

Editorial

Exchange rate regimes in transition countries (as well as in South-East Asia) have recently come under substantial strain and, in a number of cases, new and more flexible regimes have replaced pegs. In this working paper, Elmar Koch, an economist with the BIS, reviews and analyzes monetary and exchange rate policy issues in selected European reform countries and provides a timely and thorough survey of the monetary practice in the Czech Republic, Poland and Hungary with cross references to other reform countries.

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**Exchange Rates and Monetary Policy in Central Europe –
a Survey of Some Issues**

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Prologue*

"On February 28, 1996, the Czech National Bank (CNB) Board decided to widen the band for Czech crown movement from the existing $\pm 0.5\%$ to $\pm 7.5\%$. Through interventions on the foreign exchange market, the CNB will stabilise the exchange rate within this widening margin around the present midpoint, which has not been changed. The structure of the currency basket and the $\pm 0.25\%$ spread between the buy and sell exchange rates used for the CNB fixing remain the same. The decision to widen the exchange rate band was taken in the interest of strengthening the CNB's anti-inflationary policy." (The Czech National Bank (CNB), Monthly Bulletin, 2/1996.)

"As of May 16, 1995, a new exchange rate system was introduced. It allows for floating adjustments of the Zloty exchange rate ... within a band of fluctuations around the average rate ..." (Narodowy Bank Polski (NBP), Information Bulletin, 11/1995, p. 7.)

"In March (1995) exchange rate policy changed, as part of the stabilisation programme of the government: periodic major exchange rate corrections were replaced by a crawling peg devaluation of pre-announced (calculable) magnitude." (National Bank of Hungary (NBH), Monthly Report, 12/1995, p. 17.)

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Introduction

The widening of the exchange rate band in the Czech Republic at the end of February 1996 is the latest major change in the exchange rate policies of central European countries. This paper attempts to provide some discussion input concerning the recently introduced changes in the domain of exchange rate policy in three central European countries (the Czech Republic, Poland and Hungary), with particular reference to how they relate to the conduct of monetary policy. The paper casts a fairly wide net stretching from the actual exchange rate policies pursued via the exchange rate markets to questions involved in the current policy setting.

While large nominal and real depreciations of the currencies in central Europe at the beginning of the transition were the order of the day and may essentially be classified as successful, more recent developments have brought a shift to crawling pegs (Poland and Hungary) or exchange rate bands (the Czech Republic and the Russian Federation).¹ While as recently as 1994 some authors recommended exchange rate bands as a policy alternative for these countries,² these bands were, by the spring of 1996, actually introduced by the three countries reviewed here in more detail.³ These exchange rate policy measures are quite visible and the underlying framework for monetary policies has been subject to rapid changes and appears now to be comparable to systems existing in industrialised economies. However, market imperfections and financial fragility render the conduct of monetary policy quite delicate. These factors seem to complicate the process of gaining credibility in the foreign exchange markets (policy credibility), and it is not obvious that the normative questions raised by these changes have found satisfactory answers in the literature. One particular aspect of this paper relates to credibility in such a policy context. What is not explored is the next step in the transmission mechanism of monetary policy, i.e. the linkages from exchange rates, interest rates and prices to total spending or vice versa.

The first section (I) of this paper looks at the measures taken by these countries in some detail and relates them to their actual experiences. Section II attempts to provide some conceptual backdrop. The third section (III) raises the thorny issue of how to gain credibility.⁴ The relationship between the exchange rate and prices is

¹ The Russian Federation (or simply Russia) and the Slovak Republic are often included as further reference countries in this paper.

² See, for instance, Helpman et al. (1994).

³ A look at all the countries in eastern Europe reveals that the choice of the exchange rate regime following initial devaluation and associated bouts of high inflation has varied considerably among countries, ranging from currency boards in Estonia and Lithuania through fixed but adjustable pegs in Poland and Hungary to managed floating in Slovenia. This seems to indicate that the choice probably depends less on the progress made on the road to transition than on the broader framework of domestic policies and whether such policies are apt to retain their credibility. Arguments in favour of or against the choice of a particular regime are not reviewed in this paper: the focus is on "credibility" once a choice has been made.

⁴ This stylised differentiation between short and long-term is a standard feature of many studies, e.g. Clark et al. (1994, p. 1): "The time horizon is important ... those factors that have the most influence on

explored in Section IV, while a final section (V) brings us back to the real world, before the paper ends with the Conclusion.

exchange rates over the short term are not necessarily the same ones that will exercise the most influence over the long term ... Alternative methods of assessing the consistency of exchange rates with economic fundamentals often employ different time horizons and therefore implicitly select different sets of economic fundamentals."

I. Exchange rate regimes

This first section summarises the institutional backdrop of the current exchange rate regime in the three countries under review, keeping in mind in particular the question of the intended aim of the measures, i.e. what macroeconomic impact was foreseen or hoped for and what impact these measures have had on the conduct of monetary policy.

1. Institutional backdrop

Exchange rate policy is not necessarily the domain of the central bank. In many countries, the choice of the exchange rate regime may for instance lie with the Ministry of Finance or it may be the joint responsibility of the Ministry of Finance and the central bank. In fact, in most western countries the choice of the exchange rate regime rests with the government, although the central bank may, to varying degrees, have a role in the decision-making process, while the implementation of the chosen system is normally left to the central bank. In the eastern European countries considered here, the hand of the central bank⁵ seems quite strong: in the Czech Republic, the central bank "proclaims" the exchange rate for the Czech currency vis-à-vis foreign currencies (Article 35 lit.a) and sets monetary policy (Article 2 lit.a).⁶

In Hungary, the National Bank Act (Section 13(2)) states: "The order of fixing and/or influencing the exchange rate is determined by the government in agreement with the NBH." However, in practice an agreement between the Government and the NBH provided more flexibility to the NBH until the crawling peg was introduced in March 1995. Up until then, the NBH had the right to let the exchange rate fluctuate with regard to the basket of foreign currencies within a +/- 5% range centred on the level established by the Government. Any correction of fluctuations beyond this range was for the Government to decide upon.⁷

In Poland, decisions on exchange rate policy are much more involved as several parties contribute to this process. Under Article 39 of the Bank Law, the principles for establishing the exchange rate of the zloty against foreign currencies are determined by the Council of Ministers upon a proposal from the President of the NBP in consultation with the Minister of Finance and the Minister of Foreign Economic Relations. While the NBP certainly holds strong cards, the final decision rests with the Council of Ministers.⁸

⁵ See Stanley Fischer (1994, p. 4).

⁶ Similarly, the National Bank of Slovakia "establishes" the exchange rate in relation to foreign currencies (28 lit.a) and "defines" monetary policy (2 lit.a).

⁷ It may be useful to keep this institutional arrangement for Hungary in mind, especially as many small devaluations occurred while the larger ones seemed to be much more driven by "political" forces.

⁸ While the legal framework may indicate that the role of the NBP may be the weakest in terms of determining the exchange rate policy, the political reality may be different. For more detail on the above, see Hochreiter (1995).

Even though the institutional set-up is somewhat different between the three countries, the monetary authorities appear to have latitude in the conduct of policy, with the policy framework being set by the Government, to whom the monetary authorities are subsequently accountable.

One factor that could strengthen the hand of the central bank and be positive in building credibility in the financial markets is the legal independence of the central bank and whether such independence has indeed provided benefits. These considerations were of paramount importance when the new central bank laws were formulated in these countries. Relating measures of legal central bank independence in particular to inflation has not yet resulted in very firm conclusions for larger groups of countries, while there appears to be an established inverse relationship between these two variables in industrialised countries.⁹

The question of the credibility of monetary policy has experienced a strong renaissance in several industrial countries, in particular owing to the shift to inflation targeting, and has also been fuelled by the ERM debate. This renaissance has demonstrated that central banks should be independent. Independence, however, has to be firmly anchored in order to provide a solid foundation on which to establish credibility. This implies a clear "legal" statement of the objective of the central bank and consistent policies to implement this mandate. However, confidence would be difficult to earn if central banks were not also made accountable in unambiguous terms to the broader political/social framework.¹⁰

While the legal "independence" of a monetary authority by itself may not positively result in a credibility bonus, such "independence" in conjunction with "adequate" accountability appears to be a necessary but not sufficient ingredient of credibility. Whereas the principle of legal independence appears solidly entrenched in the countries under review, the process of accountability as a *sine qua non* appears to have attracted less attention. The latter arguments hint at a potential weakness: the decision-making process and its accountability in the domain of exchange rate policy

⁹ While many authors attribute a certain credibility bonus to the "legal" independence of the central bank (e.g. Fischer (1994)), caveats prevail. Fischer concludes, for labour markets, that "legal" independence does not automatically lead to a credibility bonus in those markets but that "independent" central banks have to prove their toughness repeatedly. He regresses the sacrifice ratio in recessions since 1962 against a measure of central bank independence and concludes (p. 49): "The overall relationship is positive and statistically significant. This implies that more independent central banks on average pay a higher output price per percentage point of inflation to reduce the inflation rate. A similar though weaker positive relationship holds between the output loss in recessions and central bank independence. This result is consistent with the Phillips curve being flatter in low inflation than in high inflation economies. But it is nonetheless puzzling, because the more independent central bank should be more credible ..." Eduard Hochreiter of the Austrian National Bank pointed out that the reason for the turnover of Governors may play a crucial role in this context. This argument may be particularly relevant for Austria.

¹⁰ On a more philosophical note: an analogy may be drawn to the question of "freedom for what", i.e. of using the freedom wisely. White and Smets (1996, p. 4) also state quite categorically: "Central bank "independence", which allows the institution itself to set the mandate and exercise powers without accountability, may have superficial attractions but is unlikely to be a long-lasting feature of a democratic society."

may need to be made more transparent to the markets. There is, on the other hand, no evidence that the current legal set-up has harmed credibility in these countries, while for industrialised countries there is some evidence that legal independence has resulted in better performance, at least on the inflation score.¹¹

2. *Current exchange rate regime*

A fixed exchange rate band or a crawling-peg exchange rate in the countries reviewed here requires a certain degree of commitment from the monetary authorities. Such a commitment to certain rules is, in principle, one way to create a framework for establishing confidence in the policy actions of the authorities.

Russia's band was introduced at a much later point in time (June 1995) than that of the three countries reviewed here - a time which was still characterised by rapid inflation and fast nominal depreciations and may thus be considered analogous to the early stabilisation period in the three countries (1991-92) - the recent changes in exchange rate policy in these central European countries occurred after some macroeconomic stability had been achieved.

The Czech Republic introduced its exchange rate band in February 1996. The exchange rate was set at CZK 28 to the US dollar at the end of 1990. Since then, the koruna/dollar exchange rate has fluctuated within the narrow margins of CZK 26.4 and 29.4 to the US dollar. The central parity rate has been stable since the foundation of the Czech Republic.¹² The introduction of a wider exchange rate band ranging from $\pm 2.5\%$ to $\pm 7.5\%$ at the end of February 1996 did not change the central parity either.

Table 1
Exchange rate systems

Country	Responsibility for exchange rate policy	Exchange rate system	When introduced	Currency basket	Comments
Czech Republic	CNB	Fixed exchange rate system	end-1990	CZK1 = USD 0.012305 DEM 0.037121	●

¹¹ Hochreiter (1995b, p. 5) similarly acknowledges the link between credibility and legal independence: "... it is urgent for the central bank to build reputation and earn credibility as quickly as possible. To achieve this the institutional design is relevant. Thus, legal independence is important."

¹² The exchange rate of the Czech koruna is set at CZK 1 = USD 0.012305 and DEM 0.036121. The currency basket thus consists of approximately 65% Deutsche Mark and 35% US dollars.

Poland	Council of Ministers (see text for more detail)	Crawling-peg devaluation of 1% monthly against a currency basket	January 1996	USD 45% DEM 35% GBP 10% FRF 5% CHF 5%	■
Hungary	Government and NBH	Crawling-peg devaluation of 1.2% monthly against a currency basket (for first six months of 1996)	March 1996	USD 30% ECU 70%	▲
Russia	CBR	Exchange rate band	June 1995	USD	◆

- The level of the central rate can be modified within a range of $\pm 7.5\%$.
- Transactions on the domestic foreign exchange interbank market are allowed to deviate within a band of $\pm 7\%$ around the central rate.
- ▲ The NBH sets the reference exchange rate (middle rate) at noon each day.
- ◆ A daily sliding band vis-à-vis the US dollar was introduced in June 1996.

The Hungarian policy of a crawling peg was officially introduced in March 1995. Before, the Hungarian forint had been fixed against a currency basket and allowed to move within a ± 2.25 fluctuation band. However, the forint was adjusted at infrequent intervals.

Poland had already introduced the crawling peg policy in October 1991 to replace the fixed exchange rate adopted at the beginning of the reform process. The monthly devaluation of the Polish crawling peg was reduced over time from a level of 1.8% to 1% monthly by January 1996. At an annual rate, the implied devaluation fell from 23.9% to 12.7%.¹³

The IMF characterises the exchange rate arrangements for Hungary, Poland and the Russian Federation as "managed floating", while the currency of the Czech Republic is "pegged to a basket". Although the regime choice problem is of major concern for any country, the "optimality" of this choice is not addressed in this paper. However, from a historical perspective it may be useful to keep two stylised facts in mind: no exchange rate regime has proven to be permanent, and countries have tended to switch back and forth between exchange rate regimes. Given that the underlying economic structures of

¹³ For more detail, see BIS, "Handbook on Central Banks of Central and Eastern Europe" (1996), and BIS, 66th Annual Report (1996).

the world change over time, the nature of the "optimal" exchange rate regime can be expected to vary accordingly.¹⁴

Table 2
Eastern Europe and IMF arrangements

Country	Acceptance of Art. VIII, Sections 2, 3 & 4	Exchange rate	IMF arrangements
Czech Republic	1st October 1995	Pegged to basket	Standby arrangement
Poland	1st June 1995	Managed floating	
Hungary	1st January 1996	Managed floating	
Slovakia	1st October 1995	Pegged to basket	Extended arrangement
Russia	1st June 1996	Managed floating	

Source: IMF/IFS (May 1996).

