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Options for the exchange rate policies of the EU accession countries (and other emerging market economies)

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1. Introduction

After the Euro has been launched successfully, the ECB and the accession countries have begun to discuss the processes which would lead to an EMU membership of these countries. It is not surprising that at this stage, the „Helsinki Seminar", which brought together central bankers from accession countries and from the ECB on 12 November 1999, has led to rather general conclusions:

„ (...) no common path should be prescribed to all 12 accession countries with regard to the orientation of their exchange rate policies prior to accession, the inclusion of their currencies in ERM II or the later adoption of the Euro. Against the background of different starting-points for the economic reform process and the difficulty of ascertaining the lead-time for further headway towards nominal and real convergence, a plurality of approaches should be feasible without compromising equality of treatment (...)".[1]

As the topic has many important dimensions,[2] our paper concentrates on one aspect that plays an increasing role in the discussion on exchange rate regimes: the danger of destabilising capital inflows.[3] In the last few years several emerging market economies have been threatened by a new generation of currency crises which in Krugman's (1998) words is characterised „by financial excess and then by financial collapse". Our main question is therefore, whether the accession countries can follow exchange rate targets on their path to EMU without incurring the risk of excessive capital inflows which sooner or later would lead to a collapse of their currencies and severe economic disruption. In this context it is also important to discuss whether capital inflow controls which have been proposed by many economists would be a useful policy instrument.[4] Of course, any strategy for exchange rate policy can only be successful if the overall macroeconomic policy is stability-oriented. In this paper, it is assumed that the transition countries are following such policies so that the risk of capital outflows because of inflationary policies can be neglected.[5]

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[1] ECB Press Release (www.ecb.de/press/pr91112.htm)
[2] A very important topic which we do not discuss is the identification of equilibrium exchange rates. For a comprehensive analysis see Begg et al. (1999).
[3] See Council on Foreign Relation (1999).
[4] See Council on Foreign Relation (1999, p. 3): "Emerging market economies with fragile financial systems should take transparent and non-discriminatory tax measures to discourage short-term capital inflows and encourage less crisis-prone, longer-term-ones, like foreign direct investment." See also Begg et al. (1999, p. 7) , Reisen (1998) and Radelet and Sachs (1998b, p. 71).
[5] For a comprehensive discussion of the requirements in other fields of macroeconomic policy see Kopits (1999).

While the paper focuses on the five „lead accession countries" (Czech Republic, Estonia, Hungary, Poland, Slovenia), the main results are to some extent also relevant for the other transition countries and for exchange rate policies of emerging market economies in general.

In section 2 we present a simple roadmap for the path from the present situation to the final aim of monetary union. In section 3 we discuss the main options for exchange rate policy in stage I which leaves the accession countries a very broad spectrum for country-specific solutions. Section 4 analyses the mechanics of exchange rate targeting under the specific conditions of a disinflation phase. The problems of a fixed nominal exchange rate target are the topic of section 5. We show that under this arrangement central banks are inclined to follow interest rate policies that are inconsistent with an equilibrium on international financial markets. Only for very small countries and for countries with a rather small inflation differential vis-à-vis the anchor currency, a strategy of permanently fixed exchange rates is advisable. For all other countries a flexible exchange rate targeting is recommended. Section 6 explains why such an arrangement is much less prone to excessive capital inflows. These theoretical considerations are supported by the empirical evidence from Asia, Latin America and Eastern and Central Europe. In section 7 the main lessons for the exchange rate policy of the accession in stage I are presented. They are compared with the medium-term monetary policy strategies of the Czech Republic, Hungary and Poland. While the strategies of all three countries are flexible enough to avoid the risk of capital inflows, the framework of the Czech National Bank lacks a sufficiently transparent monetary anchor. Section 8 analyses in which way EU accession will change the framework for exchange rate and monetary policy in the new member countries. In our view stage II still leaves ample leeway for country specific approaches. This is different in stage III, the two-year period preceding final EMU entry. As the parity that is decided at the beginning of this stage constitutes a ceiling for the final conversion rate, the accession countries should carefully analyse at a very early stage (at best when still in stage I) whether a precautionary devaluation vis-à-vis the Euro is required.

2. The roadmap to EMU

Although the concrete institutional frameworks are still open, the overall roadmap from present institutional arrangements to final EMU membership seems quite clear. All accession countries will have to go through three different stages:

- Stage I covers the period from now on until the accession to European Union.
- Stage II extends from EU entry until the two-year period that has to precede the date of final EMU membership.
- Stage III covers the last two years before EMU entry and is identical with the testing period for the criteria of convergence.

During stage I the accession countries have no specific exchange rate relations with the Euro and the ECB. Thus, from an institutional point of view they are in the same situation as all other emerging market economies. Stage II implies above all the adoption of the „acquis communautaire". In addition the institutional framework of ERM II is available for the member states from Central and Eastern Europe. It includes intervention support and intervention credits from the ECB and the obligation for the new members to keep their exchange rate vis-à-vis the Euro within a ± 15 % band around the Euro parity. In stage III the new members have to comply with the requirements of Article 121 (ex Article 109j) of the Treaty, which defines the four criteria of convergence. For the exchange rate policy of an EMU candidate the relevant criterion stipulates:

„ (...) the observance of the normal fluctuation margins provided for by the exchange rate mechanism of the European Monetary System, for at least two years, without devaluing against the currency of any other Member State (...)".

In the following we shall concentrate on the first stage as it can be designed with rather different institutional options. Stage II differs relatively little from stage I and stage III leaves not very much room for country specific arrangements.

3. Options in the pre-accession stage (stage I)

For stage I we assume that the five lead accession countries can already be treated as „normal" market economies. This is widely confirmed by the rankings that the EBRD has given to these countries in its Transition Report (Table 1) and by recent econometric studies (Golinelli and Rovelli 1999).[6] Of course, there are still specific problems above in the field of

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[6] See also Begg et al. (1999, p. 1): "In fact, to a surprising extent general principles apply to the transition countries. "

financial sector restructuring, but they are of minor importance for the macroeconomic issues that are discussed here.

Table 1: Transition Report rankings

	Large-scale privatisation	Small scale privatisation	Governance & enterprise restructuring	Trade & foreign exchange system	Banking reform & interest rate liberalisation	Securities markets & non-bank financial institutions
Czech Republic	4	4+	3	4+	3	3
Estonia	4	4+	3	4	3+	3
Hungary	4	4+	3+	4+	4	3+
Poland	3+	4+	3	4+	3+	3+
Slovenia	3+	4+	3-	4+	3	3

Progress in transition measured on a scale from 1 to 4+ with 4+ signifying standards comparable to advanced industrial economies

Source: EBRD (1999)

The pre-accession stage prescribes no specific institutional arrangements for the exchange rate policies of prospective member countries. Thus, the accession countries are completely free in choosing an exchange rate strategy that is tailored to the requirements of their economy. In principle, three approaches are possible:

- a **fixed nominal exchange rate target**, either in the form of a currency board or a unilateral peg, e.g. like Austria's „Hartwährungspolitik" vis-à-vis the D-mark,
- a **flexible nominal exchange rate target**, either in the form of a pre-announced crawl or crawling band, of a non-announced crawl („managed floating") or in the form of a unilateral fixed peg with frequent discrete adjustments,
- a **freely floating exchange rate**, which implies that the central bank is not aiming at a certain target for the exchange rate. This case can be differentiated from all forms of an flexible exchange rate targeting by the criterion of a constant level of foreign exchange reserves.

With this classification we do not make a categorical difference between „managed floating" and a crawling peg. For the interaction between interest rate and exchange rate policy the

public announcement of an exchange rate target is of secondary importance. As the announcement has an important effect on the transparency of monetary policy, will discuss it in the context of country-specific monetary policy strategies (section 7).

In the following, the option of a **freely floating exchange** rate will not be analysed in detail. Above all, the empirical evidence of flexible exchange rates is rather devastating. In the last 25 years countless econometric studies on the determinants of flexible exchange rates have been published. Almost all of them have come to the clear result that „fundamentals" however defined have no systematic impact on the exchange rate under a floating system - at least over time horizons of up to four or five years. Isard (1995, p. 138) summarises the evidence as follows:

"In short, neither the behavioural relationships suggested by theory, nor the information obtained through autoregression, provided a model that could forecast significantly better than a random walk. And furthermore, while the random walk model performed at least as well as other models, it predicted very poorly."

