulgaria introduced the D-Mark denominated currency board from July 1, 1997. The same kind of monetary regime was introduced in Bosnia and Herzegovina in 1997-1998, as a consequence of the Dayton peace agreement. After the Kosovo crisis in 1999, this province being under the temporary UN administration introduced D-Mark as the legal tender. Also Montenegro introduced in 1999 D-Mark as the parallel currency (apart from the Yugoslav dinar). In October 2000 D-Mark (Euro) became the sole legal tender in this republic. Much earlier, two Baltic countries adopted the currency board regime: Estonia in June 1992 (D-Mark denominated) and Lithuania in April 1994 (US dollar denominated).

On the other hand, three Central European countries moved towards direct inflation targeting under the floating exchange rate arrangement. The Czech Republic introduced this regime from beginning of 1998 and Poland from the end of 1998. In June 2001 the same choice was declared by the National Bank of Hungary. In the case of Poland (from April 2000) this is a real pure float without any intervention of the central bank. In 1998 Slovakia also moved towards a floating exchange rate regime although without clear nominal anchor guiding its monetary policy operations. Until 2000, disinflation results of the direct inflation targeting seemed to be satisfactory in the Czech Republic, and not so good in Poland. The former managed to take inflation down to the very low level while the latter had serious problems with continuing the disinflation trend in the single-digit zone.

Summing up, an exchange rate anchor can be a feasible monetary strategy also in the

case of medium and low inflation, particularly when country suffers an inflationary inertia. However, fixing exchange rate must be credible enough and cannot be combined with simultaneous liquidity management. In addition, exchange rate anchor must be supported by the prudent fiscal policy (see section 1.4).

1.3.3. Exchange rate arrangements stimulating inflationary inertia.

As it was discussed in the previous section, an exchange rate mechanism can serve as a good anti-inflationary device anchoring domestic prices to the international level and taking down the inflationary expectation. However, the exchange rate arrangements can also work in the opposite direction inducing an inflationary inertia if they are subordinated to other target than disinflation. It concerns particularly crawling peg devaluation. Invented originally in developing countries with chronic high inflation as a mechanism smoothing unavoidable currency depreciation and calming inflationary and devaluation expectations it becomes, very often, an autonomous factor building the inflationary inertia.

Additionally, similarly to any other indexation mechanism, political economy factors start to work making difficult abandoning this device under new circumstances (for example, much lower inflation). Usually exporters' lobby tries to defend a crawling peg mechanism as long as possible raising all possible arguments about competitiveness, role of exports led growth, danger of balance of payment crisis, etc.

Continuing crawling peg in moderate inflation environment means perpetuating this phenomenon and subordinating monetary policy to the balance of payments or growth targets instead of disinflation targets. In fact, most of defenders of the crawling peg/band arrangement [see e.g. Sachs, 1996; Gomulka, 1998] explicitly or implicitly accept priority of the balance of payment targets over disinflation targets. However, this means, in practice, that monetary policy should accommodate weaknesses of fiscal policy and structural reform what, in turn, will not stimulate progress in these spheres.

Hence, the crawling peg/band regime is rather inconsistent with the consequent anti-inflationary orientation of the central bank. Apart from inducing inflationary expectation it can create a lot of problems with controlling money supply. Converting a crawling peg into a crawling band (what happened, for example, in Poland in May 1995) gives more room for a current monetary management but it does not eliminate inflationary inertia on the micro level.

Rybinski [1998] stresses that in countries, which adopted the crawling peg mechanism the expected exchange rate depreciation impact on inflation can be observed on a very micro level. Resident companies undertake the budgeting task one to three years ahead planning price increases, expansion of the workforce, development of real wages. For that purpose, companies often need to forecast the exchange rate path for the planned period. If the central bank is pursuing a preannounced crawling peg/band regime, then often the best available forecast of the future exchange rate is provided by the expected crawling peg scenario. Thus, expected depreciation of the central parity enters into inflation equation.

The effectiveness of crawling peg/band or any other types of controlled devaluation regimes for export promotion remains the open question. In industrialized countries depreciation of the currency can sometimes improve competitiveness in short and medium run without strong negative impact on domestic inflation. However, in developing or transition countries, lacking in credibility and highly indexed, the outcome maybe quite different: return of inflation without any sustainable competitiveness gains. This kind of effects have been

visible empirically both in Latin America where a crawling peg (*tablita*) was a very popular mechanism in the 1970s and 1980s, and in transition countries, particularly in Poland and Hungary.