3. *Individual country experience*

While central banks most of the time do not bear sole responsibility for the exchange rate system, it is their duty to manage it. In fact, none of the central banks in eastern Europe has left the exchange rate to float as it is considered to be too important a variable. Do the results of the exchange rate policies in these countries follow a familiar pattern or have there been surprises? Part of the answer may probably be found in the hopes and expectations voiced by policy-makers when the current exchange rate systems were introduced. The following looks at this experience country by country.

(a) Czech Republic

When the Czech Republic introduced its wider exchange rate band at the end of February 1996, two main reasons were given by the Governor of the central bank: one was to create some uncertainty for speculators and the second was competitiveness. A wide band would allow the central bank to make some adjustment if necessary in the future. At the same time, less importance was attached to monetary aggregates: while in the preceding years a target range for M2 had been set and overshoot time and again, the central bank in its official publications abstained from indicating a range for the growth of this monetary aggregate in 1996.¹⁵

¹⁴ The issue of the choice of the exchange rate regime for these countries is taken up in Hochreiter (1995b), while the underlying theoretical issues are discussed in, for example, Flood et al. (1989).

¹⁵ The financial press (Reuter, 16th April 1996) reported that a CNB official saw M2 growth of 14% to 17% as "desirable" for 1996. The CNB has not officially published any target range for M2. Three reasons spring to mind: (i) a nominal exchange rate goal and nominal money growth are theoretically

The introduction of the exchange rate band was preceded by a long period of nominal exchange rate stability. The exchange rate served as a nominal anchor for monetary policy and price expectation formation. As domestic interest rates remained stubbornly above foreign, in particular German, rates, large amounts of capital flowed into the Czech Republic with the exchange rate risk being very small; the money supply has kept expanding at annual rates above 20% in recent years, as the CNB has not sterilised large amounts of inflows, which amounted to nearly 20% of GDP in 1995.¹⁶ Up until the recent change in policy, the Czech National Bank also regarded the development of the money supply as one of its intermediate targets alongside the exchange rate. Yet, the continuous above-target growth of M2 occurred hand in hand with intervention efforts by the central bank. As sterilisation became more costly to the central bank owing to CNB bills issued to mop up some excess liquidity at interest rates which were not coming down, the question arose as to when such policy would be discontinued.¹⁷

The introduction of the exchange rate band was to help in this regard by inducing less short-term capital inflows, relieving the pressure of further monetary expansion. While the band may temporarily increase uncertainty in the forex market, the underlying fundamentals have not changed, and if the band is credible, in the sense that the probability of a realignment is quite small, then one may ask what this band can accomplish or has accomplished. The Czech case seems to prove a point which is also applicable to other countries: when the forex market at the end of February was suddenly faced with a wider band around the central parity rate, rapid outflows occurred (USD 600 million within three days). As the CNB guided the exchange rate back to the central parity rate after it had weakened somewhat during the first few days following the introduction of the band, and it became clear to the market that the central parity rate was not to be changed - at least in the near future - business as usual and inflows resumed.

The argument that the introduction of the band should strengthen the CNB's anti-inflation policy, keeping Czech products competitive, is the second one used by the Governor.

The implicit assumption in the measure taken by the CNB is that the current exchange rate level is some kind of equilibrium level. If one were to define an equilibrium exchange rate as one where the current account can be financed without undue pressure on interest rates, one could argue that in spite of the current account deficit of 3% of GDP in 1995 and a projected current account deficit of around 6% in 1996, the current nominal central parity rate could be maintained. As prices are increasing by around 9% annually (perhaps by around 8% by the end of 1996) and as this price rise is quite a bit higher than those in trading partner countries, a loss of

inconsistent; (ii) the demand for money has been particularly unstable in the Czech Republic (OECD, 1996); (iii) the overshooting of the money supply range published by the CNB has undermined the credibility of this target.

¹⁶ For more detail on the question of sterilised and non-sterilised intervention, see Section V.4.

¹⁷ See OECD Economic Surveys, Czech Republic, 1996.

competitiveness is implied. Even if we accept the notion that the implied real equilibrium exchange rate of the current situation is somewhat below the true level of the real equilibrium effective exchange rate,¹⁸ the situation will not be sustainable forever.

Stabilisation on the basis of a fixed exchange rate will sooner or later call for a parity adjustment if it is not possible to stop inflation completely.¹⁹ A delayed adjustment would result in an overvaluation, the expectation of a devaluation and the need to keep real interest rates high to ward off a potential speculative attack. In the end, an exchange rate crisis could lead to a collapse of the exchange rate arrangement. So one of the main questions at this point in time appears to be: for how long is the current exchange rate arrangement credible, if at all?

(b) Poland

Poland was suffering from rapidly accelerating inflation, bordering on hyperinflation, at the end of 1989. After an initial peg to the US dollar and a substantial devaluation of the zloty, the current system of a crawling peg devaluation of the zloty against a basket of currencies was introduced in October 1991. Initially, monthly devaluations were set at 1.8% (23.9% annualised) and were subsequently lowered in small steps to stand at 1.0% (12.7% annualised) at the beginning of 1996. The downward crawl was complemented by an occasional step devaluation, the last one occurring in August 1993. In December 1995, the value of the zloty's central rate was raised for the first time by 6.4%.

While actual price performance as measured in terms of consumer prices outpaced zloty devaluation by wide margins when the crawl was first introduced, domestic price devaluation has been more in line with actual zloty depreciations since about the end of 1994.

Decisions on discretionary devaluations were taken on the basis of prevailing circumstances, notably as regards the balance of payments and the level of forex reserves. This policy preserved Polish competitiveness, contributing to an 85% rise in the dollar values of merchandise exports to the industrial world between 1992 and 1995. On the other hand, such discretionary interventions raise the question of whether the stabilisation effort pursued by the "stable" crawling peg policy was not being undermined. Owing to the solid macroeconomic performance already evident in 1994, the authorities had to begin intervening to resist upward pressure on the exchange rate and reserves started to rise. Further heavy capital inflows in the early months of 1995 led to a widening of the effective exchange rate band in May. Despite a subsequent appreciation of the zloty, capital inflows continued. Accordingly, the latest exchange

¹⁸ For a more detailed discussion, see Section IV on exchange rates and prices.

¹⁹ This argument is the standard one in which a fixed exchange rate entails inflationary pressures which ultimately explode in a sudden balance-of-payments crisis, leading to a currency depreciation; see Dornbusch (1990) and Obstfeld (1996). The latter author explores a new set of models which is essentially based on the government's continuous comparison of the net benefits of changing the exchange rate with those of defending it.

rate measure was to raise the central parity 6½% in December 1995, and to reduce the downward crawl from 1.2% to 1% per month from January 1996.²⁰

Table 3
Poland: exchange rate developments

Date	Exchange rate policy	Action	Comments
Before 1990	Multiple exchange rates, adjustable peg to a basket of currencies.	Frequent and substantial devaluations.	
1st January 1990	Fixed exchanged rate system.	Unification of official and black market rates. Devaluation (31.6%).	Exchange rate: PLZ 9,500 per USD.
17th May 1991	Fixed exchange rate system.	Devaluation (16.8% against the dollar, 14.4% against the basket). Shift from a dollar peg to a basket peg.	Exchange rate: PLZ 11,100 per USD. Basket includes: US dollar (45%), Deutsche Mark (35%), pound sterling (10%), French franc (5%) and Swiss franc (5%).
19th October 1991	Pre-announced crawling peg.	Rate of crawl announced: 1.8% per month (PLZ 9 per day).	
25th February 1992	Pre-announced crawling peg.	Devaluation (10.7% against the basket). Rate of crawl: 1.8% per month (PLZ 11 per day).	Exchange rate: PLZ 13,360 per USD.
10th July 1992	Pre-announced crawling peg.	Rate of crawl: 1.8% per month (PLZ 12 per day).	Basket unchanged. Technical adjustment made.
27th August 1993	Pre-announced crawling peg.	Devaluation (7.4% against the basket). Rate of crawl reduced: 1.6% per month (PLZ 15 per day).	Exchange rate: PLZ 23,113 per USD.
13th September 1994	Pre-announced crawling peg.	Rate of crawl reduced: 1.5% per month.	
30th November 1994	Pre-announced crawling peg.	Rate of crawl reduced: 1.4% per month.	
1st January 1995	Redenomination.	One new zloty equal to 10,000 old zlotys.	
15th February 1995	Pre-announced crawling peg.	Rate of crawl reduced: 1.2% per month.	

²⁰ See Bank for International Settlements, 66th Annual Report, 1996, p. 49.

6th March 1995	Pre-announced crawling peg.	Margin in interbank market widened to +/- 2% around official rate.
16th May 1995	Float within crawling band.	Rate permitted to fluctuate +/- 7% around the central rate, which continues to crawl at 1.2% per month.
21st December 1995		The value of the zloty's central rate is raised by 6.4%.
8th January 1996	Pre-announced crawling peg.	Rate of crawl reduced: 1.0% per month.

The current exchange rate arrangement has generally served Poland well, as it has contributed to slowing inflation and to providing a measure of assurance that competitiveness is not being undermined. On the other hand, discrete adjustments of the zloty, mainly out of concern for competitiveness, have probably not helped to further confidence in the currency. The implications of the fixed exchange rate regime for interest rates are probably not very favourable either, as the authorities have been unwilling to let interest rates adjust in step with changes in the balance of payments. With capital mobility increasing, the issue is whether the current exchange rate regime should remain an appropriate anchor or whether more exchange rate flexibility should be allowed.

(c) Hungary

In March 1995, the NBH instituted a pre-announced crawling peg with a monthly rate of devaluation of 1.9% from April to June and of 1.3% for the remainder of the year. Starting in January 1996, the monthly devaluation rate was reduced to 1.2%. Up to March 1995, the nominal value of the forint had been fixed but adjusted at discrete intervals.

Up to March 1995, the authorities had pursued a policy aimed at maintaining a constant real exchange rate by compensating for inflation only ex post through discrete changes in the nominal exchange rate. The latter policy was to exert downward pressure on prices but ran into problems on two counts: once it became clear that the current account was moving rapidly into deficit as from around the middle of 1993, pressure mounted on the exchange rate, which had to support two conflicting goals - restraining inflation and supporting the current account.²¹ By late spring 1994, it became clear that the current account was to be given priority and that the authorities were willing to relax their commitment to reducing inflation temporarily. In spite of heavy purchases of forints in the order of USD 1.5 bn in the summer of 1994, the outcome of this gradual shift in policy was a large nominal devaluation of 8% in August 1994 followed by another large devaluation of 9% in March 1995.

A second reason for the shift in policy was the unsettling effect of the discrete nominal exchange rate changes in the markets. The currency realignment episodes were invariably preceded by anticipatory behaviour in the foreign exchange markets as banks tried to bid up the value of foreign currencies and changes in leads and lags in payments and settlements in foreign trade introduced further cost elements.²²

²¹ Riecke (1995) aptly describes the Hungarian policy dilemma, concluding that "external and internal equilibrium could only be restored through cutting domestic demand" (p. 4).

²² Such inefficient movements in the exchange rates are aptly reflected by the seesaw movements in the ex post dollar rates of return on forint holdings (for more detail, see OECD, 1995a, p. 62).

While the final goal of monetary policy in Hungary during the past few years has in principle remained unchanged, i.e. the reduction of inflation,²³ the new crawling-peg policy makes the movements in the exchange rate predictable and places a floor under price developments. The exchange rate risk itself becomes calculable, and foreign trade should benefit from such a constellation.

²³ Hungarian legislation stipulates that the primary and most important task of the central bank is to protect the purchasing power of the domestic currency.