For small open economies a completely unpredictable exchange rate would make it very difficult to achieve macroeconomic stability. In addition, foreign exchange markets in emerging market economies are relatively thin, so that some large transactions could have an even more destabilising effect. In sum, we agree with the conclusion by Eichengreen et al. (1998, p.3):

„For developing and transition countries, as with the smaller industrial countries, there are good reasons why the right exchange rate regime (except perhaps in cases of continuing high inflation) is not something close to an unfettered float."

In fact, with the exception of the exchange rates between the three key currencies (dollar, Euro, yen) there are almost no countries that have deliberately refrained from foreign exchange market intervention.[7] From the five lead accession countries Slovenia is regarded as a „floater", but Figure 1 shows that its central bank has systematically intervened to keep the Tolar/DEM rate stable: after a rather short period of constant reserves (September 1992 to April 1994) which had led to a massive depreciation vis-à-vis the D-mark, strong D-mark purchases prevented a subsequent appreciation of the Tolar.

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[7] See Jadresic et al. (1999, p. 9): "Indeed, while an increasing number of these countries (together with the emerging market economies) officially describe their exchange rate regimes as 'managed float' or 'independent floating' (...), the fact is that most of these countries do maintain some form of *de jure* or *de facto* exchange rate peg or otherwise narrowly limit fluctuations of the exchange rate."

Figure 1: Exchange rate and reserves (in millions of US-$) Slovenia
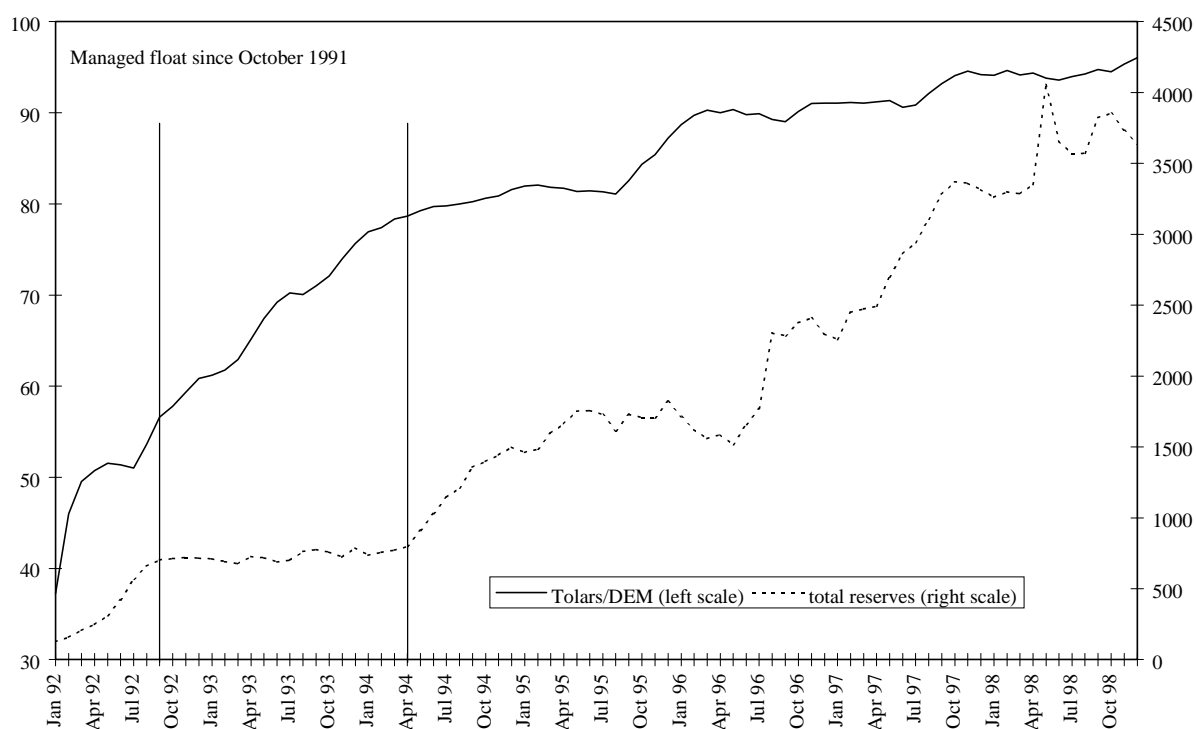
Source: IFS

Besides the definition of the target, a comprehensive strategy for exchange rate policy has to determine the **width of the band** around the exchange rate target and the anchor currency and it has to decide whether **capital controls** for short-term capital flows will be imposed.

4. The mechanics of exchange rate targeting in a disinflation phase

For all forms of exchange rate targeting it is important to differentiate between two main transmission channels: the exchange rate channel and the interest rate channel. Even if a central bank is committed to an exchange rate target, it has to be aware of the fact that domestic interest rates have an important effect on the domestic economy − either via the traditional IS/LM channel or via the balance sheet channel (Bernanke and Gertler 1995). This co-existence of an internal and external lever of monetary policy is of special importance if a policy of exchange rate targeting is conducted in a period of disinflation.

In fact, almost all accession countries still have inflation rates that are higher than the average HCPI inflation rate of the Euro area which is currently 1.4 % (Figure 2). In this regard they

are in a similar situation as most ERM I countries in 1979 when their inflation rates exceeded the German rate considerably.

Figure 2: Inflation rates in accession countries and Euro area (1994-99)
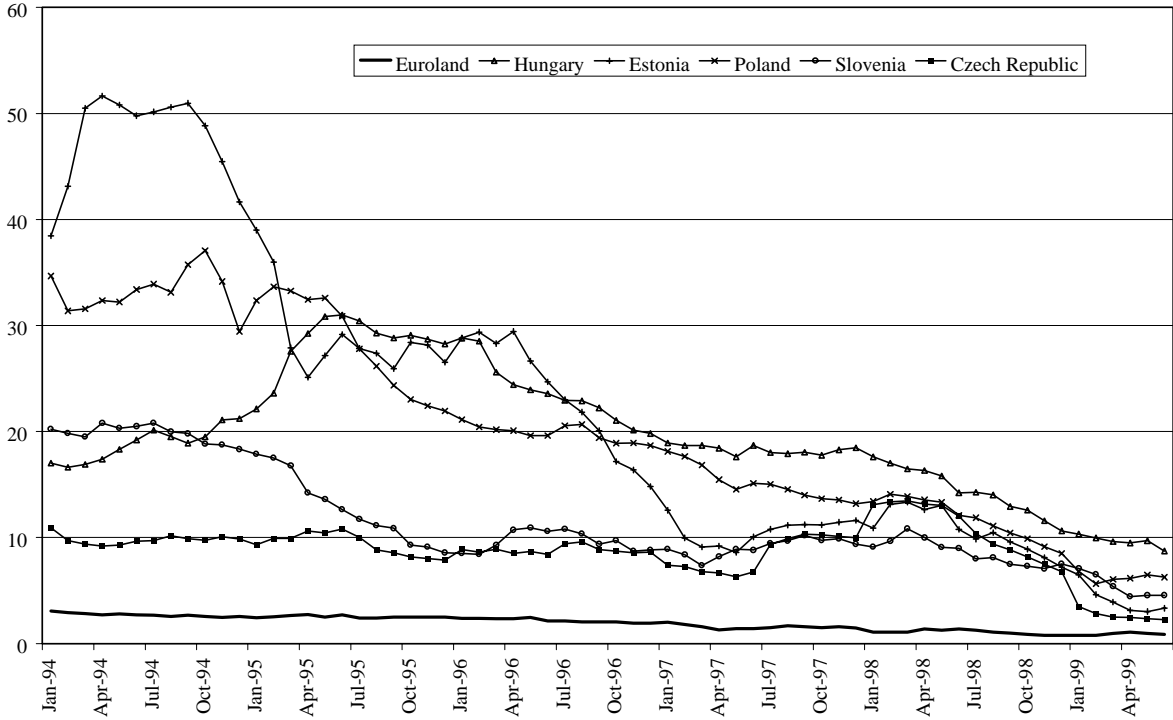
Source: IFS

It is obvious that any form of exchange rate targeting has to observe two important constraints. From the real side, a constraint is set by **purchasing power parity**. If a policy of exchange rate targeting leads to a substantial real appreciation, it undermines the competitiveness of domestic producers, increases unemployment and leads to growing current account deficits. Kaminsky et al. (1998) show that a real appreciation is a very serious warning signal for a currency crisis. From the financial side, an important constraint is set by the **uncovered interest parity** (UIP) condition. Our paper concentrates on this constraint, because it provides an important explanation for the problem of speculative capital inflows.