Preannounced crawling peg/band arrangements have been formally adopted in Poland (1991-2000), Hungary (from 1995) and Russia (1995-1998; coming back from 2001) but less formally they also existed in some other countries such as Slovenia and Kazakhstan. However, Poland and Hungary as countries having the longest experience with this mechanism give the best evidence on its negative inflationary consequences.

Poland and Hungary have been often considered as belonging to the group of most advanced transition countries. They have succeeded in implementing many market-oriented institutional reforms and they have had high rates of economic growth. However, their disinflation record has not been particularly impressing (see section 1.2). Until very recently, both countries remained within the so-called moderate inflation range (i.e. between 10 and 40%).

The sources of persistent moderate inflation in Poland and Hungary seemed to be similar: monetary policies tended to accommodate fiscal imbalances for quite long time, entrenched inflationary expectations existed, indexation of labor and debt contracts and social security benefits was widespread, exchange rate regimes incorporated mechanisms of automatic devaluation in order to compensate exporters for inflation differentials [Antczak and Gorski, 1998]. The authorities have taken care more of domestic exporters' interests than disinflationary record. However, the current account balances of both countries have been determined rather by saving-investment imbalance and size of fiscal deficit than by the pace of nominal exchange rate depreciation [see Rybinski and Szczurek, 1998].

1.4. The Role of Fiscal Policy in Supporting Disinflation Process

Fiscal policy constitutes the second pillar (apart from monetary policy) of the effective disinflation strategy. The more is fiscal policy prudent and consequent, other things being equal, the bigger and more sustainable can be progress in lowering inflation, and smaller its output/employment costs. On the other hand, tight fiscal policy though necessary and desirable is not sufficient to guarantee a low inflation. This is confirmed by the experience of Slovenia and Poland where fiscal deficit close to zero (Slovenia) or remaining on the stable and rather low level (Poland) did not bring fast disinflation because of accommodating character of monetary and exchange rate policies.

1.4.1. Monetary financing of a fiscal deficit.

The inflationary impact produced by a fiscal deficit depends on the method of its financing. The governments can finance deficit either by increasing foreign or domestic debt, or by increasing liabilities due to a central bank (monetization of deficit). Each of the above methods of deficit financing may involve macroeconomic disequilibrium: additional money creation immediately stimulates inflation, growth in foreign debt may lead to problems with its service and to narrowing access to credit resources on foreign financial markets, whereas excessive domestic debt may lead to growth in real interest rates, which may involve falling into a trap of increasing cost of debt service, growth of deficit, growth of interest rates etc.

When fiscal deficit is financed by a central bank credit it results in increasing

monetary base (reserve money) and, assuming unchanged money multiplier, in proportional increase in broad money supply. Eventual inflationary effect depends on size of deficit financing, money multiplier, and demand for money (monetization level). Higher is the deficit financed from monetary emission and lower is the monetization level, stronger are the inflationary consequences of fiscal disequilibrium (other things being equal).

Figure 1.6: Overall General Government Balance and Central Bank Financing to the Government, 1992-7 (in % of GDP).