Table 4
Hungary: exchange rate developments

Date	Exchange rate policy	Action	Comments	
Before 21st March 1989	Multiple exchange rate	Substantial devaluation		
21st March 1989	Pegging against a basket according to currency composition of foreign trade	Devaluation (5%)	Major change in policy	
14th April 1989		Devaluation (6%)		
18th July 1989		Revaluation (-0.5%)		
25th July 1989		Revaluation (-0.1%)		
29th July 1989		Revaluation (-0.1%)		
1st August 1989		Revaluation (-0.07%)		
8th August 1989		Revaluation (-0.53%)		
15th August 1989		Revaluation (-0.2%)		
15th Dec 1989		Devaluation (10%)		
31st January 1990		Devaluation (1%)		
6th Feb 1990		Devaluation (2%)		
20th Feb 1990		Devaluation (2%)		
7th Jan 1991		Devaluation (15%)		
8th Nov 1991		Devaluation (5.8%)		
9th Dec 1991		Pegging against a basket: 50% ECU, 50% USD		New basket
16th March 1992	Devaluation (1.9%)			
23rd June 1992	Devaluation (1.6%)			
9th Nov 1992	Devaluation (1.9%)			
12th Feb 1993	Devaluation (1.9%)			
26th March 1993	Devaluation (2.9%)			
7th June 1993	Devaluation (1.9%)			
9th July 1993	Devaluation (3%)			
2nd August 1993	Pegging against a basket: 50% ECU, 50% USD		Change in basket	
29th Sept 1993			Devaluation (4.5%)	
3rd January 1994			Devaluation (1%)	
16th Feb 1994			Devaluation (2.6%)	
13th May 1994			Devaluation (1%)	
16th May 1994			Pegging against a basket: 70% ECU, 30% USD	Change in basket
10th June 1994	Devaluation (1.2%)			
5th August 1994	Devaluation (8%)			
11th Oct 1994	Devaluation (1.1%)			
29th Nov 1994	Devaluation (1%)			
3rd January 1995	Devaluation (1.4%)			
14th Feb 1995	Devaluation (2%)			
3rd March 1995	Devaluation (9%)			
16th March 1995	Crawling peg introduced	Devaluation (1.9% monthly)		Major change in policy announced on 12th March 1995
1st July 1995		Devaluation (1.3% monthly)		

1st January 1996	Devaluation (1.2% monthly)	Announced on 30th August 1995
1st July 1996	Devaluation (maximum 1.2% monthly)	Announced on 30th August 1995

4. *The size of the forex market*

In implementing their exchange rate policy, central banks rely on an efficient forex market. While efficiency may be an elusive concept, certain indicators may provide some insight as to whether this market is sufficiently developed. The size of the market is one such indicator.²⁴

The BIS's 1995 "Central Bank Survey of Foreign Exchange and Derivatives Market Activity" (BIS Central Bank Survey) collates data on foreign exchange turnover, an indicator of the size of the forex market, provided by central banks and monetary authorities in 26 countries with regard to their local markets. Table 5 sets out some of the data providing a measure of market activity, and can also give a rough indication of market liquidity. In that sense, the data may be useful even if they may not be strictly comparable with the BIS's latest Central Bank Survey data.²⁵

Table 5

Foreign exchange market turnover¹ in USD million per day

Country	Total FX turnover	Spot transactions			Outright forwards and FX swaps		
		With other dealers	With financial institutions abroad	All other	With other dealers	Swaps with financial institutions abroad	All other
Czech Republic	1,065	352	441	116	50	72	34
Poland	515	340	150	0	25	0	0
Hungary	694	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Russia	190	171	9	0	10	0	0
Total as a %	100	49	34	6	5	4	2

²⁴ The concentration of players or the large assets of a few players (even though there are quite a number of players) may also be relevant as too few players may, for example, exhibit collusive behaviour.

²⁵ Bank for International Settlements (1996), Central Bank Survey of Foreign Exchange and Derivatives Market Activity. This is the third triennial survey.

Emerging economies ²	18,854	7,486	2,999	3,422	1,764	2,086	1,097
Total as a %	100	40	16	18	9	11	6
Global result of Central Bank Survey ³	1,866,760	640,430	51,657	104,256	797,184	65,776	160,812
As a %	100	34	3	6	43	4	9

¹ The results refer to April 1995; data on a "gross-gross" basis, i.e. not adjusted for local and cross-border inter-dealer double-counting. ² Brazil, China, Colombia, India, Korea, Malaysia and Thailand. ³ Includes 26 countries; figures do not add up to total because of incomplete reporting.

While the forex markets in all these countries are young and deepening fast, they are understandably still quite small and exhibit characteristics not uncommon to emerging market economies. The largest forex turnover in the group reviewed in this paper is recorded by the Czech Republic, where it is more than 50% higher than in Hungary. But even the Czech Republic's reported total forex turnover (USD 1.1 bn per day) is still quite a bit lower than the smallest figure for the group of 26 countries reporting for the BIS Central Bank Survey (USD 2.7 bn per day, in Portugal). The turnover in the three central European markets is growing rapidly. For example, by June 1996, the Hungarian foreign exchange market turnover had reached approximately USD 1.2 bn per working day, nearly doubling its size since April 1995.

Spot transactions in the countries under review here have a much greater weight than outright forwards and foreign exchange swaps - a feature not uncommon to fairly new and shallower markets. The latter aspect can also be gleaned from the BIS Central Bank Survey: the market segment accounted for by spot transactions in some of the relatively smaller reporting economies, like Austria, Ireland, Bahrain and Greece, is around 60% of the forex market, with the average for the other countries close to 40%. While a benchmark of around 40% is of course a somewhat arbitrary figure, such an average is nevertheless indicative of the situation in industrial countries. Data collated on an individual country basis for a group of emerging economies indicate that unlike in industrialised countries, spot transactions have a much greater weight (75% of turnover) than outright forwards and foreign exchange rate swaps. In the countries under study here, this percentage is even higher, amounting to around 90%, indicating that the depth of the forex market, in particular the swap segment, is likely to grow in future.

Business with financial institutions abroad is also much more extensive in this group of central European countries than in a selected group of emerging economies (27%) or in the 26 countries included in the BIS Central Bank Survey (only 7%). This appears to indicate a relatively low liquidity in the domestic market, while dealer-dominated domestic business reflects a relatively high liquidity in the forex markets of the industrial countries.

The introduction of Czech koruna convertibility imparted considerable momentum to the development of the interbank foreign exchange market. The fast growth of direct trades among commercial banks has allowed the CNB to gradually

relax this market's regulation. In fact, despite a larger volume of foreign exchange purchases by the CNB in 1995 than in 1994, its share of the market dropped. In the Czech Republic, banks and brokers, both domestic and foreign, are the biggest participants in the interbank foreign exchange market. Activities of non-bank financial institutions and enterprises, with some exceptions, have not been decisive for the market.²⁶

The forward market in Poland is quite young. It was underdeveloped essentially because of the surrender requirement for foreign export receipts, which was dropped in December 1995, giving some impetus to the expansion of this market. While the spot and forward markets are growing rapidly in Hungary, swap markets are lagging behind.²⁷

The forex markets in the countries under review are small, and some segments, like swaps with financial institutions (present only in the Czech Republic), are still missing. In comparison with industrial countries, and to a lesser extent also with regard to larger emerging market economies, the forex markets are still relatively weak. This weakness is reflected in the dominant role played by spot transactions compared with outright forwards and foreign exchange swaps. Low liquidity in domestic forex markets may also be considered a soft spot in their development.²⁸ Domestic banks are the important players in the forex markets. In all countries, however, the monetary authorities still exercise a lot of discretion in the forex markets and are the main players, albeit with a view to gradually reducing their role in the price-setting mechanism.

5. *Summary*

Not surprisingly, the reasons for the recent changes in exchange rate policies appear to be somewhat similar. The exchange rate is viewed as the nominal anchor for inflationary expectations. Poland and, more recently, Hungary have been using the exchange rate framework of the crawling peg to bring down inflation. The Czech Republic is looking at its current exchange rate policy more in terms of stabilising inflationary expectations, realising that other factors are dominating the inflationary processes in the country.²⁹ While aspects concerning competitiveness obviously enter into consideration, all countries also seem to be voicing some concern about rapid capital inflows. However, surprisingly little is being said about the impact of these exchange rate policies on the conduct of monetary policy, in particular interest rate policy. The underlying forex markets still seem to be exhibiting signs of serious

²⁶ For more details, see Czech National Bank, Annual Report, 1995 (VI.3, The Interbank Foreign Exchange Market of the CNB).

²⁷ While nearly 60% of the market is forint trade vis-à-vis other currencies (more than half of which vis-à-vis the US dollar), trade in foreign currencies is dominated by the USD/DEM segment.

²⁸ The currency breakdown of the forex data indicates that the domestic currency is bought and sold above all vis-à-vis US dollars, except in the Czech Republic, where the Deutsche Mark is slightly more important (53%). Turnover of non-domestic currencies is dominated by USD/DEM forex dealing (80% of the market).

²⁹ Another way of looking at this is by differentiating between the endogenous and exogenous crawling peg. In the former case the nominal exchange rate is periodically adjusted to the actual inflation rate, while in the latter the exchange rate is adjusted in steps related to the projected rate of inflation.

weaknesses in terms of depth and liquidity. Central banks are aiming to reduce their involvement in the forex market but at this point may still be classed as the dominant players. Central bank independence in the broader context explained above and the move toward current account convertibility³⁰ are probably conditions sine qua non for further developing the credibility of the central bank's policies.³¹

II. Selected issues in current exchange rate regimes

While the appropriateness of the current exchange rate regime remains an issue in all three economies, the above demonstrates that the current choice of regime was essentially the result of economic/political forces prevailing at the time, confirming the historically stylised fact that these regimes do not prove to be permanent and that countries have tended to switch back and forth between different ones. With central bank independence established to some extent and the forex markets in all these countries thin and subject to potential government "interference", one should ask what light the theoretical and empirical literature may shed on the narrower issue of exchange rate bands.

Such literature on exchange rate bands (captured by the target zone literature) has grown rapidly in the last few years, stimulated by a simple exchange rate behaviour model developed by Krugman (1987 and 1991). His model assumes that the principle of setting limits on the range of exchange rate variations is established. Also, the model does not provide any insight into whether or not such an exchange rate policy might be optimal or preferable in certain circumstances. However, Krugman, in explicitly ignoring the latter two arguments, contends that exchange rate modelling in such an environment should be different from that in an environment of free floating.

One key result obtained by him is that an exchange rate which is restricted to the band exhibits mean reversion, i.e. the exchange rate has the tendency to revert to its mean central rate.³² The practical upshot is that the introduction of the band has a stabilising effect on expectations.³³

³⁰ Similarly, Hochreiter (1995, p. 9): "An acceptance of Article VIII would, in our opinion, also be conducive to further raise the credibility of monetary policy and the reputation of the central bank." And later (p. 10): "... the introduction of (partial) convertibility in countries under consideration has raised the credibility of the reform process."

³¹ It may also be mentioned here that all three countries have signed EU Association Agreements and have applied for EU membership. This led the Austrian National Bank (1996) to conclude that "harmonizing exchange rate policies with those prevailing in the EU and especially with the future European Monetary Union (EMU) will certainly become a crucial issue in the near future".

³² This holds true in the world of Krugman even in the absence of any "intramarginal" interventions. The model also posits symmetrical expectations with regard to depreciation and appreciation.

³³ The Krugman model and the subsequent literature assume a "neo-classical" view: in an open economy, either the money supply or the nominal exchange rate can serve as a nominal anchor. Such an anchor is usually viewed as a necessary condition for macroeconomic stability since, at least in the long run, all nominal variables will converge to the preset rate of growth of either the money supply or the exchange rate. Assuming appropriate fiscal and microeconomic policies, the price stability brought about by a

Krugman himself raises the question of "imperfect credibility", admitting that he has assumed throughout that the commitment to defend the target zone is completely credible. However, in the real world, the probability that the band will be defended at all costs or under all circumstances cannot be 1.

Empirical tests have invariably been unable to confirm this simple Krugman model and have consequently led to a range of related research by adding some real-world complexity, i.e. such factors as devaluation risk and intramarginal interventions (and learning processes). For example, Bertola and Caballero (1992) conclude from their study of the ERM that the realignment probability, particularly in the early period of the ERM when realignments were more frequent, increases as the exchange rate moves closer to the upper part of the band, clearly negating the mean-reversion hypothesis. The upshot for the behaviour of the interest rate differential is quite striking: while a Krugman-type model would posit a narrowing of the differential between domestic and foreign interest rates as the exchange rate moves within proximity of the upper bound, the interest differential may be increasing in the Bertola/Caballero world. In fact, the history of the ERM shows that interest rate differentials have grown before realignments. Svensson (1994) concurs with the latter analysis and by including time-varying realignment expectations in his analysis concludes similarly that there is no simple deterministic relation between the interest rate differential and exchange rates.³⁴

The policy conclusion that appears to emerge from the above is unfortunately less comforting than one may have thought. It is not necessarily the case that the introduction of an exchange rate band provides more "interest rate flexibility". In fact, such flexibility may be much more constrained owing to the introduction of the band. It is not clear whether, for example, observed interest rate differentials should increase or decrease as the exchange rate moves towards the upper boundary of the band. There is no simple relationship between the movements in the interest rate differential and the exchange rate as exchange rate expectations are not symmetrical around central parity and as there will always be a residual probability of a realignment of the band.³⁵ The ultimate answers are to be found in the empirical domain.³⁶

From a central bank's point of view, the band is a fairly complex structure. While bands may force the hands of the monetary authorities when the exchange rate reaches its upper or lower limit (intervention and/or adjustment of the central parity), exchange rate changes in the band may also not collate fully with the behaviour of interest rate differentials owing to the uncertain development of market expectations. While the exchange rate band is often seen as providing the authorities with some room for manoeuvre in setting their domestic short-term interest rates, this point is not undisputed. In particular, it is not clear whether any leeway could or should be used in

nominal anchor should ensure that the economy achieves long-run economic growth. (See Calvo et al., 1994.)

³⁴ I have somewhat simplified the argument (see Svensson, 1992, p. 132).

³⁵ Similarly, Lysebo and Mundaca (1992).

³⁶ Other regularities are not included here, but several studies have found that interest rate variability increases on the days before the central parity is adjusted (see, for example, Svensson, 1994).

setting short-term interest rates and, if so, how much. The literature demonstrates that claiming more room for manoeuvre in setting interest rates when establishing an exchange rate band is not necessarily valid.³⁷

III. Exchange rate policy and confidence - a contradiction in terms?

1. *Credibility and exchange rate policy*

In spite of some of the problems referred to in the preceding section, all central European countries have introduced bands of $\pm 6-7\%$. Why has such a consensus emerged? The available theoretical literature does not provide us with a guidepost as to the "optimal" band width. However, the experience with band widths in the European context may have helped: on some counts, the $\pm 2.25\%$ around a central parity in the exchange rate mechanism of the EMS may have proved too narrow, while the $\pm 6\%$ for some currencies may have proved to be a "feasible" range.³⁸

Is there any literature that would tell us when it might be opportune to introduce the band?