Applied to a policy of exchange rate targeting, the uncovered interest parity (UIP) condition can be written as

(1) $\Delta s^T + \alpha = i - i^*$.

The targeted depreciation of the logarithm of the domestic currency Δs^T plus a risk premium α on the expected depreciation[8] has to equal the difference between the home interest rate i and the interest rate of the anchor country i^*.

This condition can be formulated for different **time horizons**. In the context of monetary policy it seems useful to use it for relatively short periods (one or three months). This is due to the fact that short-term interest rates are normally the main operating target of central banks. Thus, for that time horizon the UIP condition allows to analyse the interrelationship between the foreign and the domestic levers of monetary policy. It also takes into account the rather myopic behaviour of foreign exchange market participants.[9]

If the domestic central bank completely refrains from an autonomous interest rate policy, the domestic interest rate is only determined by the three other variables of the equation and there is always an equilibrium for short-term capital flows.

Figure 3: Interest differential and exchange rate Estonia
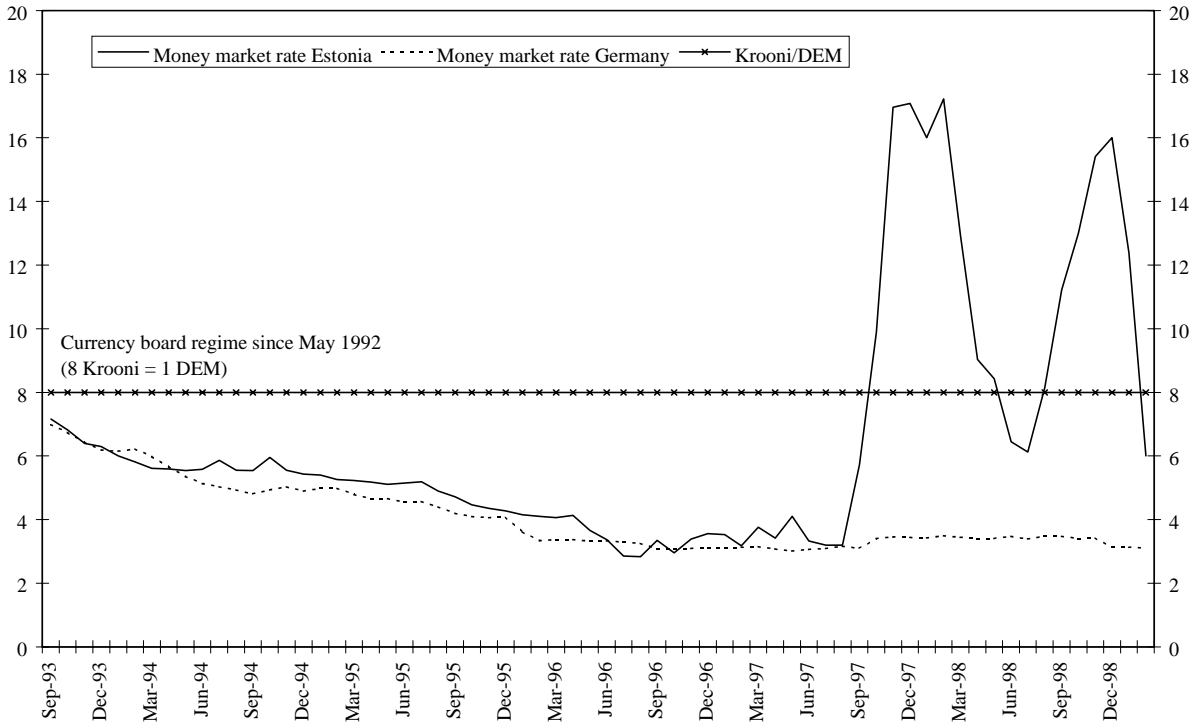
Source: IFS

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[8] The term "risk premium" as it is used here and in the literature (see Isard 1995, p. 84) is defined as a risk premium on the expected *exchange rate* change. Thus it is different from the literature on financial markets where risk premia are added to a risk free *interest rate*.

This situation is typical for a **currency board**, where traditional instruments for targeting domestic short-term rates are not available. Figure 3 shows that the money markets rates in Estonia remained remarkably close to German money market rates until the outbreak of the Asian crisis. Thus, the decisive feature of a currency board is a completely endogenous domestic interest rate.

In all other forms of exchange rate targeting central banks can try to target the domestic interest rate together with the exchange rate. The best indicator for an interest rate policy that is incompatible with UIP are high short-term capital inflows or outflows. Thus, the problem of excessive capital inflows simply shows a persistent violation of this equilibrium condition. And all proposals to impose capital controls mean nothing else but to suspend this condition so that countries can follow interest rate policies that are incompatible with UIP. If a disequilibrium leads to capital inflows, the increase in reserves has to be sterilised, at least partially. The co-existence of strong capital inflows with a constant or sometimes increasing interest rate differential indicates that sterilised interventions can be much more efficient than it is recognised by the literature. As Table 2 shows, the ratio of domestic assets to total assets declined in almost all cases considerably.

Table 2: Exchange rate targeting and changes in central bank portfolios

	Period with a fixed rate	Interest rate differential vis-à-vis the dollar	Increase in reserves ($ million)	Share of domestic to total central bank assets at the beginning	Share of domestic to total central bank assets at the end
Indonesia	1987-96 (avg. crawl: 4.0% p.a.)	7.0	14,200	67.9	24.0
Korea	1992-96	8.4	20,336	69.3	48.9
Thailand	1987-96	3.1	34,927	60.0	15.6
Malaysia	1986-96 (almost fixed, 2.8% total appr.)	-0.3 1.9 (92-96)	22,097 16,123 (92-96)	16.5	21.7
Czech Republic	1991-96	7.4 (DM and $)	8,563	40.4	29.5
Italy	1987-90	7.1 (DM)	52,990	68.2	59.6
Argentina	1991-98	11.3 (91-98) 2,3 (93-98)	20,160	82.8	26.0
Brazil	1994-98 (avg. crawl: 0.0002 Reais/day)	28.4	11,976		
Mexico	1990-93	19.2	18,781	69.3	30.3

Source: IFS

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[9] The "anomal behaviour" of floating exchange rates in the context of the uncovered interest parity theory is due to time horizons that are even shorter than the one or three month periods for which econometric tests of the

If a central bank tries to use the interest rate channel in addition to the dampening effects of exchange rate targeting, it can determine the domestic interest rate with a open-economy Taylor rule:

(2) $i = r + \pi + \beta(\pi-\pi^T) + \gamma(y-y^P)/y^P + \delta\Delta s^T$ with $\beta,\delta,\gamma > 0$.

According to this rule, the domestic interest rate is calculated as the sum of an average real interest rate r plus the actual inflation rate π, the weighted difference between the actual inflation rate and the target inflation rate π^T, and the weighted output gap. As the Taylor rule has been developed for large economies, it has to be applied to smaller open countries in a somewhat modified way. The domestic interest rate also depends on the degree of monetary pressure exerted by the exchange rate channel. The term $\delta\Delta s^T$ implies that domestic interest rate has to be higher if the central bank targets a depreciation of the exchange rate. Accordingly, the values for β and γ should be lower than ½ which are the values that Taylor calculated for the United States, because in addition to the interest rate channel monetary restriction is also exerted via the exchange rate channel. Assuming for simplicity that in the home and the anchor country the output gap is zero, that the anchor currency has no inflation problem, and that r is identical in both countries, the interest differential becomes

(3) $i-i^* = \pi-\pi^* + \beta(\pi-\pi^T) + \delta\Delta s^T$

Thus, for a situation where a central bank tries to disinflate simultaneously via the exchange rate and the interest rate channel, the uncovered interest parity can be written as

(4) $\Delta s^T + \alpha = i-i^* = \pi-\pi^* + \beta(\pi-\pi^T) + \delta\Delta s^T$

The intuition of this equilibrium condition is quite simple: A central bank can use domestic interest rates for disinflation only to the extent that the foreign exchange market demands a sufficiently high risk premium for the domestic currency at the given exchange rate target. Thus, strong capital inflows are a signal that a central bank is following a restrictive interest policy which is incompatible with an equilibrium on international financial markets.