Country	Overall Balance						Central Bank Financing					
	1992	1993	1994	1995	1996	1997	1992	1993	1994	1995	1996	1997
CEE countries												
Albania	-21.8	-15.4	-13.0	-10.4	-12.6	-13.1	20.0	9.1.	6.6	2.0	1.0	6.0
Bulgaria	-5.2	-10.9	-5.8	-6.3.	-13.3	-2.6	6.0	11.0	5.5	4.9	14.5	-0.1
Croatia	-3.8	-0.8	1.5	-1.0	-0.4	-1.3	...	...	-0.7	0.5	-0.1	0.0
Czech Rep.	...	...	-1.2	-1.8	-1.2	-2.1	...	-2.1	-2.4	-1.0	-0.8	0.7
Hungary	-6.9	-8.5	-8.3	-7.1	-3.1	-4.6	16.5	13.2	11.2	7.5	7.3	1.7
Macedonia	...	-13.8	-2.9	-1.2	-0.4	0.4	...	...	1.3	0.1	0.1	0.4
Poland	-7.5	-4.0	-2.0	-2.7	-2.5	-2.3	5.2	1.5	1.5	0.1	0.1	0.5
Romania	-4.6	-0.4	-1.9	-2.6	-4.0	-3.5	...	...	...	...	...	...
Slovakia	-11.9	-7.0	-1.3	0.2	-1.3	-5.1	...	...	...	...	...	1.5
Slovenia	0.2	0.3	-0.2	0.0	0.3	-1.5	0.0	0.0	0.0	0.0	0.0	0.0
FSU countries												
Armenia	-37.3	-54.3	-10.1	-11.1	-9.3	-6.7	...	...	3.5	0.4	1.4	-1.4
Azerbaijan	-27.9	...	-11.4	-4.3	-2.6	-1.3	0.0	11.4	8.2	-2.7	1.4	-0.6
Belarus	0.0	-1.9	-2.5	-1.9	-1.6	-1.2	...	...	0.8	2.6	1.4	0.4
Estonia	-0.3	-0.6	1.3	-1.2	-1.5	2.0	...	0.0	0.0	0.0	0.0	0.0
Georgia	-62.3	-26.1	-16.5	-4.5	-4.4	-3.7	...	...	2.0	1.8	2.7	2.2
Kazakhstan	-7.3	-1.2	-7.2	-2.0	-2.5	-3.6	...	...	3.2	1.7	-0.1	-0.3
Kyrgyzstan	-14.8	-14.4	-11.6	-17.3	-9.5	-9.4	...	0.7	1.3	7.8	1.9	0.4
Latvia	-0.8	0.6	-4.0	-3.3	-1.3	1.3	0.0	0.0	0.0	0.0	0.0	0.0
Lithuania	0.0	-5.5	-4.8	-4.5	-4.6	-1.4	0.0	0.0	0.0	0.0	0.0	0.0
Moldova	-23.9	-7.4	-9.1	-5.8	-6.6	-6.8	26.1	5.0	1.9	1.5	-0.7	1.4
Russia	-18.2	-7.3	-10.4	-5.8	-8.1	-7.5	9.2	5.9	8.1	1.6	2.1	...
Tajikistan	-30.5	-23.4	-5.1	-11.2	-5.8	-3.3	30.6	24.8	9.6	13.1	2.3	1.5
Turkmenistan	13.3	-0.5	-1.4	-1.6	-0.8	-0.4	9.9	6.0	1.6	1.8	-0.2	0.4
Ukraine	-23.2	-9.7	-8.2	-5.0	-3.2	-5.1	23.8	14.1	8.9	5.6	2.1	1.4
Uzbekistan	-18.4	-10.4	-6.1	-4.1	-7.3	-2.3	...	...	4.8	1.4	6.8	1.3

<u>Source</u>: Cottarelli and Boyle, [1999, table 5]

In most countries the role of central bank direct credit to government was predominant during first years of transition when other sources of deficit financing, particularly T-bills market were not available yet. Even Hungary, considered as one of reform leaders, did not avoid a substantial role of central bank credit in financing fiscal deficit in the first half of the 1990s. In fact, central bank involvement in deficit financing became the most important factor staying behind initial high inflation/hyperinflation episodes in most of transition countries, apart from the earlier mentioned unfreezing accumulated monetary overhang [see Antczak, 1998].

Officially recorded fiscal deficits on the cash basis do not necessarily cover all the cases of fiscal disequilibrium. Apart from the officially recorded fiscal operations there can be also other activities of government, public agencies, central bank or commercial banks involving expenditures of quasi-fiscal character in present time or in future. This was particularly frequent phenomenon in the beginning of transition when central banks were still

heavily dependent on government and parliament, most of commercial banks publicly owned, and fiscal accounting standards did not meet the international norms [Markiewicz, 1998].

As the markets of treasury bills developed, the scale of monetary financing of fiscal deficits diminished in most of the transition countries, sometimes very spectacularly (see **Figure 1.6**). For example, in Moldova the size of this financing decrease from 26.1% of GDP in 1992 to –0.7% of GDP in 1996, in Ukraine – from 23.8% of GDP in 1992 to 1.4% of GDP in 1997, in Tajikistan – from 30.6% to 1.5% of GDP in the same period of time, in Albania – from 20.0% in 1992 to 1.0% of GDP in 1996.