The country in which the arguments have to some extent been made explicit is the Czech Republic. Apparently, the authorities had already decided to introduce the band some time (about three months) before its scheduled inception but were looking at market developments, in particular the behaviour of short-term capital inflows, in order to decide on the timing of the introduction. The CNB argues as follows: "At the same time (*last quarter of 1995*), the anticipated widening of the crown's fluctuation band strengthened the short-term capital inflow, as it was connected to speculations on the nominal appreciation of the crown promoted by improved economic expectations and an inflation drop in the second half of the year. This complicated the widening of the crown's fluctuation band. To impose it at that time would have led to further intensification of the capital inflow and to either a more substantial one-time nominal appreciation of the crown, or an increase in CNB expenditure on sterilisation. Therefore the CNB policy remained unchanged. At year-end, these expectations faded as a result

³⁷ The experience gained in Chile, Israel and Mexico may be relevant to the countries under review. The aforementioned countries also relied on exchange rate discipline in order to terminate the rapid inflation period, then experienced real exchange rate appreciation and, in order to relax the fixity of exchange rates, introduced exchange rate bands a few years after the inception of exchange-rate-based disinflation. Also, the nature of the bands seems somewhat similar as they typically feature a crawling peg parity, a unilateral commitment by the countries' authorities to intervene to support the bands and a much greater width than in Europe before the crisis. On the other hand, there are other countries introducing exchange rate bands. Venezuela is a case in point: after the removal of exchange rate controls in April 1996, the heavily depreciated bolivar was placed into an exchange rate band in May 1996.

³⁸ Comparisons with the ERM are complicated by at least two important differences: (i) the eastern European countries have taken unilateral decisions, while the ERM is essentially a bilateral parity grid in which a common decision-making process determines any changes; (ii) membership of the ERM provides access to the system's credit facilities, while in eastern Europe each country has to rely on its own reserves to "defend" the currency (see Bofinger 1990).

of data on a higher balance of trade deficit, and the inflow of speculative capital stopped."³⁹ The band was subsequently widened by the end of February 1996.

As the countries under review here may be considered small open economies and on the assumption of free capital mobility,⁴⁰ the frequently chosen starting point for the analysis of the exchange rate is a country with fixed exchange rates. Disregarding any foreign exchange premium, the domestic interest rate equals the foreign interest rate plus the expected rate of exchange rate depreciation/appreciation until maturity of the interest rate instrument. The domestic central bank has no choice but to let the domestic interest rate rise or fall with the foreign interest rate. If it tries to lower interest rates, investors will shift their capital to a foreign currency, capital outflows will result and the central bank may be inclined to raise interest rates in order to avoid a loss of reserves. If the central bank tries to raise domestic interest rates, this will have the opposite effect: investors will shift their investments to the domestic currency, and foreign exchange reserves will increase liquidity in the economy and force the domestic interest rates down. The domestic interest rate acts as the sole shock absorber in such a simplified world. If one introduces a non-zero band to such a world, the expected rate of currency change relative to some central parity need no longer be zero, thus providing the central bank theoretically with some room for manoeuvre in interest rate policy.⁴¹ However, it is not immediately obvious whether such room should be used and/or whether we actually experience more desirable interest rate behaviour (e.g. measured potentially by interest rate smoothing) and at what cost (at worst, the loss of a fixed anchor).⁴²

While research on exchange rate bands has focused on the resolve of the central authorities introducing and potentially defending the band mechanism and on that of the market in testing the credibility of the band when upper or lower intervention

³⁹ Czech National Bank, Annual Report, 1995.

⁴⁰ Please note that this point is not undisputed (see Koch, 1997). While current account transactions are liberalised, capital account transactions have become increasingly so. For example, in the Czech Republic, the following transactions are still subject to regulation: the establishment of accounts abroad by residents, the outright purchase of securities by residents, provision of financial credits to non-residents and real estate purchases by non-residents (Czech Republic, Annual Report (1995), p. 36). (See also Section V.)

⁴¹ For a more technical analysis, see Svensson (1994).

⁴² The role of capital flows merits special attention in this connection. While, for example, an increased margin between domestic and foreign interest rates may induce capital inflows, it is difficult to assess the potential magnitude of these flows on the margin. Such flows may potentially play havoc with domestic financial markets. In a simplistic way, the EMS experience is the following: domestic interest rate variability increased before realignments, and with heightened expectations of a realignment and sluggish upward movement in domestic interest rates, large amounts of capital left the country which was under pressure to devalue. After the realignment, short-term capital inflows occurred, reversing the previous outflows, so that the net result around three months after the realignment was about zero.

margins are reached, empirical testing of what credibility within the band means and implies has essentially been carried out on a country by country basis.⁴³

The only available empirical paper in this domain for central European countries concerns the Hungarian experience. The paper, by Darvas (1995), finds that the forward exchange rate exceeded the upper edge of the projected target zones of the forint (simple test proposed by Svensson) after the last forint depreciation in March 1995, implying that covered interest parity does not hold for the present Hungarian foreign exchange market as the interest rate differential is much higher than the expected depreciation and devaluation of the forint would require. Also attesting to the strength was the spot rate of the forint, which hovered at the lower end of the band. According to Darvas, the main factor negating covered interest parity was market imperfections. These were loosely classed as follows: (i) exclusion of foreigners from the domestic forex markets; (ii) lack of mobility for capital inside and outside the country owing to poorly informed domestic investors and to regulations governing capital transactions with non-residents; and (iii) distortions in the financial system which undermine interest rate formation. He concludes that these wedges in the financial system thus make the results of any testing of the credibility of exchange rate bands quite doubtful.

The choice of Hungarian and German three-month Treasury bills as used by Darvas in his empirical test may violate the principle of instrument homogeneity. Covered interest parity may be violated as the assets considered by him were not comparable in terms of issuer and credit risk. Studies therefore generally employ data on eurocurrency interest rates as these are fairly risk-homogeneous except for their currency of denomination and as they lend themselves best to an assessment of whether a forward rate falling outside the exchange rate band may be indicative of an expected crisis of confidence in the central parity. In Hungary, in addition, custom-tailored Treasury bills and bonds sold outside the regular auctions by the NBH render these markets opaque, and this lack of openness also places an effective lid on foreign participation in this market. The results for Hungary seem to indicate that empirical testing of the confidence in exchange rate bands may be premature essentially owing to market imperfections and the lack of homogeneous interest rate instruments.

2. *Building credibility*

In a wide range of studies, policy credibility is essentially defined as the expectation that an announced policy will in fact be carried out. Although it may be true that apparently "tough and consistent" behaviour over a longer time horizon may reinforce credibility at one point in time, such a policy over a given period may lower rather than raise the credibility of a non-devaluation pledge subsequently.

The following story captures the credibility conundrum quite well.⁴⁴ One afternoon, a colleague announces to you that he is serious about losing weight and plans

⁴³ For the Swedish case, see Svensson (1994); for the Norwegian case, see Lysebo and Mundaca (1992).

⁴⁴ Based on Drazen and Masson (1994).

to skip dinner. He adds that he has not eaten for two days. Does this information make it more or less credible that he really will skip dinner? It appears that with each meal he skips, the "tough policy" of skipping the next meal becomes more credible, as each observation of playing tough raises the probability we assign to his being a fanatical dieter. However, once we realise that his skipping one meal makes him even hungrier at the next mealtime (i.e. that policy has persistent effects), we are led to the opposite conclusion, namely that it becomes less likely he will stick to his diet the more meals he has skipped.

The above would be borne out by Dornbusch's (1990) view that the probability of no realignment of the central rate can never be zero in a situation in which domestic inflation is higher than inflation abroad, i.e. credibility and thus mean reversion are never definitely established because under some circumstances governments will chose to devalue.⁴⁵ The Drazen-Masson paper (1994) seems to indicate that credibility as measured by non-realignment does not necessarily monotonically decrease with the length of time that there has been no devaluation. In fact, tough policy may actually harm rather than enhance credibility as such a policy constrains the room for manoeuvre in the future. While a policy-maker may be able to ignore the very high cost of unemployment for some time in order to keep inflation down, as was the case in the early years of the EMS, mounting unemployment in the absence of realignment was eventually seen by the markets as undermining credibility and the events of the September 1992 EMS crisis were the eventual result.

Even if credibility is simply seen as a function of the changing link over time between the actual economic situation and the policy-maker, it is quite clear that even the most fervent commitments to non-realignment or non-adjustment of the fixed exchange rate will remain credible only if the underlying economic situation remains benign.⁴⁶ In that sense, it is probably misleading to say that credibility may be earned. The mere passage of time is certainly a very precarious indicator when one realises that the underlying economic structure⁴⁷ or "unanticipated" shocks may require a change in the exchange rate or exchange rate policy.

In fact, a benign macroeconomic policy environment could on some counts be regarded more the exception than the rule. Indeed, some argue that one of the prominent regularities in the financial and real sectors of the economy is that they undergo periodic turbulence and tranquillity with the relative volatility of real and

⁴⁵ The counter-argument is as follows: while underlying fundamentals may get out of line with the nominal exchange rate and if it is desirable to keep the existing nominal exchange rate, adjustments may have to be made in other areas of the economy, such as domestic prices and wages (see Clark et al., p. 2).

⁴⁶ The Drazen-Masson paper (1994) starts with the government's objective of minimising an expected discounted loss function (of unemployment and inflation) and is based on a two-period open-economy model. It concludes (p. 738): "... even a tough policy maker who plans ex ante to keep the fixed parity (and makes public statements to that effect) will devalue in adverse circumstances."

⁴⁷ In the simple world of Krugman (1991), the monetary aggregate and velocity are, for example, the underlying macrovariables.

financial shocks, often exhibiting dramatic shocks.⁴⁸ If we are living in a world of incomplete and uncertain information *ex ante* about macroeconomic structure and our knowledge of the potential nature of disturbances is incomplete while agents are nevertheless acting in such an environment, this may have implications for the potential credibility of the decision-maker, i.e. the monetary authorities.

One strand of literature copes with this problem by proposing an exit strategy or escape clause. For instance, Obstfeld (1991) studies the merits of policy rules with escape clauses, analysing, as an example, fixed exchange rate systems that allow member countries the freedom to realign in periods of stress. He concludes that while well-designed rules with such clauses can improve society's welfare in principle, limited credibility makes it difficult for governments to implement them. The main shortcoming of studies of this type is that the concept of "stress" or, in more general terms, the conditions governing the use of discretion are ill-defined and hence their application in the real world would undermine "credibility". The upshot of this kind of exercise is that one is, in a sense, back at square one: the typical methodology for evaluating any rules and for deriving optimal parameter values for the decision-maker is the assumption that market participants expect the authorities to adhere to the rules indefinitely. This means that there is no room for discretion and the problem of credibility remains unresolved. Of course, there is simplicity and relatively easy accountability in this "permanent rule hypothesis". Providing an escape clause *ab initio* may thus not be an optimal policy.

A broader approach to the credibility conundrum in the literature seems to indicate that the best "real world" response of the monetary authorities to the question of enhancing credibility lies in an "optimal" design of monetary policy. Such an approach attempts to ensure that mechanisms are established for overcoming problems concerning the credibility of monetary policy once it is recognised that discretionary central bank responses to seldom-experienced events might play a valuable stabilisation role.⁴⁹

This broad approach recognises *ab initio* that 100% credibility can never be earned by the central bank in its monetary, or exchange rate, policy. This approach, therefore, confines itself to recognising the following factors as inherently confidence-enhancing.

The institutional set-up and the policy-maker may make the "rules of the game" more credible. One topic in this regard is the legal or *de facto* independence of the monetary authorities' central bank (see Section I). Another is the identification of the decision-maker's economic loss function, which ought to coincide with that of society at large.

Hungary may be a case in point. Independence in the conduct of monetary policy was introduced in earnest only in 1990 in Hungary, first through a public statement from the Prime Minister, József Antall, that he and his Government would not directly influence the decisions to be made at the NBH. While Act LX on the NBH, adopted by Parliament at the end of 1991, marks the start of "autonomous" monetary

⁴⁸ See Flood et al. (1989).

⁴⁹ Flood and Isard (1989), in fact, claim that they are welfare-enhancing.

policy decisions, it is ultimately the goals of monetary policy that set the stage for their implementation.⁵⁰ Monetary policy formulation is an ongoing process and its evolution can to some extent be gleaned from the regular and annual reports of the NBH. It is the President of the NBH who presents the principles of monetary policy for the year ahead to Parliament. These reports reveal that monetary goals and objectives have not yet been formulated consistently over time. The main reasons for the changes in monetary policy formulation appear to be twofold. As the transition process has moved forward, priorities have changed. Monetary policy is part and parcel of the fabric of overall policy, and as the financial problems raised by transition have changed, monetary policy has had to adjust. The second reason may be classed as political. Changes at the helm of the NBH have in the past been due to changes in the political set-up of the country. As the President of the NBH essentially sets the tone of monetary policy and it is his ideas which are essentially implemented, non-continuous changes of presidential appointee have led to changes in monetary policy. This does appear to be the case, as Presidents of the NBH have had different ideas about monetary policy.⁵¹

While shifts in underlying economic parameters are continuously time-dependent, monetary policy measures and their intent should be made clear to the market from the outset, as should be the case with any subsequent measure. The monetary authorities should constantly ensure that markets understand any policy measures taken. In addition, it would probably increase "confidence" if the upside and downside risks of such an "open" policy were stated in unambiguous terms.