"efficiency" of foreign exchange markets are made.

This "disinflation-adjusted uncovered interest parity condition" can now be used to analyse three different macroeconomic strategies.

- The most abrupt disinflation via the exchange rate channel is achieved if the central bank keeps the nominal exchange rate constant , i.e. $\Delta s^T = 0$. This approach has been followed by Estonia and by the Czech Republic (until the May 1997 crisis).
- An intermediate solution can be characterised by an exchange rate target that aims at a depreciation that equals the difference between the targeted inflation rate and the foreign inflation rate, i.e. $\Delta s^T = \pi^T - \pi^*$. Such an "active crawl" has been followed by Poland and Hungary.
- A third, least restrictive variant is an exchange rate target which simply compensates for the existing inflation differential , i.e. $\Delta s^T = \pi - \pi^*$. Chile's crawling band system and the exchange rate policy of Brazil and Indonesia (until the crisis) are examples for such a passive (or backward looking) exchange rate strategy.[10]

From equation (4) the equilibrium risk premia α^* for these three strategies can be calculated as follows (Table 3):

Table 3: Equilibrium risk premia (α^*) for different exchange rate targets

Case	Δs^T	α^*
I. constant nominal rate	0	$(\pi-\pi^*)+\beta(\pi-\pi^T)$
II. active crawl	$\pi^T-\pi^*$	$\delta (\pi^T-\pi^*) + (1+\beta) (\pi-\pi^T)$
III. passive crawl	$\pi-\pi^*$	$\delta(\pi-\pi^*) + \beta (\pi-\pi^T)$

These results show that the equilibrium risk premium declines from case I over case II to case III. Table 4 presents some concrete values for the policy variables: r =3 %, r*=3% β=0.25, δ=0,25, π=10%, π*=2%, π^T=6%. It also shows the value for the domestic and the foreign interest rate.

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[10] See Eichengreen et al. (1998, p. 32).

Table 4: Three examples for equilibrium risk premia

Case	Δs^T	α^*	i*	i
I. constant nominal rate	0	9	5	14
II. active crawl	4	6	5	15
III. passive crawl	8	3	5	16

Thus, for an exogenous risk premium a central bank has to find out the optimum policy mix (Table 5). For instance, if the exogenous risk premium is 6 %, a domestic interest rate of 15 % requires an "active crawl", while a constant exchange rate would lead to undesired capital inflows. In other words, for any disinflation strategy a choice has to be made about the relative importance of the interest rate channel and the exchange rate channel. This will depend above all on the openness of an economy (a more open economy needs less restriction via the interest rate channel) and on the interest rate sensitivity of its foreign and domestic sectors. The concrete path for exchange rate targeting would be the outcome of this assessment.

Table 5: The equilibrium interest rate for α^*=6

Case	Δs^T	α^*	i
I. constant nominal rate	0	6	11
II. active crawl	4	6	15
III. passive crawl	8	6	19

5. Disinflation under a constant nominal exchange rate target

5.1 Theory

Tables 4 and 5 make clear that the strategy of a **constant nominal exchange rate** leaves relatively little scope for a restrictive interest rate policy. Capital inflows can be avoided only under three conditions:

- if the inflation differential vis-à-vis the anchor currency is rather small and if at the same time the need to disinflate is not very high,
- if the risk premium is very high,

- if a country is so small that it suffices to rely on the exchange rate channel, i.e. β is close to zero.

The third condition is compatible with the observation that most countries which were able to maintain a fixed nominal exchange for longer periods of time are typically very small countries (Jadresic et al. 1999, p. 24).

The second condition explains why a constant exchange rate target can be useful policy tool in the early stages of a macroeconomic stabilisation strategy (Bofinger 1996). After a period of very high and volatile inflation and a low credibility of policy-makers, the markets will not immediately be convinced that the new regime is sustainable. Thus, the risk premium can be very high. But as soon as the risk premium declines, an exit strategy is needed (Eichengreen et al. 1998).

This illustrates a specific problem of all constant exchange rate targets. The risk premium for short-time horizons (one to three months) can be very unstable over time. If a fixed peg is introduced in a period of very high inflation, the risk premium will initially be very high, then go down to almost zero and after some time increase again. In countries with lower inflation differentials vis-à-vis the anchor currency, investors will normally expect that the exchange rate will remain constant for the time being even if they do not believe in the sustainability of an announced exchange rate target in the longer run. Over time, especially if a constant nominal rate is associated with a real appreciation, the risk premium increases sharply.

The problem of a variable risk premium is described in Figure 4 which presents the policy options of the central bank that follows a policy of exchange rate targeting. The y-axis shows the restrictive pressure which is exerted by the exchange rate target: it is defined as the difference between the actual inflation differential (π-π*) and the targeted depreciation Δs^T (which is identical with a measure for the real appreciation of the currency considered). If the depreciation simply compensates for the inflation differential, the monetary pressure is zero. The domestic interest rate is depicted on the x-axis. The impact of combinations of i and Δs^T on the domestic economy at a constant domestic inflation rate can be described by a

"monetary pressure index" (MPI).[11] In very simple form, such an index can be constructed as follows:

$$MPI = i^{\kappa} + (\pi - \pi^* - \Delta s^T)^{\varphi} \text{ with } \kappa, \varphi > 0$$

For given values of i^* and α the si-lines show combinations of Δs^T and i which are compatible with a financial market equilibrium. From the logic of UIP, the interest rate differential has to increase with the targeted depreciation. Thus, the si-line is downward sloping (Figure 4). Assuming that κ, $\varphi = 1$ the monetary pressure index has the same shape as the si-lines.

Figure 4: Monetary pressure index for $\varphi, \kappa = 1$

Monetary pressure by interest rate
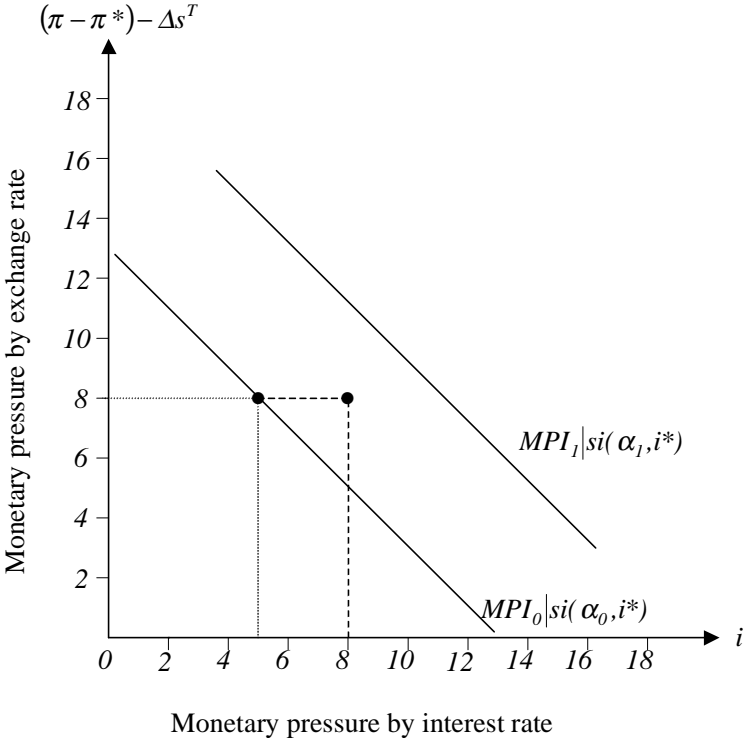
For a policy with $\Delta s^T = 0$ and an initial risk premium of zero, the domestic interest rate has to equal the foreign rate. With the values of Table 4, the interest rate is 5 %. On the exchange rate pressure axis, the value is 8 (i.e. the difference between π and π^*) as the exchange rate does not accommodate the inflation differential. This policy mix is associated with a degree of monetary restraint of MPI_0. The index line is identical with the si-line. If the risk premium

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[11] In a somewhat different form such indices ("monetary condition index") are used by many institutions. See

increases over time, the si-line shifts to the right and the degree of monetary restraint increases to MPI_1. Thus, if a central bank wants to maintain an equilibrium on the foreign exchange market while it targets a constant nominal exchange rate, it causes very unstable domestic monetary conditions. Therefore, it is not surprising that central banks have tried to avoid the too lax monetary policy at t_0 by setting domestic interest rates higher than i_0. As this is a point to the right of the si-line at t_0, it is associated with a disequilibrium of the international financial market and causes capital inflows.