However, when government found itself in the debt trap and faced problems with continuing financing of the fiscal deficit and rolling over the existing stock of debt, the ratio of the central bank credit to government suddenly increased, thus creating an additional inflationary pressure. For example, returning to central bank crediting a fiscal deficit could be observed in Russia, Ukraine, and Moldova in 1998 when market demand for government T-bills failed dramatically as result of credibility crisis (see below). The most spectacular reversal happened, however, in Bulgaria in 1996 when the size of the National Bank of Bulgaria credit to government jumped to 14.5% of GDP from the level of 4.9% of GDP a year before.

1.4.2. Non-monetary financing of a fiscal deficit

As macroeconomic stabilization and institutional reforms in transition countries progressed other than central bank credit sources of deficit financing have become available. It relates, in first instance, to a domestic Treasury bills (T-bills)[15] market, external borrowing from the official creditors and from the private sources. Theoretically, access to the above mentioned sources should stop or at least relax an inflationary pressure coming from fiscal deficits. Here we touch, however, the very fundamental problem of the role of fiscal equilibrium in guaranteeing a sustainability of disinflation process.

Starting from theoretical arguments, in 1994-1995 a very interesting polemics between Jeffrey Sachs and the IMF related to strategy of primary macroeconomic stabilization in post-communist countries took place [Sachs, 1994a; Sachs, 1994b; Hernandez-Cata, 1994]. Sachs' point of view was that the IMF had adopted too tough (from the political point of view) fiscal stance in relation to Russia in 1992-1993[16] when stabilization package could rely more on the fixed exchange rate as the main anti-inflationary anchor and on non-inflationary sources of financing the remaining fiscal deficit (i.e. through T-bills market and external financial assistance). Fixed exchange rate should bring inflationary expectations down relatively quickly and increase demand for domestic currency what would increase the room for maneuver in the monetary policy area. Of course, this kind of stabilization strategy needs a quite substantial external financial aid: both for partial financing the deficit, and for building up the international reserves of a central bank backing the fixed exchange rate.

In fact, these CIS countries which achieved progress in disinflation in 1995-1997 have followed Sachs recommendations. In almost all the analyzed cases, a stable exchange rate (*de facto*; *de iure* it has often remained floating) and significant reduction of deficit financing

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[15] For purpose of this paper the broad definition of T-bills will be used, including other kinds of government securities and government borrowing on commercial terms.

[16] This critique was not correct as the most of the STF (Systemic Transformation Facilities) programs implemented at that time in CIS countries by the IMF contained rather very loose fiscal deficit target (even up to 10% of GDP when monetization did not exceed 20% of GDP) [see - Dabrowski, 1998].

from the money emission (and quasi-fiscal operations of central banks) have been the main factors staying behind price stabilization. However, fiscal deficit has remained on the level of at least 5% of GDP and has been financed either from external sources or through T-bills emission.

International assistance in the form of grants offered by the developed countries and special credit windows of the IMF (ESAF - Enhanced Structural Adjustment Facility), and the World Bank (cheap credits offered by the IDA) has played an important role in the low income countries such as Albania, Moldova, Georgia, Armenia, Kyrgyzstan, and Mongolia. In some of the CIS countries, for example in Kyrgyzstan, the stock of public debt increased rapidly, from zero level just after the dissolution of the USSR up to more than 100% of GDP in the end of decade [see Brudzynski, Chokoev and Markiewicz, 1998; Siwinska, 1999].

Russia, Ukraine, Bulgaria, and Romania have also used external financing but it has been granted predominantly on market conditions. Russia, Ukraine, and Kazakhstan developed domestic market of T-bills, following earlier experience of Hungary and other countries of Central Europe. The involvement of foreign portfolio investors into domestic T-bills market and issuing government bonds denominated in foreign currency placed on the international financial markets have become the next stages of easing up the fiscal constraints in CIS countries. Situation, which prevailed in the international financial markets in 1996 and in the first half of 1997, i.e. excess of free resources and readiness of financial investors to be engaged into emerging markets, made this form of deficit financing relatively cheap and easy (especially under prevailing stable exchange rates).