A different situation may arise when single and important unpredictable events occur, i.e. events which cannot be captured by probability distributions and which should be classed under "uncertainty" for the policy-maker. In such cases, discretionary action should be allowed which should not undermine confidence in the basic policy strategy of the monetary authorities. This can probably be achieved in part by recognising the existence of such events and by subsequently also making the decision-maker accountable to the existing political structure via some rigorous defence mechanism. Such processes, to be credible to the market, should not be opaque but defined in advance, and an active information campaign would ensure that potential information deficiencies would not undermine that credibility.

Although the above-mentioned credibility-enhancing measures do not appear very sophisticated, they seem to provide a solid base to build upon.

⁵⁰ Act LX of 1991 bestowed a large degree of independence upon the NBH (Article 45) and stipulates that the fundamental task of the Bank is to ensure the domestic and external purchasing power of the national currency (Article 4).

⁵¹ The most recent example is the replacement of Mr. Bod with Mr. Suranyi. Mr. Bod's policy formulation at the beginning of 1995 was changed quite dramatically when Mr. Suranyi was appointed in March 1995.

IV. Exchange rates and prices

While price developments are apt to undermine confidence in a policy of more or less fixed exchange rates as pursued in the Czech Republic, they are less likely to lead to any "confidence" problems in the case of Poland or Hungary, where prices are directly included in the policy framework.⁵² On the other hand, the implicit inclusion of inflation which follows from a crawling peg policy may risk cementing the continuation of price inflation or even increase the risk of an acceleration.⁵³ The latter danger seems to be less pronounced in Poland and Hungary as the monthly devaluation due to the crawling peg has been continuously lowered. However, central banks are obliged to, and do indeed, observe actual and estimated price developments. Exchange rate bands are looked upon by some as helping to restore external price competitiveness after a period of real appreciation, i.e. imposing price discipline or even a reduction in inflation or inflationary expectations. Is a wider band, then, likely to allow competitiveness considerations in the medium run?⁵⁴

One of the key questions in this context is how, if at all, the exchange rate changes feed into domestic prices. Table 6 provides a rough indication. While other factors also play a role in determining domestic price developments or may even be more important than exchange rate changes,⁵⁵ it appears that depreciation tends to have a sizeable and immediate impact on domestic prices. The acceleration in the rate of depreciation of the Hungarian forint from mid-1994 led to a sharp jump in the rate of price inflation, although an import surcharge also contributed to this. Conversely, a slower rate of depreciation of the Polish zloty led to a sharp drop in the rate of inflation.⁵⁶ Taking peak and trough values for the Czech koruna central rate during the most recent period, one discerns swings in the exchange rate. However, in contrast to the case in the other two countries, the direction of the impact on prices is not unambiguous or at least small. The development of prices in the Czech Republic is thus

⁵² While the "optimal" choice of the peg remains an unresolved issue, Hochreiter (1995b, p. 5) argues that a single currency peg may be the one with the most potential for gaining credibility: "In this respect a single currency peg constitutes the simplest rule. It is transparent, easily understood by policy makers and the public and therefore preferred."

⁵³ See Hochreiter (1996).

⁵⁴ See, for example, the statement issued by Governor Tosovsky on Reuter, 9th April 1996.

⁵⁵ The problem of price inertia (or downward rigidities) is currently a serious policy concern in all eastern European countries. In the Czech Republic, for example, currently about 10% of prices are still regulated (rents and some energy prices). The envisaged deregulation process is expected to contribute two percentage points to inflation during the next two to three years. Some rigidities in the factor and labour markets (bottlenecks) also account for the relatively weak inflation outlook (OECD, 1995). Similarly in Poland, relative price adjustment, combined with indexation and inertia, has been part and parcel of Polish inflation (IMF, 1995).

⁵⁶ The 66th Annual Report of the BIS (1996) juxtaposes to some extent the experience in the developing world with that in the industrialised world, essentially arguing that in the latter group of countries the exchange rate/price link appears to be much less close or immediate than in many countries in the former group (see p. 39).

dominated by other factors. In small open economies, the effect on prices should be almost immediate as traders know clearly in advance the intended nominal behaviour of the domestic exchange rate.

Table 6
Exchange rates and inflation

Country	Depreciation ¹	Wholesale prices ²	Consumer prices ²	Imports as a % of total expenditure
Czech Republic				
January 1994 - July 1995	6.8	6.6	8.2	
July 1995 - March 1996	- 5.4	5.5	10.9	29.0
Difference	-12.2	-1.1	2.7	
Poland				
January 1993 - January 1995	24.5	25.5	31.8	
January 1995 - January 1996	4.3	13.8	20.4	26.0
Difference	- 20.2	- 11.7	-11.4	
Hungary				
July 1993 - July 1994	12.2	13.6	19.5	
July 1994 - July 1995	34.0	30.2	29.2	19.0
Difference	+21.8	+16.6	+9.7	

¹ Change in local currency per unit of foreign currency. For currency basket, see Table 1 (except for Poland: 45% USD and 55% ECU). ² Lagged by one month.

A corollary to the above is the movement of the real effective exchange rate⁵⁷ as one indicator of the competitive position of a country. Taking the beginning of 1989 as the starting point, the period of the initial large nominal depreciations clearly coincides with the large drop in the real effective exchange rate implying substantial

⁵⁷ The calculation of the real effective exchange rate is based on trade-weighted indices vis-à-vis 21 industrial countries. The underlying relative price movement is based on consumer prices. For the difference with regard to the use of producer prices, consult Dittus (1993). In general terms, in all eastern European countries, at certain times the real appreciation has been stronger when measured in consumer than in producer prices. The two most important factors explaining this difference are the phasing-out of consumer subsidies and an increased demand for services, combined with an initially small services sector. While there are clearly numerical differences between real effective exchange rate indices based on consumer and industrial prices, they do not seem to undermine the main conclusions drawn in the text.

In order to assess the difference in the behaviour of consumer and producer prices over time, simple correlation coefficients of the quarterly percentage changes in these two time series were in the range of 0.90 for all three countries.

gains in competitiveness.⁵⁸ Notably, the drop in Hungary's real effective exchange rate in the initial stages was rather modest in comparison with the Czech and Polish experience. This may have been one of the main reasons why Hungarian exchange rate policy was continuously plagued by unpredictable and at times substantial nominal devaluations in the subsequent years. However, although this paper does not cover the situation in these countries at the beginning of liberalisation, one major factor that accounted for this difference may have been the level of foreign debt at that time. Whereas the debt/export ratio of the Czech Republic was at a low 40% in 1990 and Poland was at that time already looking back at a history of debt relief/rescheduling agreements, Hungary's debt level stood at USD 21.3 bn, its debt/export ratio was 190% and reserves covered only one month of imports. Understandably, the Hungarians were more cautious with the initial depreciation of the forint. A second reason was the inherited price structure, as prices were less distorted than in other eastern European countries and peak inflation was the lowest for all countries in the region.⁵⁹

Table 7
Real effective exchange rates
% change

Country	1989-96 ¹	Initial depreciation 1989 ²	Subsequent developments	
			up to end-94	1995-96
Czech Republic				
Consumer prices	9.8	-42.7	80.6	6.1
Wholesale prices	6.5	-43.0	78.3	4.9
Poland				
Consumer prices	32.6	-50.0	147.6	7.0
Wholesale prices	7.1	-36.4	73.5	-2.9
Hungary				
Consumer prices	27.4	-10.1	44.8	-1.9
Wholesale prices	0.0	-10.8	14.7	-2.2
<i>Memorandum item:</i>				
Russia				
Consumer prices	-30.5	-98.8	3,423.7	66.0
Wholesale prices	181.6	-98.7	10,664.1	99.4

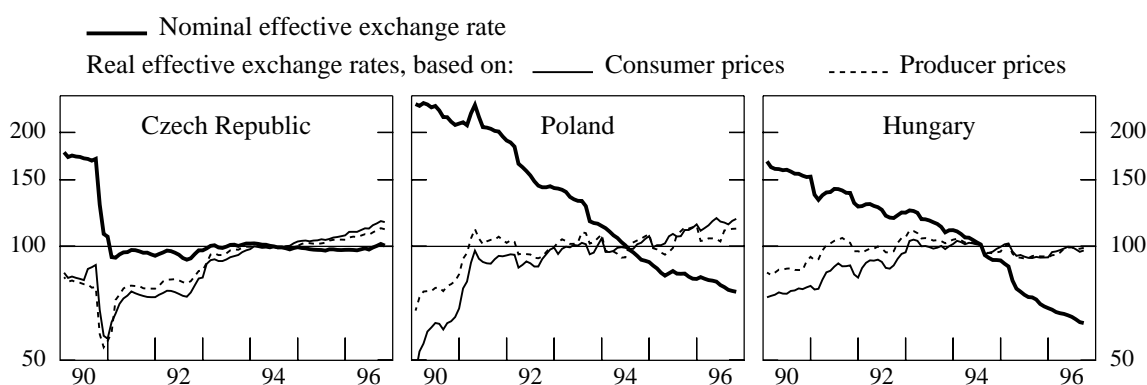
¹ January 1989 to March 1996. ² For the Czech Republic (at that time Czechoslovakia), up to end-1990; for Poland and Hungary, up to end-1989; for Russia, up to end-1991.

⁵⁸ Halpern and Wyplosz (1995) suggest four main factors accounting for the initially large undervaluation: (i) the existence of monetary overhang; (ii) pent-up demand for foreign assets; (iii) the lack of credibility on the part of the new authorities; and (iv) total uncertainty about the appropriate equilibrium exchange rate and, therefore, the tendency for risk-averse authorities to err on the side of undervaluation rather than overvaluation.

⁵⁹ Similarly, Krzak (1995).

While Poland's initial depreciation was the largest, the subsequent real appreciation was also greater than in the other two countries. More recent developments, in 1995-96, have indicated the tendency of the real effective exchange rate to depreciate in Hungary. Poland's real effective exchange rate is moving up, implying some loss of competitiveness, while the real appreciation of the Czech koruna seems to be continuing unabated. Graph 1 neatly juxtaposes the different exchange rate policies pursued, on the one hand, by the Czech Republic (stable nominal rate) and, on the other, by Poland and Hungary (relatively stable real effective exchange rate).

Graph 1
Nominal and real effective exchange rates
Indices, 1994 = 100 (semi-logarithmic scale)



Source: BIS.

Interestingly, all three countries' real effective exchange rates were slightly higher by the spring of 1996 than at the beginning of 1989. This does not, however, imply *prima facie* anything directly about their equilibrium level.

Although the concept of an "equilibrium" real exchange rate may be disputed and it might be difficult to estimate equilibrium rates properly, such considerations are important for the continuous evaluation of a country's competitiveness and may also have a bearing on price performance *per se*. Recent evidence (Calvo et al., 1994) seems to indicate, *inter alia*, that an undervalued real exchange rate is associated with higher inflation. Evidence gleaned through empirical studies on the "right" real exchange rates seems to indicate that by the end of 1994 the Hungarian forint might have had a slightly overvalued real exchange rate and the Czech koruna seemed to be undervalued by a much larger margin than the Polish zloty (see Dittus, 1994). The following explores whether these findings need updating.

One traditional indicator of the scope for further real appreciation is the gap between the dollar value of GNP measured at purchasing power parity (PPP) exchange

rates and the actual dollar value of GNP measured at current exchange rates.⁶⁰ The rough estimates for 1995 indicate that the room for further real appreciation is greatest in Slovakia and Russia; the ratio is the highest for Hungary.

A look at developments over the last few years confirms that the gap between the actual and the PPP exchange rate has been narrowing rapidly. Most notably in the Czech Republic and similarly in Slovakia, the narrowing has been in the order of 50% within the 1993-95 time span. Such developments imply some loss of competitiveness, but they also hint at fast increases in real incomes.

The discrepancy between PPP and actual exchange rates should, however, be interpreted cautiously, as many studies have pointed out that it may be considered more the rule than the exception and as a large number of empirical studies have also confirmed that the ratio of purchasing power parity to the exchange rate is positively related to real per capita GDP. This higher income bias in the PPP literature has a long tradition in the history of economic thought, developed in some depth by Harrod (1939) and recently applied to OECD countries and confirmed in a study by Turner and Van 't dack (1993).⁶¹ The main tenet of this real income bias relates to the fact that the actual exchange rate reflects the importance of non-tradable goods, which tend to be more expensive in higher-income countries.

Table 8
Equilibrium exchange rates

	1994 ¹			1995		Ratio: current USD GNP/ PPP-based GNP		
	GNP/capita (PPP-based)	Population (thousands)	GNP (USD bn)	GNP (USD bn)	GNP ² (PPP-based USD bn)	1993 ³	1994	1995
Czech Republic	7,910	10,295	33.1	45.6	85.3	35.4	40.6	53.0
Poland	5,380	38,341	94.6	120.7	226.9	45.3	45.9	53.0
Hungary	6,310	10,161	39.0	43.8	66.9	53.2	60.9	65.0
Russia	5,260	148,366	392.5	363.7	770.2	44.8	50.3	47.0
Slovakia	6,660	5,333	11.9	17.4	39.2	29.5	33.5	44.0

⁶⁰ PPP is defined as the number of units of a country's currency required to buy the same amount of goods and services in the domestic market as one dollar would buy in the United States (see World Bank Atlas, 1996, p. 33).