There are two channels for capital flows. If domestic firms can borrow abroad and if they have a certain degree of exchange rate illusion, they will be tempted to borrow in the currency of the anchor currency. Thus, a restrictive interest rate policy can become completely ineffective. Whatever domestic interest rate a central bank targets, the monetary pressure remains at MPI_1. Instead of dampening the economy a restrictive interest rate policy simply drives the enterprise sector into foreign currency lending. Additional counterproductive effects are produced by a second channel: higher domestic interest rates attract foreign investors that want to profit form the short-term stability of the domestic currency even if they know that it is not sustainable. Their lending to domestic banks in the domestic currency has the effect that it weakens the credit rationing by domestic banks. This destabilising effect of higher interest rates is described by Froot et al. (1998, p. 3):

"(...) international investors are 'trend chasers'. Indeed, trend chasing – interpreted to mean that an increase in today's returns leads to an increase in future flows, without holding current and past inflows constant- seems to explain 60-85 percent of the quarterly covariance between emerging market inflows and returns."

5.2 Evidence

Table 3 shows that the conflict between stable domestic monetary conditions and an equilibrium on the foreign exchange market increases with the inflation differential vis-à-vis the anchor currency and the difference between the actual inflation rate and the inflation target. It is therefore interesting to look at those ERM I countries which have successfully fixed their exchange rate vis-à-vis the D-mark (Table 6). From this experience the critical inflation differential seems to lie in the range of 3.75 percentage points. Subtracting a certain safety

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Deutsche Bundesbank (1999).

margin, the critical value could be established at 3 %. According to this criterion Estonia and Slovenia would already qualify for a fixed nominal exchange rate target vis-à-vis the Euro.

Table 6: ERM I experience

	Date of realignment (entry)	Inflation differential to Germany (averages of 6 months before and 6 months after realignment)	Interest differential to Germany (averages of 6 months before and 6 months after realignment)	Last realignment?
Netherlands	21.03.83	**-0.49**	0.30	**yes**
Denmark	12.01.87	**3.79**	5.84	**yes**
Belgium	12.01.87	**1.48**	1.87	**yes**
France	12.01.87	**3.15**	3.56	**yes**
Italy	12.01.87	*4.25*	7.33	*no*
	08.01.90	*3.53*	5.09	*no*
	25.11.96	**1.50**	4.71	**yes**
Spain	19.06.89 (entry)	*3.86*	7.78	*no*
	06.03.95	**2.56**	3.68	**yes**
Portugal	06.04.92 (entry)	*4.25*	8.26	*no*
	06.03.95	**2.17**	4.28	**yes**
Greece	16.03.98 (entry)	**3.60**	/	**yes**
Sweden	17.05.91 (peg) [1]	*8.10*	3.27	*no*
Finland	14.10.96 (entry)	**-0.84**	0.14	**yes**
United Kingdom	08.10.90 (entry)	*7.43*	6.07	*no*
Austria	December 81 (peg) [2]	**0.12**	-0.76	**yes**

1) Sweden pegged its currency to the ECU from 17 May 91 – 19 November 92.

2) The last significant change of the Schilling/DM exchange rate took place between September 79 and the end of 81 (appreciation of the Schilling of about 4.5 %).

Source: IFS

If the inflation differential is higher, a constant nominal exchange rate target is normally unsustainable. This is not only confirmed by those ERM I countries which had to adjust their parities after 1987 or even left the system (United Kingdom), but also by the failed attempt of the Czech Republic to maintain a constant currency basket at a time where it had an inflation differential of more than 10 percentage points (1993). The only exception is Estonia, but it was already pointed out that this country had not tried to follow an activist disinflation policy by keeping domestic interest rates high.

The experience of the Asian countries is more difficult to interpret. On the one hand, the long periods of a stable Dollar rate in Malaysia and Thailand fit the observation that a fixed rate

can be sustainable if the inflation differentials are very low. In the second half of the 1980s both countries had lower inflation rates than the United States. In this area the crises were initiated by the very low short-term Dollar rates in 1994/95 combined with a substantial Dollar depreciation vis-à-vis the Yen. Thus, the external and the internal channel of monetary policy were too expansionary. As a result the Asian countries tried to dampen the domestic economy with a restrictive interest policy in the years 1994/95. But as already mentioned, in a situation of "currency illusion" such a policy induced domestic firms to lend more and more in the foreign currency without dampening the domestic economy. As it was not possible to exert a sufficiently strong pressure on the domestic sectors under fixed rates, a depreciation should have been targeted combined with higher nominal rates.

6. Disinflation under an adjustable nominal exchange rate target

Thus, for countries which have an inflation differential of more than 3 to 4 percentage points an adjustable exchange target seems the preferable solution. Of course, as Table 3 shows, an adjustable exchange rate target also requires a consistent interest rate policy, if excessive capital inflows are to be avoided. But for situations with a substantial inflation differential or a strong asset-price inflation this approach offers many advantages compared with a fixed rate. For the real sector of the economy the risk of a real depreciation due to inflation inertia can be avoided. For financial markets an adjustable exchange rate target makes it much easier to cope with the problems of capital inflows:

- For a given risk premium Table 5 illustrates that domestic interest rates can be much higher without jeopardising the equilibrium on foreign exchange markets.
- If the exchange rate adjustment is made in the form of a permanent depreciation („crawling peg"), the problem of **shifting risk premia** can also be reduced, as one-way bets are no longer possible. A more constant risk premium avoids the threat of unstable interest rates for domestic firms.
- In addition, a central bank can always increase a risk premium which it regards as too low. While this is possible under a fixed and a flexible exchange rate target, a flexible target with a wide band avoids that such a policy of "causing ripples" is limited by reaching the limit of the band.
- If the targeted depreciation and the interest rate are **substitutes** for monetary restriction, which our construction of the MPI assumes, a central bank can react to shifting risk

premia by adjusting the policy mix. This requires values of κ and $\varphi > 1$ (Figure 5). For instance, if the si-curve shifts to the right, the degree of monetary constraint can be reduced, by a somewhat higher interest rate and a stronger currency depreciation.

Figure 5: Monetary pressure index for $\varphi, \kappa = 2$


Monetary pressure by interest rate
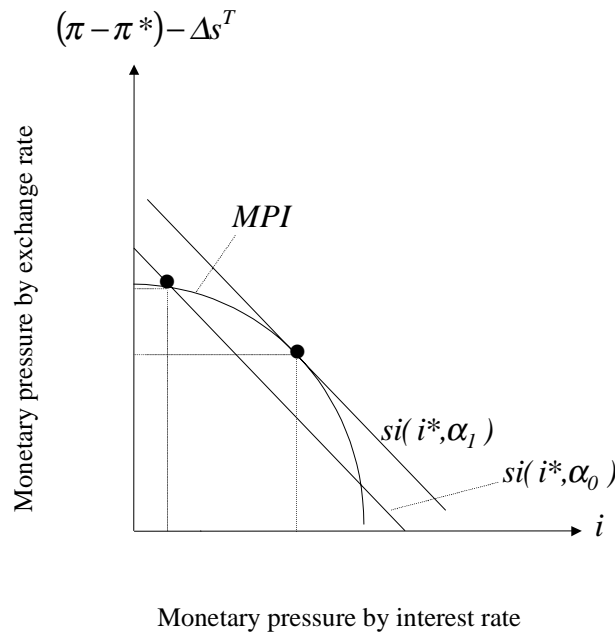
- Another advantage of an adjustable exchange rate is related to the **sterilisation of interventions**. In principle, it is always possible to avoid the appreciation of the own currency simply by increasing the monetary base and by absorbing the liquidity impact with domestic monetary policy instruments. But a hard budget constraint is created by the costs of intervention. With a constant exchange rate, the costs are determined by the difference between the domestic interest rate and the interest rate in the anchor country. If the interest rate differential is high, a prolonged policy of sterilised intervention can become very costly. This is different, if a central bank follows a flexible exchange rate target. In this case, the loss from the interest rate differential is compensated by the increase of the value of the foreign exchange reserves. Costs are only created by the risk premium, but an adjustable peg is less prone to high risk premia than a fixed exchange rate target.