However, massive domestic and external borrowing could solve fiscal problems and support macroeconomic stability in short run only. Increasing debt overhang (the pace of debt accumulation was particularly fast under continuos decline of GDP) led to explosion of interest payments and created the `debt trap'.

1.4.3. Episodes of `debt trap' and financial crises

A relatively short history of economic transition can already give a number of striking examples of government liquidity problems and devaluation crises caused by excessive fiscal deficits: Hungary in 1994-1995, Kyrgyzstan in 1996 and 1998-1999, Romania in 1996-1997, Bulgaria at the end of 1996 and beginning of 1997, Russia, Ukraine, Moldova and Georgia at the second half of 1998, Kazakhstan in 1999.

Bulgaria's crisis of 1996-1997 resulted from slow and inconsequent structural reforms, weak fiscal and monetary policies, and the very high domestic and foreign debt exceeding the level of 100% of GDP. Massive bailing out the loss making enterprises and banks became the substitute of privatization and restructuring based on hard budget constraints. It put a new debt burden on the government finances, in addition to the old debt inherited from the communist period, bringing the Bulgarian economy to the situation of a real `debt trap'.

The lack of financial discipline also led to banking crisis in the beginning of 1996, which overlapped with an overall macroeconomic destabilization. Premature attempts to decrease interest rate by the NBB in the end of 1995 (in order to relax the interest payments burden of the state budget) became a detonator of the serious crisis and finally brought results completely opposite to the expected ones. Decreasing interest rates provoked chain reaction: decline in demand for leva, capital outflow, foreign exchange market crisis, dramatic collapse of the exchange rate of leva, inflation shock and further decline in demand for leva. The NBB

effort to stop this spiral by increasing interest rates came too late and was insufficient in scale. However, it brought the dramatic increase of interest payments: in 1996 they reached the level of 20% of GDP (!) while the total tax revenue amounted to 25.5% of GDP. Fiscal deficit amounted to 13.4% of GDP, in spite of the drastic reduction of all expenditure items, apart from interest payments.

Russian, Ukrainian, Moldovan and other CIS countries developments two years later looked very similar to the Bulgarian ones. Series of Asian crises in 1997 and thus growing instability of international financial markets reduced drastically the availability of relatively cheap external financing for emerging markets. Reacting on a changing international atmosphere and signs of domestic political and fiscal instability, non-resident investors decided to withdraw their holdings from the T-bills markets of all CIS countries. It brought immediately two kinds of problems: liquidity crisis of the government, and pressure on the official foreign exchange reserves. The next step was the speculation of both non-residents and residents against the exchange rate, which, as it was mentioned before, constituted the only real stabilization anchor. Attempts to defend exchange rate were very costly in terms of lost foreign reserves and high interest rates but did not stop the speculation and only drastically increased the interest payments. Central banks had to return to financing a fiscal deficit, mainly through rolling over the existing stock of T-bills. This caused the further erosion of the exchange rate.

Finally, devaluation became unavoidable and it happened first in Russia on August 17, 1998, and in the next weeks in most of other CIS countries. Devaluation led to the new wave of inflation, banking crisis (especially serious in Russia and Kyrgyzstan), further explosion of interest payments, shift from domestic currency to foreign currencies, and stimulated continuos capital outflow (despite introduced foreign exchange restrictions). Default of the Russian government on the T-bills market and 90 days moratorium on repayment of Russian commercial bank liabilities finally undermined the country credibility among investors. The Ukrainian crisis although a little bit less severe than the Russian one brought very similar consequences [see Dabrowski et al., 1999].

As result of Russian and Ukrainian crises, other CIS countries experiencing problems with persistent fiscal disequilibrium became in the end of 1998 subjects of speculative attacks of both domestic and foreign investors. This relates, among others, to Belarus, Moldova, Kyrgyzstan, Kazakhstan, Armenia and Georgia. Transition countries having stronger fiscal and macroeconomic fundamentals, i.e. most of Central European and Baltic countries, could avoid adverse contagion effect coming both from Asian and Russian/Ukrainian crises.

1.4.4. The role of fiscal policy and central bank independence

The above empirical examples clearly show that non-monetary financing of fiscal deficit can be also inflationary though inflationary consequences usually comes with a certain time lag. This observation led Markiewicz [1998] to the conclusion that the so-called unpleasant monetarist arithmetic does exist in transition economies. It relates to the famous Sargent and Wallace [1981] concept according to which monetary and fiscal policies cannot be separated (at least in longer perspective).