⁶¹ The Turner and Van 't dack study (1993) provides a range of further references. The World Bank (1993, p.7) states similarly: "... data show that PPC rates (i.e. rates which equalise prices in place-to-place comparisons) are generally lower than market exchange rates for most countries except for the most developed ones ..."

¹ The World Bank Atlas, 1996. ² 1994 PPP-based GNP multiplied by the country's growth rate and the percentage change in US consumer prices (in US dollar terms, 2.8%). ³ No data available before 1993.

Tables 9 and 10 explore the potential real income bias introduced into the PPP calculation. The methodology adopted here is similar to the paper by Turner and Van 't dack, the main differences being an extended country coverage (80 countries)⁶² and more recent data (1994 instead of 1990); however, the desirable tradable/non-tradable distinction cannot be introduced here owing to lack of relevant data. The data used, therefore, cover the entire range of final goods and services which make up GDP as a whole, including many items such as construction and government services which are not traded.

Table 9

Regression analysis of the ratio of the PPP to the actual exchange rate in 1994

Countries ¹	Coefficient of GDP per head ²	F-statistic	\bar{R}^2
OECD (25)	0.59 (7.0)	49.4	0.68
Other countries (55)	0.26 (4.6)	21.2	0.29
All countries (80)	0.47 (12.2)	148.1	0.66

¹ OECD countries in 1994. Other countries include all countries from the World Bank Atlas except countries from the former Soviet Union and countries for which the PPP data for 1994 were based on estimates from regressions. ² The regressions were estimated in the form:

$$\log \text{PPP/ER} = a + b \log \text{YPC},$$

where: PPP is the purchasing power parity exchange rate for GDP;

ER is the average spot exchange rate;

YPC is per capita income in US dollars valued at PPP.

t-statistics are shown in parentheses.

The results indicate, on the one hand, that shifting the regression from 1990 to 1994 yields similar results. In fact, the strong positive relationship has not changed: on average, a 1% increase in real per capita GDP relative to other OECD countries raises the PPP/ER ratio by 0.59%. In the Turner and Van 't dack study, this ratio was 0.55%. While the cross-country results for a large group of lower-level real-per-capita-income countries are weaker, the more global approach covering 80 countries yields results similar to those of the OECD as the coefficient of GDP per head is somewhat lower, but still close to 50%. For the three countries under review, this last regression result involving a broad range of countries was used as a benchmark, not only because

⁶² This includes all countries for which the World Bank Atlas (1996) provides PPP data for 1994, except for the economies of the former Soviet Union, as their data are preliminary and potentially subject to large changes, and 36 countries for which the 1994 PPP estimates were based on regression results.

by 1994 none of these countries had yet joined the OECD, but primarily as these countries' real PPP income levels were also still relatively low.

Table 10
**Actual exchange rate as a percentage of the PPP exchange rate
 "predicted" by real per capita income in 1994***

	Actual	Predicted	Actual/ predicted
Czech Republic	41	59	69
Poland	46	49	94
Hungary	61	53	115
Slovakia	33	55	60

* For details, see Table 9.

Differences between the actual and the predicted PPP/exchange rate ratio, determined using the GDP equation for 80 countries, are shown in Table 10. The results for the three individual countries indicate that relative to other countries' real per capita PPP income, the results for the Czech Republic were quite a bit below the regression line, implying that the PPP/exchange rate ratio is about 40% lower than what relative real per capita income in the Czech Republic would lead one to expect. A small upward revision of the nominal exchange rate relative to the PPP exchange rate also emerges for Poland, while the estimate for the Hungarian ratio is above the regression line, suggesting a small downward adjustment of the ratio. The results of the adjustment due to the real income bias for the three countries indicate that perhaps the differences in the levels of competitiveness ought not to be exaggerated.

Further indirect evidence on this point may be gleaned from a look at the nominal wages earned by workers in US dollar terms. On that score, it appears that wages in manufacturing industry are substantially below wages in other western competitor countries. Table 11 confirms this impression as hourly labour costs in the manufacturing sector are only as high as 10% of German labour costs.⁶³ However, the development of this indicator also corroborates the empirical finding on the level of the

⁶³ Table 11 also shows relatively high non-wage labour costs for Hungary. The implications of such costs for the labour market are explored to some extent in the 66th BIS Annual Report, p. 23.

real effective exchange rate: wages are somewhat higher in Hungary than in the Czech Republic and Poland.⁶⁴

Table 11
Total labour costs in manufacturing

Country	Total hourly labour costs in 1994 ¹			Social security contributions and payroll taxes as a percentage of total taxes (1993)
	Indices based on data in a common currency Germany = 100	of which		
		Wages	Non-wage labour costs	
Germany	100	55	45	39
Czech Republic	7	60	40	35
Poland	8	55	45	25 ²
Hungary	10	50	50	39
Bulgaria	4	57	43	25 ²
Slovakia	6	59	41	..
Romania	3	63	37	29 ²
Russian Federation	2	59	41	36 ²
Austria	80	50	50	40
Finland	73	54	46	26
France	66	52	48	47
Italy	62	50	50	37

¹ 1993 for eastern European countries. ² 1994

More recently, the real effective exchange rates seem to collate well with the earlier findings on the level of the exchange rate, as they appear to be moving in the right direction: the Hungarian forint has tended to depreciate, while the Czech koruna, in particular, continues to appreciate substantially in real terms.

The tentative conclusions drawn above have to be accompanied by several caveats. The real effective exchange rate is only one indicator of a country's competitiveness. Examining competitiveness alone, independent of structural and cyclical developments in output and demand, changes in policy and financial market conditions, generally provides only a partial account of developments in external trade.⁶⁵ One approach to overcoming this drawback is to provide a broader macroeconomic framework which essentially attempts to estimate the equilibrium real

⁶⁴ Unit labour costs would be the preferred indicator as productivity is not considered in dollar wage costs.

⁶⁵ The underlying proposition is the standard argument: a country with a real appreciation should suffer export losses and experience current account deficits, so that later the real appreciation is reversed. However, this proposition is not undisputed owing to facts (e.g. Japan has experienced larger current account surpluses in conjunction with real appreciation) and to theory (the portfolio balance approach notes that a country with increasing net foreign assets, given accumulating current account surpluses, should experience a real appreciation).

effective exchange rate as a value that is consistent with internal and external balance over the medium term.⁶⁶ An analysis of export market shares may also indicate whether or not a country is losing competitiveness. The related indicators may provide different or supporting evidence. Market-based indicators may usefully complement the aforementioned indicators by focusing on anticipated movements in exchange rates and their fundamental determinants,⁶⁷ while studies of individual segments of the economy, beyond the traditional look at the tradable/non-tradable differentiation, may further complement the competitiveness picture.

At this point in time, it seems futile to attempt to assess internal or external balance for these countries, i.e. to try to find a base period in which the internal and the external balance of these countries were in equilibrium.⁶⁸ If internal balance is defined as a situation in which real output is at its potential level and inflation is at a low and non-accelerating rate, none of these countries exhibits internal balance. All three countries are for the first time emerging from a transition recession (the Czech Republic and Hungary since mid-1993 and Poland since somewhat earlier), and only since then have they been experiencing positive growth rates.

We also know very little about potential output or output gaps on the capital side. As far as inflation rates are concerned, the three countries are also yet to reach values comparable to those of other industrialised countries; the values are not low, and inflation was even accelerating in Hungary in 1995 compared with 1994. It does not appear possible to assess easily what the "internal balance" might be and therefore provide a macroframework in which to determine the "right" level for the real effective exchange rate.

Another more fundamental point is raised by Hochreiter, who argues (1995b) that a real exchange rate which is appreciating from a low point after the initial devaluation is not a priori a cause for concern but may well reflect "good" economic policy. In fact, he points out that if the eastern European countries are to catch up with the West, they must raise productivity to enable them to pay higher real wages. He therefore concludes, contrary to standard reasoning, that the (equilibrium) real exchange rates should typically appreciate. Such considerations are welcome as they may point to

⁶⁶ It is beyond this paper's scope to show such a framework. For example, the macroeconomic balance approach provides a framework for calculating equilibrium exchange rate positions at internal and external equilibrium. It defines the equilibrium real exchange rate as the value that is consistent with internal and external equilibrium over the medium term. Internal balance is normally defined as achievement of the underlying potential output, while external balance is defined as attainment of an equilibrium position in the current and capital accounts (see Clark (1994)).

⁶⁷ These indicators may include forward exchange rates, interest rate differentials, forward interest rates, yield curves and option-based estimates of future exchange rate volatility.

⁶⁸ One pragmatic approach to computing equilibrium exchange rates is to assume that PPP holds over a longer time horizon. While this paper draws on the World Bank's method of calculating PPP (1996) in this regard, a time horizon of five to six years since price liberalisation appears to be too short to allow such an approach. Also, the price distortions during this period due essentially to structural factors existing at the beginning of liberalisation drive a sizeable wedge between domestic and external price developments (even in tradable goods).

a correct assessment of the underlying causes of, for example, an appreciating real effective exchange rate. If the appreciation were to be interpreted as a monetary phenomenon, i.e. a sign of excess demand, serious concerns may arise;⁶⁹ by contrast, if the appreciation mainly related to changes in terms of trade between traded and non-traded goods due to "real" developments, such appreciation should be tolerated and may even be welcome.

Table 12
Internal and external balance

	1992	1993	1994	1995	1996 ¹
	Real GDP				
Czech Republic	- 6.4	- 0.9	2.6	4.8	4.8
Poland	2.6	3.8	5.2	7.0	6.3
Hungary	- 3.0	- 0.8	2.9	1.5	1.0
	Consumer prices (annual averages)				
Czech Republic	11.1	20.9	10.0	9.1	8.9
Poland	43.0	35.3	32.2	27.8	20.0
Hungary	23.0	22.5	18.8	28.2	23.0
	Unemployment rates (end of year)				
Czech Republic	2.6	3.5	3.2	2.9	3.3
Poland	13.6	16.4	16.0	14.9	13.5
Hungary	12.7	12.6	10.9	10.9	10.6
	External current account balance (% of GDP)				
Czech Republic	- 1.7	0.4	- 0.1	- 4.0	- 6.9
Poland ^{2, 3}	- 0.3	- 2.7	- 1.0	- 1.9	- 6.0
Hungary ²	0.9	- 9.0	- 9.4	- 5.7	- 3.5

¹ Estimates. ² Only transactions in convertible currencies. ³ Excluding unclassified cross-border exports (1996: about 5% of GDP).

The evidence above seems to indicate that the current level of the real effective exchange rates does not appear to be seriously out of line with the underlying fundamentals. The direct PPP evidence appears to show that the Czech Republic and

⁶⁹ Upward pressure on non-traded goods prices could be interpreted as a sign of excess demand if it stemmed from less benign origins like large budget deficits or rapid credit growth. None of this had come to light by the middle of 1996: the Czech Republic runs a small budget surplus, while Poland as well as Hungary run small deficits. Credit growth appears depressed in Hungary, and at a reasonable level in the Czech Republic (real growth around 0%), while credit growth is quite fast in Poland (more than 10% real growth in 1995), calling for a more cautious assessment of the real appreciation in the latter country.

perhaps also Poland have some room for real appreciation; Hungary seems to have used more or most of its initial room for manoeuvre, perhaps partly because the initial depreciation was not as strong as in the other two countries. The continued real appreciation of the koruna and the fact that the "real income bias" has probably led us to overestimate the gap between the nominal and the PPP-based exchange rate are indicative of less room for manoeuvre in the Czech Republic than thought hitherto.

Evidence concerning the level of nominal wages in all three countries, however, seems to indicate quite a bit of room for further price increases without competitiveness being seriously undermined, with further developments in labour productivity set to play a crucial role. Although recent movements in the real effective exchange rate appear to be in line with the underlying levels, it should be borne in mind that any further real appreciation may be warranted on the grounds of developments in the real sector of the economy.

Strong productivity growth reduces the loss of competitiveness due to higher inflation. As productivity is estimated to increase by about 4% in the Czech Republic in 1996, this fact can contribute to a longer viability of the current band around the current central parity.

V. Monetary policy in the real world

1. *Money supply and exchange rates*

Choosing the exchange rate as an intermediate target for monetary policy implies that the money supply is, to some extent at least, endogenous.⁷⁰ Money balances are in that sense accommodating, i.e. they are determined in conformity with a given exchange rate. If the central bank is to keep the exchange rate within a pre-announced band, it may have to intervene. If the monetary authorities choose to sterilise capital inflows,⁷¹ which are tending to push the exchange rate up, by absorbing them into their reserves, there is no impact on the monetary base and the authorities may have bought time in order to assess whether such flows are of a temporary or of a permanent nature. However, buying time through sterilised intervention may become costly and may thus be difficult to maintain over longer periods. The monetisation of capital inflows through unsterilised intervention is not without pitfalls either: this sequence of events may lead to too fast a growth of the monetary base with the perhaps usual and predictable impact on inflation and/or it may lead to an undesirable real appreciation of the exchange rate with unpalatable consequences for trade performance. The interest

⁷⁰ Targeting of any kind of monetary aggregate has been consistently rejected by the academic literature. For example, Bofinger (1990) notes that none of the parameters for a policy of monetary targeting with flexible exchange rates vis-à-vis foreign currencies is given: there is no stable trend path of potential output, as it is highly variable, and consensus and conditions determining minimum inflation rates, which are compatible with price stability, are not in sight. The situation today in the Czech Republic (OECD, 1996) is similar.