The experience with flexible exchange rate targets shows that in most cases speculative capital inflows have not been a major problem. In the ERM I from 1979 to 1986 Italy has followed a policy of infrequent depreciations (7 realignments with a first adjustment only six

months after the start of the system) within a ± 6 % band. Figure 5 shows that during this period capital inflows remained rather limited. The situation changed significantly in the 5 ½ years of the "stable" ERM where the lira was devalued only once (3.68 %) and where the fluctuation band was reduced to ± 2.25 %.

Figure 5: Financial inflows (net) minus FDI (in millions of US-$) Italy
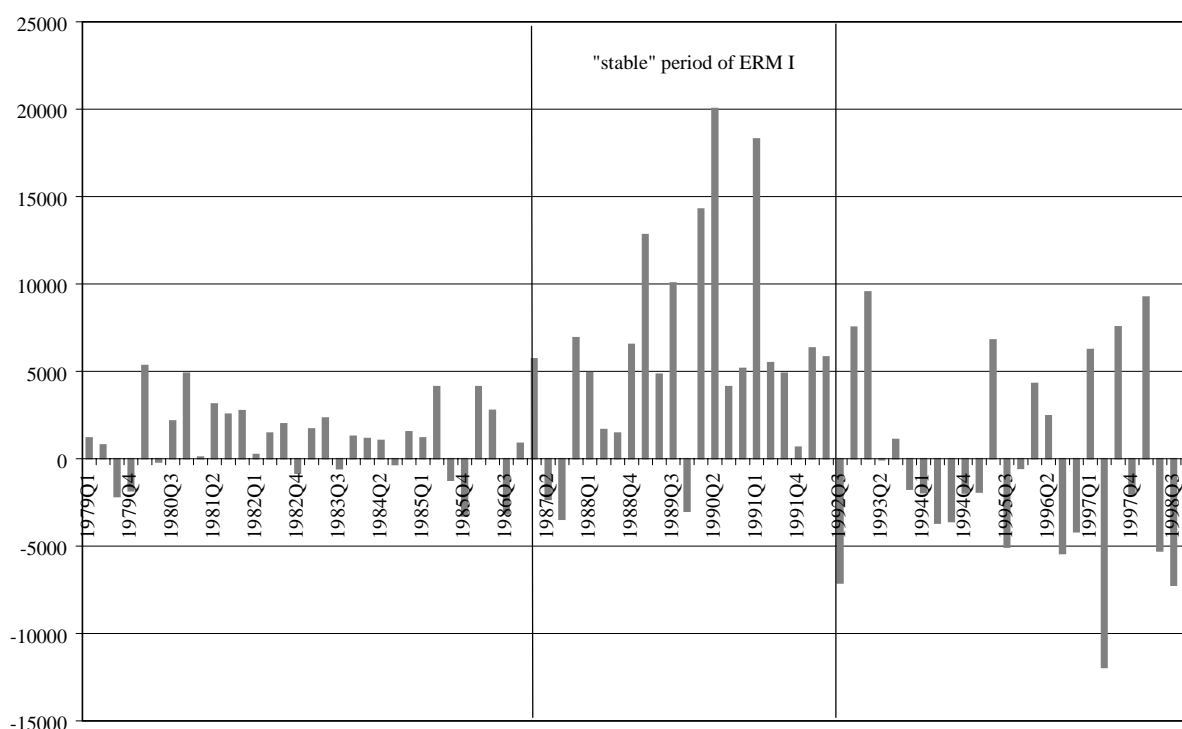
Source: IFS

The experience of the five lead accession countries also confirms that capital inflows are mainly a problem of fixed exchange rates combined with inconsistent interest policies.

Table 7: Cumulative direct investment and other financial inflows (net) to the lead accession countries (1993-96)

Country	Direct investment inflows in % of GDP	Other financial inflows (net) in % of GDP
Czech Republic	9.8	28.3
Estonia	16.7	9.2
Hungary	22.2	9.9
Poland	8.7	-2.0
Slovenia	3.1	2.2

Source: IFS

As Table 7 shows, the only country with excessive capital inflows was the Czech Republic. In all other countries direct investment inflows were higher than the other financial inflows which remained relatively small.

In the Asian region, Indonesia with its de facto crawl received much less currency inflows than Korea, Thailand and Malaysia (Table 8). The fact, that the Asian crisis started in Thailand fits with its extremely high exposure to capital inflows. But because of a strong contagion effect (Ito 1999, p. 28) Indonesia was also hit by the crisis.

"Indonesia appears to be the clearest case of contagion in the region. (...) By most, Indonesia's imbalances were among the least severe in the region, and clearly much less dramatic than in Thailand." (Radelet and Sachs, 1998a, p. 37).[12]

As above all the example of France in the ERM crises of 1992/93 shows that currency crises tend to affect countries in the same region even if their fundamentals are solid and if they have been able to avoid excessive currency inflows.

Table 8: Cumulative direct investment and other financial inflows (net) to selected Asian countries (1993-96)

Country	Direct investment inflows in % of GDP	Other financial inflows (net) in % of GDP
Indonesia	8.6	7.6
Korea	1.2	13.5
Malaysia	21.3	12.1
Thailand	4.5	35.1

Source: IFS

In Latin America, a similar picture as in the five lead transition countries emerges. Mexico, which de facto followed a fixed peg, received by far the highest capital inflows, while the inflows were rather limited in Argentina (currency board) and Brazil (crawling peg).

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[12] Above all Radelet and Sachs (1998b, p. 38) show that there was no evidence for a "boom-bust pattern in Indonesia".

Table 9: Cumulative direct investment and other financial inflows (net) in Latin America (selected four year periods)

Country	Direct investment inflows in % of GDP	Other financial inflows (net) in % of GDP
Argentina (1995-1998)	8.7	8.5
Brazil (1995-1998)	8.7	5.1
Mexico (1991-1994)	6.1	19.1

Source: IFS

In sum, a flexible exchange rate targeting has the important advantage that it considerably reduces the risk of destabilising capital inflows. In this respect it is identical with a currency board. In both cases, interest rate policies that are incompatible with UIP can be avoided.

Thus, flexible exchange rate targeting resolves the so-called *inconsistency triangle*. It allows to combine free capital movements with an autonomous interest policy and a stable exchange rate *path*. While such a policy is a good recipe against a currency crisis, it does not completely rule it out. The examples of France, Indonesia and Brazil shows that contagion effects can play an important role. In these cases the risk premium increases to levels which would require an overly restrictive monetary policy stance. Therefore, if countries are obliged to support an exchange rate target without external support, in the short run a major devaluation is the only solution. As such an exit can have disastrous consequences, an international framework for stabilising such currencies would urgently be needed.

7. Implications for the lead accession countries in stage I

7.1. The main lessons

The experience with different exchange rate arrangements in the last two decades provides relatively clear implications for the exchange rate policy of the accession countries during the period until their EU membership.

- A complete neglect of exchange rate policy, i.e. **flexible exchange rates** in the pure sense that the central bank refrains from foreign exchange market interventions, should be ruled out. In the past this arrangement has been practised only between the three key currencies (Dollar, Euro, Yen) and it has led to excessive exchange rate fluctuations. The experience

of all three areas (Asia, Latin America and Central and Eastern Europe) does not support the popular view that a flexible exchange rate regime is required because "pegged exchange rate regimes are a very dangerous strategy for emerging market economies and make financial crises more likely." (Mishkin 1999, p. 22). [13]

- A **fixed nominal exchange rate target** can be adopted only if the disinflation process and the process of price liberalisation is completed. For such a step the inflation differential between the domestic currency and the Euro should not exceed 3 percentage points.

- A **flexible exchange rate target** with a relatively wide band is the safest policy option. The findings of this paper confirm Williamson's (1996) analyses of the experience with crawling bands in Chile, Colombia and Israel.[14] Hungary and Poland have practised this strategy successfully. This approach avoids above all the risk of destabilising capital inflows. Flexible exchange rate targeting can be practised in different forms. A central bank has to decide whether it announces the target ("crawling peg") or not. In addition, the crawl can be active (not fully compensating for the inflation differential) or purely accommodating. A nominal anchor is provided only by a publicly announced active crawl.