They point out that debt financing in the long run may be inflationary. The argument is as follows: if government builds up excessive debt burden, that becomes too large to finance by taxes or more borrowing, than the only way for the government to meet the payments is to print money. In that case debt financing only postpones monetary financing. If rational

economic agents perceive the debt burden as excessive, they will assume that today's debt implies a large growth of money stock and inflation in the future. The expectations of inflation will fuel present inflation. Paradoxically, a restrictive monetary policy, but one that allows for the expectations of future higher interest rates and large costs of debt servicing, can be more inflationary than monetary policy that accommodates fiscal policy.

CIS countries' experience in 1997-1998 (see the previous section) seems to support the thesis that monetary policy alone has limited room of maneuver. Even relatively conservative and tough central banker must give up in some point when fiscal authorities are unable to prevent default on the T-bills market.

Both the Sargent-Wallace theory and above empirical observations lead us to another interesting question. If this is the fiscal policy, which plays the decisive role in fighting inflation and the room of maneuver of monetary policy is limited, what will be the rationale of recommending the central bank independence? The later is intended, among others, to protect monetary policy from fiscal policy pressures.

Thus, the Sargent-Wallace concept if fully accepted could have far going consequences for the economic policy and institutional solution. However, this concept can be challenged both on the theoretical and empirical grounds. According to Parkin [1987] an independent central bank may discipline fiscal authorities and, thus, contributing to lowering a primary fiscal deficit. Sachs and Larrain [1993] argue that although debt financing by itself does not allow the government to escape inflation, it gives time to adopt the desired fiscal adjustment measures. However, as empirical evidence shows in transition economies this time buffer is rather short.

Numerous empirical research [see e.g. Cukierman, 1992; Bade and Parkin, 1988; Alesina, 1989; Grilli, Masciandaro and Tabellini, 1991; Eijffinger and Schaling, 1993] demonstrate the clear negative correlation between the central bank independence and inflation level. Similar conclusions are provided by Maliszewski [1997] who carried out the comparative analysis of 16 transition countries.

Thus, central bank independence and prudent monetary policy consequently subordinated to a price stability target have a big importance for the successful disinflation process. However, improper monetary-fiscal policy mix (i.e. too restrictive monetary and too loose fiscal policy) can decelerate or even reverse a disinflation trend. Moreover, it can significantly increase economic and social costs of fighting inflation as high public sector borrowing requirements crowd out credit for a private sector, and build up the inflationary/devaluationary expectations.

1.5. Conclusions

The above analysis leads to the following conclusions:

First, low inflation helps economic growth. Fast and consequent disinflation can give evident benefits in medium and long run. Although breaking down the accumulated inflationary inertia (which is the problem in several transition economies) can result in temporary decreasing the rate of economic growth, over-dramatizing these costs seems to be unjustified as they can be quickly compensated by benefits of sustainable low inflation level.

Second, success in fighting inflation depends, in first instance, on monetary policy,

which should be tight enough and consequently oriented towards price stability. Subordinating monetary policy to other targets than price stability, such as stimulating economic growth through short-term manipulation of global demand or export promotion, result in undermining credibility of monetary authorities, delaying disinflation process, and building up so costly inflationary inertia.

Third, the exchange rate based stabilization strategies occurred to be the most effective in fighting inflation in transition economies. However, such a strategy will not be sustainable if not supported enough by a prudent fiscal policy (and structural reforms determining, to a significant extent, fiscal balances). In addition, when economy starts to integrate itself with a global financial market, attempts of an active domestic liquidity management while maintaining exchange rate peg can easy lead to speculative attack and currency crisis. Thus, continuing the exchange rate anchor (what makes a lot of sense in the case of small open economies, lacking in sufficient credibility of their macroeconomic policies) needs in giving up the monetary policy independence and following the very conservative fiscal policies.

Fourth, sustainability of disinflation is determined not only by the monetary policy but also by the fiscal policy and the proper mix of both. Even the most anti-inflationary determined monetary policy must fail in the situation of chronic fiscal crisis what was confirmed by the Bulgaria and CIS countries' experience. On the other hand, tight monetary policy carried out by the really independent central bank can discipline, at least to certain extent, the fiscal policy.

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