⁷¹ The following assumes that, in fact, large and "hot" capital inflows occurred in these countries. For related evidence, see, for example, Koch (1997).

rate may play a useful role in such a scenario, e.g. adjusting the domestic rates may slow down capital inflows. Such use of the interest rate usually assumes that the central bank has some leverage in modifying such short-term interest rates. Do interest rates react reasonably well in the context of credit supply and demand?

2. *Interest rates and financial fragility*

The interest rate may have to be used to keep the exchange rate within its band. Such a situation has presented itself in many individual countries. While it is, for example, possible to raise the short-term nominal interest rate to high levels and ensure that the exchange rate does not "fall through the roof", such a situation proves invariably unsustainable, as subsequent high real interest rates not only result in large domestic financial disturbances but will also constantly stifle real investment, with potentially very negative effects for growth prospects. While pre-announced rates of devaluation may provide a first limit for differentials between the domestic and foreign interest rates, the additional factors to be considered in relating the exchange rate to the difference between domestic and foreign interest rates are the potential movement of the exchange rate within the band and the abandonment of the central parity within the band.

While the argument above may imply a still large degree of variability in interest rates, it is generally put forward that the exchange rate band should enforce interest rate smoothing: as the exchange is allowed to move within the band, any "shocks" to the interest rate may be smoothed by moving the exchange rate in the opposite direction within the band.

The relevance of the two contradictory propositions above depends partly on whether or not the room for manoeuvre within the band should be used and how extensive this room actually is. Part of the answer is based on the immediacy and directness of this link. Interest rate arbitrage in the financial markets is fairly direct and immediate, as the investor will consider the interest differential between the domestic and foreign currency as well as the potential for change in the foreign exchange rate over the time horizon of the investment. One may, however, dispute the applicability of interest rate arbitrage as, for example, capital movements are not completely free, i.e. imperfections exist in the international capital flow (especially portfolio flow) mechanism as well as in the domestic money market mechanism (interest rate formation may be distorted).

One indicator of such imperfections would be that domestic interest rates were higher vis-à-vis foreign interest rates than would follow from the pre-announced rate of devaluation.

Another more fundamental query concerns the reason why interest rate smoothing may be desirable from a policy point of view. In a recent study, Goodhart (1996) finds interest rate smoothing for a group of large industrial countries and argues that the manicured changes in selected industrial countries' short-term policy rates are too small and too late to have the desired impact on policy. He points out that whenever inflation begins to deviate from its desired path, the authorities prefer to make relatively small changes instead of adjusting interest rates by a large enough jump, but the rationale for such smoothing is not spelt out.

While institutions (see Section I.1) and instruments in the interest rate domain were obviously lacking at the beginning of transition, by 1996 monetary authorities had put in place a monetary framework which is not substantially different from that of some western European countries. In a nutshell, monetary authorities use their monopoly control of a high-powered monetary base to influence a short-term

money market rate. Besides their control of the (finer) instrument of setting a money market rate, the authorities also maintain a more formal, more visible discount or refinancing rate, which is varied less frequently, but in larger steps with more of an announcement effect.⁷² While reserve requirements are still high, nominal short-term interest rate instruments quite similar to those of other, industrialised economies had been developed. The monetary authorities have now abandoned direct credit allocation to the private sector, and credits to the government have been seriously constrained.⁷³ In all three countries, the money markets had matured to such a point that open market operations had become a standard daily feature. While changes in the depth, breadth and resiliency of individual market segments are continuous, it appeared that a significant amount of interbank business was taking place with the result that relatively unbiased short-term interest rates were emerging.

A good case in point may be the Hungarian money market interest rates. The NBH posts repo (overnight) and reverse repo (weekly) rates, providing a sort of interest rate tunnel for other market interest rates. At the beginning of 1993, this tunnel ranged from 5% for the reverse repo rate to 20% for the overnight repo rate. Over time, this tunnel narrowed, and by end-1995 its upper value was 31% and its lower value 27%. While the overnight interbank rates generally followed this tunnel, the fairly large daily swings of 15% during 1993 and at the beginning of 1994 abated and had calmed down even more by end-1995. The daily monthly Treasury bill rates are also more consistently inside the tunnel. The effect of these developments is that the spread between the individual instruments on the money market has narrowed, probably indicating more efficiency.

Table 13

Monetary policy framework

	Czech Republic	Poland	Hungary
Key interest rate	Short-term repo rate	Rediscount rate	Base rate
Reserve requirement			
Calculation basis	Average	Average	Average
Liabilities	Domestic and foreign	Domestic (17% on demand and 9% on time deposits) and foreign (2%)	Domestic (15.5%) and foreign (24%)
Refinancing			
Discount policy	Negligible	Seasonal	Negligible
Lombard policy	Marginal	Some	Not used
Open market	Substantial	Extensive	Some
Repos	Mostly	Substantial	Mostly
Swaps	Not used	Not used	Parallel with repo
Auction credits	Not used	Not used	Not used

⁷² See the section on interest rates in Goodhart (1996).

⁷³ For example, by the beginning of 1992 the most important tool of monetary policy was the quantitative regulation of the overall and individual access of banks to credit refinancing from the NBH (see Estrin et al. (1992)).

Direct credits	Not used	Not used	Some
Overdraft credits	Not used	Not used	Small
Special refinancing	Redistribution credits	Not used for short-term refinancing	Project credits
Banker for government	Yes	Yes	Yes
Agent for	Government securities	Government securities	Government securities
Credit to government (legal ceiling)	5% of government revenue	2% of government revenue	3% of government revenue

Source: Handbook on Central Banks in Central and Eastern Europe, BIS (1996).

This is not to rule out the possibility of sluggishness in the adjustment of the interest rate in particular markets. Sluggishness may be understood to refer to anything that slows down the impact of market forces in the adjustment process. The slowing down of market force processes may still be at work in economies which have only recently introduced measures to liberalise their interest rate policy.

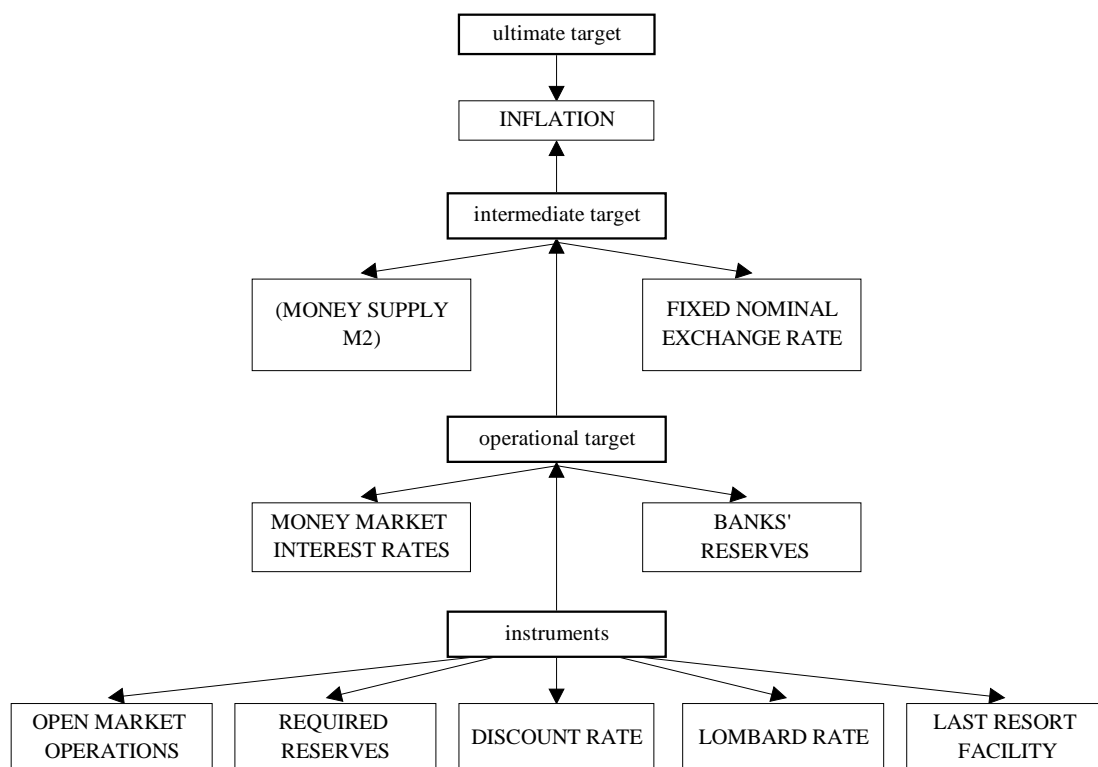
While the tools of monetary policy were apparently less developed in the countries under review than in western European economies, the move from direct to indirect monetary instruments appears to have been more or less completed by 1996. In general, it appears that the rudimentary ingredients for successful monetary policy implementation are present in all three countries: a two-tier banking system that clearly separates money from reserve money and vests sole responsibility for policy implementation in the monetary authority, as well as sufficient technical and institutional capabilities for managing the system. The monetary policy framework currently in place appears similar to that of western economies (see attached stylised graph for the CNB).

Monetary policy may remain "weak" in some respects, reflecting the more recent historical development and structure of the emerging domestic money markets, as "inherited" problems are not yet fully resolved. These elements may lead not only to distorted markets but also to a weak and/or unpredictable monetary transmission mechanism. A good case in point may be client interest rates. While credit criteria should dominate, other factors may play an overriding role, thus negating the more direct link with the money market rates. The demand for credit on the part of big enterprises facing liquidity problems may be driven by pure survival criteria, given that they are willing to pay/accept any kind of interest charged to them. Attempting to place a hard budget constraint on these enterprises may endanger the existence of the banks themselves. On the other hand, one may find small new companies which use credit in a gamble to make huge profits. If they go under having used bank loans, it is the banks that get stung. These financial idiosyncrasies weaken the standard link in the transformation process from shorter-term liabilities to longer-term assets on the banks' books. However, some evidence has also recently emerged that in the Czech Republic

the link between the interbank market rates and the interest rates on newly extended credits is quite close, i.e. more immediate in terms of time.⁷⁴

Whereas distortions in the interest rate formation process are one aspect, the legacy of the past financial system may also place a particular burden on monetary policy owing to other weaknesses as financial transition as an ongoing process is beset with further problems. The more prominent ones are inadequate payment and settlement systems⁷⁵ and non-performing loans. Both these factors may be indirectly feeding into interest rate formation as they increase the operating risks and costs for banks. Non-performing loans may influence the process of interest rate formation directly and are one of the factors accounting for the high interest rate margins required by banks. High reserve requirements may also enter into the banks' interest rate policy and should be assessed with regard to the burdens already borne by these banks (e.g. non-performing loans). These financial legacies ought to be kept in mind when interpreting the behaviour of the "usual" indicators of the stance of monetary policy (e.g. interest rate spreads, nominal and real short-term interest rates, structural factors such as M2/GDP, and nominal and real credit to the private sector).

Graph 2
Monetary policy targets and instruments of the CNB



⁷⁴ Czech National Bank, Annual Report, 1995, pp. 49-50.

⁷⁵ This point is not developed further here. Long settlement lags in the domestic banking market were at one time particularly noticeable in Poland.

While the focus has thus far been on individual markets such as the foreign exchange and money markets and whether the price formation process is not unduly disturbed by non-price considerations and mechanisms, the whole underlying financial system may be fragile. Such financial fragility may increase uncertainty and thus undermine credibility more easily than in "sounder" financial systems. One such indicator of financial deepening is the M2/GDP ratio. Whereas this ratio averages about 20% in low-income countries, that for industrial countries has been around 75% since about 1980. Financial deepening appears to have progressed quite satisfactorily in this connection in the Czech Republic; Hungary, Poland and particularly Russia seem to be laggards.

Table 14
Structural financial indicators (end-1995)

	Czech Republic	Poland	Hungary	<i>Memo item: Russia</i>
Domestic				
M2/GDP (as a %)	86.0	36.0	43.0	40.0
Stock market capitalisation (in USD bn)	18.3 ¹	8.0 ¹	4.2 ¹	15.0
Size of Treasury bill market (in USD bn)	1.5	10.0		30.0 ²
External				
International reserves (in USD bn)	13.8	15.0	12.0	14.4
Liabilities to BIS reporting banks (in USD bn)	7.5	7.9	8.0	49.4

¹ June 1996. ² June 1996; all government securities.

The implication of low ratios appears to be that the current stock of money is probably insufficient in some countries to accommodate real transactions. This type of ratio frequently goes hand in hand with the use in the domestic economy of a surrogate currency such as the US dollar or the Deutsche Mark.

Financial fragility may also be due to other weak or missing elements in the financial structure, such as bankruptcy regulation. In western economies, bankruptcy laws play a permanent but minor role. In central Europe, companies often still suffer from systemic insolvency. In such a situation, bankruptcy laws probably have only a limited part to play, as it is questionable whether the threat of insolvency is the right tool to instil financial discipline.