- If the exchange rate target is not announced, the nominal anchor has to be provided by a publicly announced inflation target. Such an **inflation targeting** would signal to the public that the inflation target has priority but it would also make clear that the exchange rate will not be allowed to fluctuate in an uncontrolled way. Thus, "a nominal (non-fixed) exchange rate target could coexist with an inflation target" (Masson et al. 1997, p. 9). If a policy of inflation targeting is combined "with greater exchange rate flexibility" (Masson 1999, S. 17), the risk of missing the inflation target because of erratic exchange rate fluctuations is high.

- A currency board is only advisable for countries which have a very open economy. With a ratio of 72.5[15] Estonia has by far the highest degree of openness in Eastern Europe. Under this condition it can be sufficient to rely on the external lever of monetary policy only. The risks of this strategy have been extensively discussed in the literature on monetary unions. However, in contrast to a monetary union, a currency board does not protect a

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[13] See also Blöndal and Christiansen (1999).

[14] "(...) a crawling band is capable of achieving a reasonable trade-off between the conflicting objectives of reducing inflation and maintaining export growth. Furthermore crawling bands appear to perform quite well in limiting both exchange rate and reserve volatility; fixed rates perform better in the former dimension, as long as they really remain fixed, but the crawling band outperforms (although not significantly) an average of fixed rates and the adjustable peg." (Williamson 1996, p. 101).

[15] 1/2 (Exports+Imports)/nominal GDP. The ratios for the other countries are: Czech Republic 60.3, Hungary 39.6, Poland 27.8, Slovenia 57.7.

country against the risks of excessive interest rates due to speculative pressure. In addition, it lacks a lender of last resort.

- Capital controls for short-term capital flows can be avoided if the framework for exchange rate policy is compatible with the requirements of domestic interest rate policy. In addition the exchange rate target should be surrounded by a "wide" band. Williamson (1996, p. 110) recommends a band width of ± 7 to 10 percent. The experience of ERM I shows that Italy had been able to manage a substantial disinflation with a ± 6 percent band.

7.2 The monetary policy strategies of the Czech Republic, Hungary and Poland

Of the five lead accession countries the central banks of the Czech Republic, Hungary and Poland have developed comprehensive monetary policy strategies for the period until their EU accession.

The strategies of **Poland** and the **Czech Republic** rely on **inflation targets** as a nominal anchor. Poland intents to implement this approach with a „freely floating exchange rate" (Monetary Policy Council 1999, p. 14)[16], while the Czech paper completely neglects the role of exchange rate policy in its monetary strategy (Czech National Bank 1999). This is rather astonishing because the Bank is aware of the fact that the "Czech economy is a small, very open economy, both in terms of trade and finance, with liberalised capital flows." (Czech National Bank 1999, p. 3) The main difference between the strategies of these two countries concerns the definition of the inflation target. The Polish central bank sets the target for the consumer price index because „it is deeply rooted in the public perception as the underlying measure of inflation" (Monetary Policy Council 1999, p. 119). The Czech National Bank favours „net inflation" which excludes all price changes of „regulated prices".[17] The main problems of this approach are clearly discussed by Polish Monetary Policy Council:

„Application of core inflation as the official policy target would require eliminating from CPI the prices of goods and services that strongly influence the public perception of inflationary developments" (Monetary Policy Council 1999, p. 11).

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[16] "The floating exchange rate system will be introduced following a period of the gradual expansion of the band of permitted exchange rate fluctuations and the gradual reduction the crawling devaluation within the framework of the present exchange rate system." Monetary Policy Council (1999, p. 14).

Hungary has decided for the opposite strategy. It avoids an announcement of an inflation target:

„The Bank, as in the past, cannot set an inflation target on its own. It can make significant progress in reducing inflation only together with the government and the other sectors of the economy, provided that unforeseen external developments do not impede monetary policy in pursuing these objectives with regard to inflation and external balance." (National Bank of Hungary 1999, p. 6).

As a consequence it uses „the pre-announced course of the exchange rate" as its main nominal anchor. For the year 2000 the Bank „sees scope for further cuts in the monthly average devaluation rate of the Forint." (National Bank of Hungary, p. 12). The current monthly crawl is 0.4%, which means an annual depreciation of 4.9 %. With an inflation rate of 10 % in 1999 and an Euro area inflation of about 1 %, this crawl can be regarded as an „active crawl" which clearly contributes to a further reduction of inflation.

Estonia has not presented a medium-term strategy for its EMU entry, but it seems decided to maintain the currency board for all intermediate stages:

„The fixed exchange rate and the currency board system form a suitable platform for Estonian monetary policy in its approximation to the Euro zone." (Kraft 1999).

As the **Slovenian** central bank has not published a medium-term monetary policy strategy it cannot be discussed in this paper.

7.3 Assessment

The strategies of the four lead accession countries with a clearly defined monetary policy framework are compatible with the implications that can be drawn from the currency experience of the last two decades. Above all, the risk of destabilising capital inflows can be ruled out. Therefore, it is consequent that in all four countries capital controls are not regarded as a relevant policy instrument.

A major problem is the Polish preference for „freely floating exchange rates" and the complete disregard of exchange rate targeting in the Czech approach. After the experience

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[17] "Regulated prices include maximumprices, limited prices (both can be set on the central as well as on the local levels) and administratively fixed fees." CNB (1998).

with freely floating rates, especially with the Yen/Dollar rate in the 1990s, it sounds somewhat naive when the Monetary Policy Council (1999, p. 14) states:

„This arrangement (freely floating exchange rates; P.B.) will help to bring the market rate closer to the equilibrium rate."

However, the Monetary Policy Council (1999, p. 14) emphasises at the same time:

"Both within the present exchange rate system and after the introduction of a fully floating rate, the National Bank of Poland will maintain the right to intervene in foreign exchange markets when it recognises a need to do so for monetary policy reasons."

Such contradictory statements do not contribute to the transparency and credibility of monetary policy. A similar lack of transparency is created by the Czech strategy which creates the impression that the central bank no longer takes an active interest in the exchange rate of the Koruna. While in both countries it would not be necessary to announce explicit targets for the exchange rate, it is misleading to pretend a strategy of „free floating" or of a „benign neglect". Poland and especially the Czech Republic are very open economies which could not afford to live with a strongly fluctuating exchange rate. Therefore, a general commitment of the central bank to a stable exchange rate path would help to stabilise the expectations of investors during the process to EU accession. In this respect the Hungarian approach provides much more transparency.

Because of its focus on „net inflation" the Czech approach provides a less visible monetary anchor than the strategies of Poland and Hungary. An inflation target that differs considerably from CPI inflation is not an ideal focal point for trade unions and all other agents that have to fix nominal values for future dates. In the words of the Czech National Bank (1999, p.7):

„The fall in the consumer price and net inflation indices have not yet been adequately reflected in inflationary expectations or in the decision making of economic agents. This is illustrated, among other things, by the results of wage bargaining for 1999."

In sum, it should be clear that in all arrangements with a flexible exchange rate target, monetary policy has to be conducted on the basis of an inflation target. Such a target should be comprehensive. It should reflect the degree of price rigidities, a potential productivity bias and the remaining necessities to adjust administered prices. The inflation target does not necessarily have to be published. But if this is the case, the exchange rate target has to be

made public in order to provide at least one nominal anchor for private expectations. The inflation target has to be implemented through an exchange rate target vis-à-vis the Euro and a target level for domestic short-term rates. Both levers of monetary policy have to conform to the requirements of UIP at a given risk premium. Thus, the crawl cannot be simply calculated by a formula "target for domestic inflation minus expected foreign inflation minus expected productivity bias". (Williamson 1996, p. 111). A macroeconomic strategy without an exchange rate target („freely floating exchange rate") runs the risk of missing the inflation target because of short-term exchange rate variations. This risk is especially high in the very open accession countries (Czech Republic, Estonia and Slovenia).

8. Stage II : No major regime change compared with stage I

After EU accession, the new member states will have to adopt the so-called "acquis communautaire" (the set of obligations deriving from the treaties, secondary EU legislation and jurisprudence of the Court of Justice). For monetary and exchange rate policy this includes above all the obligations

- to regard their economic policies as a matter of common concern and to co-ordinate them with the Council (Article 99, ex Article 103),
- to exclude all central bank credits to the government (Article 101, ex Article 104),
- to avoid excessive deficits (Article 104, ex Article 104c)
- to treat exchange rate policy as a matter of common interest (Article 124, ex Article 109m)
- to submit annually medium-term convergence programs, subject to surveillance by the Council (Article 7, Stability and Growth Pact).
- In addition, the new members are expected to participate in the ERM II sooner or later.

For the field of exchange rate and monetary policy these obligations do not require major changes compared to the stage I. With its ± 15 % band and the option to adjust parities at infrequent intervals ERM II leaves a wide scope for a rather flexible exchange rate policy. Even the present crawl rate of the Forint could easily be combined with a fixed parity that is adjusted at an annual basis („crawling snake within the tunnel"). Estonia would not need a formal ERM II membership.

The main advantage of ERM II over the present situation is the access to the unlimited short-term intervention credits of the ECB („very short-term financing"). This strengthens a central bank's position in the situation of a speculative attack. However, as all intervention credits have to be paid back with foreign exchange reserves by the country with the weak currency, the support by such credit lines is rather limited. The experience of the ERM crises in 1992/93 shows that even France as a country with sound fundamentals was unable to defend the Franc within the ± 2.25 % band. In addition, in the ERM II the ECB can unilaterally suspend intervention credits if they endanger the target of price stability. In ERM I such an opt-clause was not explicitly agreed.

In sum, stage II will not imply a major regime change compared with stage I. The only major change is that countries can no longer determine their Euro exchange rate independently. Thus, if an accession country feels a need for a major adjustment of its Euro rate, it would be well advised to do this before EU accession.

9. Stage III: Limiting the risks of the endgame

Stage III covers the last two years before EMU membership. It leaves the accession countries relatively little room for country specific arrangements as ERM II membership is a mandatory criterion of convergence. The most important decision at the beginning of stage is the determination of the parity which according to Article 121 of the Treaty is a identical with a *ceiling*[18] for its final conversion rate for EMU membership. As the wording of the Treaty does not prohibit an appreciation, a country could start the 2-year transition period with a somewhat undervalued currency and adjust downwards if necessary.

With the ERM II fluctuation margins relatively large deviations from that midpoint are possible without violating this specific criterion for convergence. The experience with the last nine months of the ERM I shows that the announcement of the final conversion rates can act as a very firm anchor for the actual exchange rate. If the markets regard the conversion rate as *credible*, it will be identical with the expected exchange rate for the entry date. Because of the uncovered interest parity, the spot rates during the ERM II period will be very closely

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[18] Price quotation for the exchange rate, i.e. the exchange rate is expressed in units of the domestic currency per one unit of the foreign currency.

determined by the interest rate differential between the accession country and the Euro interest rate. Thus, as soon as an accession country determines the parity for ERM II, it automatically defines the path for the spot rate by the prevailing interest rate differential.

This scenario has the attractive feature that an accession country can still use the national interest rate instrument for a fine-tuning of the economy in the very sensitive transition period. Above all, a restrictive monetary policy could be pursued if there are signs that the inflation criterion might not be met. Over time, the impact of national monetary policy is reduced because the interest rates for periods that go beyond the entry date are an average of the national and the Euro rate with a declining weight of the national rate. In addition, as long as the exchange rate path follows the interest rate differentials, the risk of speculative capital inflows would be very limited. There is nothing foreign investors could gain by holding short-term assets denominated in such a currency.

The situation gets more complicated if the markets regard the final conversion rate as *not credible*. In the case of an expected conversion rate that is *higher* than the announced rate, the distrust of the markets would be immediately reflected by a spot rate that diverges from the conversion rate *by more* than the interest rate differential. In order to avoid such a destabilising process the domestic central bank has to intervene on the foreign exchange market. The exchange reserves of Italy and Spain show that both countries have bought and sold major quantities of their own currency in the last three years of ERM I (Figure 6). As the foreign exchange reserves are limited and the ECB is not obliged under ERM II to intervene without limits, the risk of a non-credible conversion rate shows how important it is to start the two-year transition period with a sustainable exchange rate.

The case of a somewhat *undervalued conversion rate* would be less problematic. Again the markets could regard the announced rate as not credible, but now they would expect the actual conversion rate to be lower than the announced conversion rate. This would become visible in a spot rate that diverges from the conversion rate *by less* than the interest rate differential. It seems not very likely that such a divergence would lead to destabilising processes.

Figure 6: Exchange reserves: Italy, Spain 1996-98 (in millions of US-$)
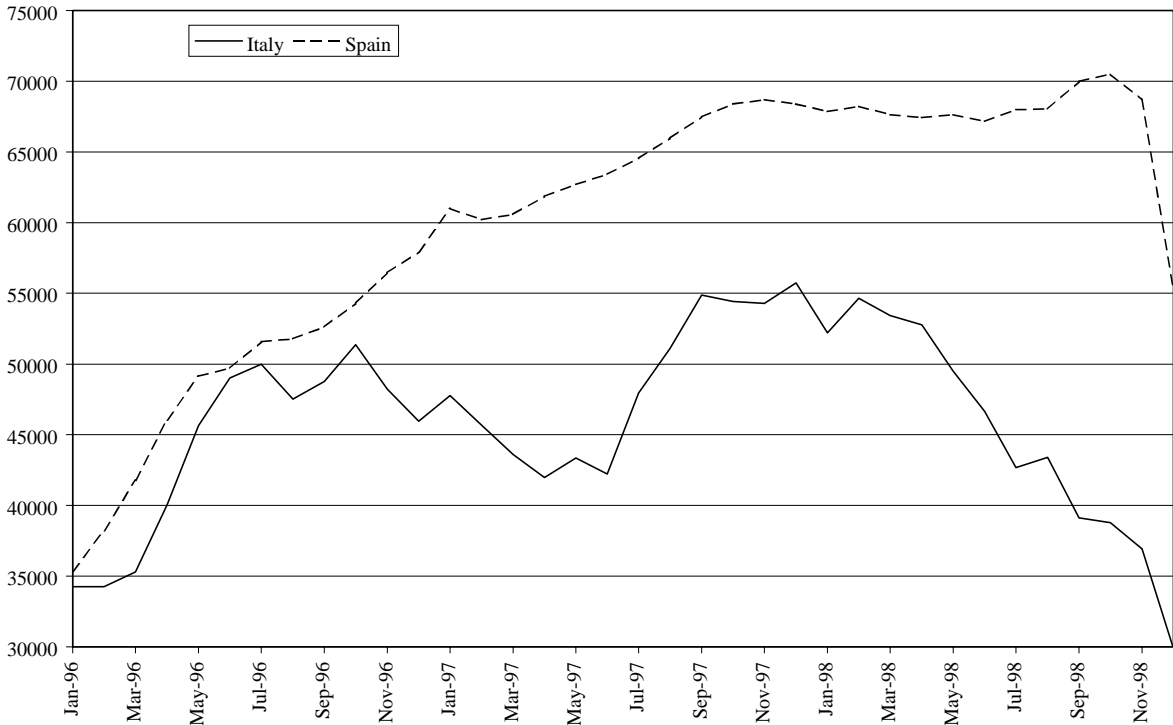
Source: IFS

Given the huge analytical difficulties in determining equilibrium exchange rates, the strategy of entering the transition period with a somewhat undervalued currency looks quite attractive. However, if the undervaluation is reached by a depreciation at the beginning of the two-year qualification period, it bears the risk of stimulating inflation, which could lead to a violation of the inflation rate criterion. Therefore, already at an early stage of accession or even before accession, the accession countries should carefully analyse whether a precautionary depreciation of their currency might be required.

10. Summary

Assuming that the five lead accession countries are strongly committed to stability-oriented macroeconomic policies, the choice of an adequate exchange rate policy for their path towards EMU membership is not too difficult. The experience of the ERM I countries shows that a fixed Euro exchange rate should only be adopted if the inflation differential is lower than 3%. In the meantime, a flexible exchange rate targeting should be followed under the overall framework of an inflation targeting. The target values for the inflation rate, the exchange rate and the domestic interest rate have to be derived in a way that guarantees an

UIP equilibrium. The experience with flexible exchange rate targeting shows that such regimes do not give rise to excessive currency inflows. Thus, capital inflow controls are not needed in the whole transition period to EMU. With the EU accession and even an ERM II membership the overall framework for monetary and exchange rate policy in the new member countries does not change very much. This is different in the two-year qualification period preceding final EMU entry which sets clear limits for the path of the spot rate. Nevertheless it still leaves some scope for an autonomous interest policy. As an overvalued entry rate is a major risk for the qualification period and for EMU membership, the accession countries should target a somewhat undervalued rate already in the pre-accession phase.

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