Even though the Czech Republic (1991), Hungary (1992) and Poland have introduced bankruptcy laws, enforcement of bankruptcy proceedings coupled with the potential restructuring of companies has been difficult because of the unemployment consequences. In the Czech Republic, which enacted bankruptcy law in 1991, subsequent measures effectively prevented this law from being applied until about the middle of 1993, and by end-1993 only some 300 bankruptcy proceedings had been completed. This low level of enforcement is in stark contrast to the situation in Hungary and Poland, where the number of insolvencies is up to ten times greater, partly accounting for the much higher level of unemployment in these two countries. The Czech Government has regarded bankruptcy as a post-privatisation issue, while in Hungary the original bankruptcy law refers to a "90-day trigger", whereby bankruptcy proceedings are initiated automatically if debts have not been settled within 90 days. In Poland, banks are the driving force behind the "bankruptcy" system and have started 6,000 bankruptcy proceedings. Polish law treats state-owned enterprises differently from

private enterprises, as the courts are becoming involved in restructuring the enterprises rather than liquidating them.⁷⁶

As financial restructuring is being placed on a sounder footing, the ongoing process in the area of bankruptcy is an additional aspect of inherited financial fragility which makes it even more difficult to achieve confidence in the underlying.

This paper has treated financial fragility only summarily. Even though differences exist between individual country experiences, it nevertheless appears in general that the interest rate formation process is still subject to many imponderables (which are difficult to assess systematically). High interest margins continue to be a strong case in point.

3. *Capital flows*

It is not immediately obvious how a foreign investor would react to a widening of the exchange rate band. Perhaps investor behaviour is driven more by general considerations of country risk and the outlook for economic/political stability as well as risk assessment for individual instruments, rendering the introduction of the exchange rate band essentially irrelevant for longer-term considerations. Actual restrictions and barriers in the domain of capital flows may also play an important role. Table 15 provides some background information, drawing attention to the fact that most of the impediments are now on the outflow side.⁷⁷ At any rate, the process of capital account liberalisation took on a new dimension in 1995 (see Section I), and this has in general terms provided more room for more diversified capital inflows from non-residents. Participation in the growing domain of financial assets has been more noticeable as the share of portfolio flows in total capital flows has become significant. This has probably increased the potential vulnerability to sudden withdrawals of funds. Speculative attacks on the currency are thus more easily administered by non-residents (and residents) in this more liberalised environment. In this sense, increased liberalisation of capital flows might have a detrimental effect on the credibility of the policies pursued by the monetary authorities.

⁷⁶ See Finance East Europe, Vol. 5, No. 23, 1st December 1995.

⁷⁷ Sokolowska (1995) provides the legal background to the abolishment of foreign exchange restrictions in Poland.

Table 15
Capital account restrictions

	Czech Republic	Poland	Hungary
Non-residents in country			
Loans/borrowing			
Foreign currency			
Domestic currency			
Securities			
Bonds			
Equity	Participation not limited.		
Direct investment		New businesses need to register locally and need permits in several areas.	Foreign participation exceeding 10% of equity requires government approval.
Repatriation of capital	None.		
Transfer of profits	None.		
Purchase of real estate	None.	Permission required (except in the case of inheritance).	Not allowed.
Residents abroad			
Loans/borrowing	Approval by the CNB.	Limits are set for the private and public sectors by the Government.	Financial institutions report to the NBH; other institutions subject to approval by the NBH.
Securities			
Bonds			
Equity		All categories of capital transfer, including gifts, require a foreign exchange permit.	Hungarians may acquire bonds and shares in OECD countries via exchange rate offices (since 1st July 1996).
Direct investment	Approval by the CNB and Ministry of Finance.	Acquiring an interest in a foreign enterprise requires a foreign exchange permit.	Approval needed.
Purchase of real estate	Not allowed, except by approval of the Ministry of Finance.		

4. *Intervention*

One way of mitigating the impact of capital flows is intervention by the central banks, which is a feature of the foreign exchange markets in all central European countries. Episodes abound, and in that sense intervention is a daily routine for the central banks. For example, in March 1996 the NBP sold domestic currency to the market in order to slow down the upward drift of the zloty; and after the widening of the band for the Czech koruna at end-February 1996, the CNB bought domestic currency for a few days in order to stabilise it. These interventions were intra-marginal. Hungarian interventions have been marginal. The first intramarginal intervention occurred on 29th August 1995.⁷⁸ Whereas in January and February 1995 the NBH sold foreign exchange, the months following the introduction of the March 1995 policy package saw the central bank purchasing substantial amounts of it. However, little is known about the actual strategies pursued by individual central banks, their exact timing or the currency involved. The evidence concerning the "effectiveness" of such intervention, which essentially looks at the short-term results, cannot therefore be assessed with any appreciable confidence.⁷⁹ The above-mentioned episodes seem to indicate, however, that the "success" rate may be reasonably high, probably owing in part to the fact that central banks still play quite a dominant role in the forex markets.⁸⁰

Interventions lead to an increase in foreign exchange reserves (assuming the case of capital inflows, i.e. non-residents wishing to hold more assets in zlotys, korunas and forints). Since all three countries recorded large increases in reserves in 1995 (see Table 16), banks may also experience a concomitant broadening of liquidity (unsterilised intervention) as their balances at the central bank expand, which would, other things being equal, imply an easing of monetary conditions. Whereas the scale of sterilisation in different countries is difficult to compare as it is reflected in various items on central bank balance sheets, one indicator is the rise in monetary authorities' gross foreign assets in relation to the increase in the monetary base.

The rise in foreign exchange reserves at the CNB seems to have generally led to a commensurate growth of the monetary base throughout the period under review, implying that sterilisation seems to have played only a minor role. This also implies that the CNB in principle pursued a loose monetary policy as commercial banks had ample liquidity. Most recently, however, the CNB decided to raise the reserve requirement from 8.5% to 11.5% (August 1996), implying a certain reining-in of liquidity.

⁷⁸ See Darvas (1995, p. 23).

⁷⁹ According to views widely held in the 1970s, exchange market intervention - insofar as its effects on the monetary base (or interest rates) were sterilised - would not provide the authorities with an effective policy instrument in addition to the monetary base (or interest rates). More recently, it has come to be recognised that even if the hypothesis of uncovered interest rate parity were valid, sterilised intervention could be effective if it signalled new information about the intentions of policy-makers to adjust interest rates or other policy instruments, as necessary, in order to achieve their exchange rate objectives (for more details, see Isard (1995)).

⁸⁰ Admittedly, this is quite a weak conclusion as episodes of "unsuccessful" intervention would probably not be reported.

Poland and, since 1995, also Hungary have, in contrast to the Czech Republic, partly sterilised inflows. While Poland experienced an expansion of the monetary base by USD 3 bn in 1995, Hungary's monetary base even contracted that year, attesting to the tight monetary policy being pursued. Hungary has in the past used high reserve requirements in order to automatically sterilise some inflows (see Table 13).⁸¹

The main channel for absorbing banks' increased liquidity due to capital inflows appears to have been the domestic banks themselves, as the central banks in general sold domestic securities to them.⁸² Attempts were also made to sell securities to other investors. These attempts may have mitigated the effect that sterilisation may have had on upward pressure on interest rates.

However, the upshot of the pressure on the nominal exchange rate is visible in the rapid accumulation of reserves over the last two years. While the monetary authorities may be able to calculate approximately the cost of the accumulated reserves by looking at the interest differential between low-interest-bearing foreign reserves and high-interest domestic securities, it is even more taxing to judge optimal reserve accumulation as this assumes an assessment of the probability of having to defend the currency and an evaluation of the potential amounts involved at the margin. One rough indicator in this connection is the import coverage ratio, which provides an initial impression of whether or not reserves are adequate. On this score, all three countries appeared to have accumulated a reasonable level of reserves by the middle of 1996. These foreign exchange reserves might bolster confidence in current exchange rate policies as the countries seem to have sufficient "ammunition" to "defend" their currency.⁸³

Table 16

Changes in foreign exchange reserves and monetary base

Period	Czech Republic			Poland			Hungary		
	Forex reserves	Monetary base	Ratio	Forex reserves	Monetary base	Ratio	Forex reserves	Monetary base	Ratio
in billions of US dollars									

⁸¹ In 1996, Hungary discontinued the option of meeting part of the reserve requirements by using government securities (April) and widened the reserve base in the calculation of the required reserve ratio (February). The compulsory reserve ratio was decreased gradually from 14.8% in February to 12% by June. (See BIS, Handbook on Central Banks in Central and Eastern Europe, 1996).

⁸² However, if securities sold to the commercial banks are of the type which also qualifies for subsequent sale to the central bank, sterilisation may not be fully effective.

⁸³ Some weakening of this ratio had appeared in all the countries by the middle of 1996.

1988-92	-	-		2.0	0.6	3.33	3.2	5.1	0.63
1993	2.8	2.4	1.17	0.0	- 1.9	0.00	2.3	- 0.5	- 4.60
1994	2.4	2.5	0.96	1.7	0.5	3.40	0.0	0.5	0.00
1995-96*	6.9	6.5	1.06	8.9	3.5	2.54	5.2	- 0.4	- 13.00

* Czech Republic, March 1996; Poland and Hungary, end-1995.

Table 17
Import coverage ratio*

		Czech Republic	Poland	Hungary
1993	Q1	25.2	103.0	144.8
	Q2	49.4	80.6	148.8
	Q3	71.0	78.5	175.2
	Q4	72.6	87.5	131.5
1994	Q1	114.9	109.0	249.4
	Q2	103.8	108.4	182.0
	Q3	109.8	114.9	182.2
	Q4	110.2	101.2	158.8
1995	Q1	134.9	114.2	161.7
	Q2	139.6	152.8	155.5
	Q3	174.6	165.0	175.1
	Q4	179.3	178.1	195.9
1996	Q1	182.8	211.6	240.4
	Q2	155.7	207.3	193.6

* Official reserves as a percentage of goods and non-factor services imports.

Conclusion

The approach of this paper is more to raise issues and not necessarily to provide answers. While exchange rate policy is the driving force behind monetary policy in the Czech Republic, Poland and Hungary, the monetary authorities naturally always also attempt to monitor interest rate developments very closely, not losing sight of their main task of keeping price developments in check. The credibility of the monetary authority in this process is very important as it underpins their resolve to follow sound policies. Although the role of the central bank as guarantor of price stability has been established in principle in legal terms in all three countries, governments play the decisive part in setting exchange rate policy (except in the Czech Republic, where the central bank may also set policy). Building credibility in such an environment has many facets. This paper argues that "institutional" credibility may probably be enhanced by several further measures being taken, and that the credibility of the policy-maker may be strengthened by ensuring longer-term continuity in that sphere, i.e. not changing the Governor (chairperson) of the central bank just for political expediency. Policy credibility can probably only be tested empirically if the underlying markets are functioning efficiently. However, stumbling blocks in the foreign exchange and money markets as well as obstacles to the free flow of domestic and external capital and, in general terms, financial fragility, partly due to the problems of the past, render policy credibility an elusive goal in these countries.

The domestic foreign exchange markets appear less liquid than in other countries, the money markets still seem to be subject to many imponderables, and restrictions on the external flow of capital, albeit eased considerably in 1995, are still prevalent since domestic financial fragility continues to impact seriously on the play of the supply of and demand for credit as the free flow of domestic funds remains a goal to be pursued. Preliminary work at the NBH demonstrates these impediments for the exchange rate market, and it is not at all clear whether the introduction of exchange rate bands has any impact on the credibility of the monetary authorities, nor is it evident whether this policy increases or decreases the scope for interest rate flexibility. However, the move toward general current account liberalisation should in the longer run be one that is conducive to building confidence.

In general, the probability of government involvement in all markets may still be higher in these countries than in most other, industrialised countries, making it more difficult to establish the credibility of the monetary authorities on that score too. Gaining credibility implies being able to achieve objectives which are explained to the market in clear terms and are subject to a governmental auditing process. Policy-makers should also clearly state the upside and downside risks involved in these policies. This is particularly relevant for the countries under review, as some of these risks have different repercussions in these economies than in other, developed countries. Confidence in policy is probably not helped by asserting that there will not be any change whatsoever, for example in exchange rate policy. Obviously, underlying macroeconomic performance (e.g. domestic prices rising faster than foreign prices) may make change unavoidable. Although it may not be optimal to publish an exit strategy from the existing exchange rate policy, any change to the policy should probably not be allowed to come as a total surprise to the markets, so that any potential modification can be perceived and understood as a continuation of policy. This includes current policy

moves and also future intentions. Any potential change in policy should be made clear from the beginning, avoiding the problem of any loss of confidence in future policy action.⁸⁴ The mere passage of time, however, is not propitious for building confidence in policy, especially where the markets are beginning to "smell a rat". Holding onto policy may then even have detrimental effects, as policy changes prove to be either too late or too little.

Although exchange rate policy had an impact on price developments in the short run, study of the adequate level of the real effective exchange rate revealed that none of the countries had a seriously overvalued exchange rate, but the likelihood of any serious undervaluation leading to further price increases must also be invalidated. Under certain circumstances, it may even be desirable to tolerate some further appreciation of the real effective exchange rate if it can be linked to higher real incomes. Particularly noteworthy, in this regard, is the continued rapid real appreciation of the koruna, although it must be realised that the gap between the actual exchange rate and the PPP exchange rate may be overestimated. The actual performance of the three economies may not immediately raise the question of the credibility of the current exchange rate system as the present high level of capital inflows and a satisfactory level of reserves may provide some breathing space in the near term. In fact, the latter aspects appear to be the positive indicators in the current scenario. However, the large capital inflows continue to expose the problem of too loose a monetary policy or potentially too high interest rates.

⁸⁴ Similarly, White and Smets (1996, p. 14): "... such episodes clearly indicate that market perceptions of the future intentions of the authorities are as important as, and perhaps even more important than, their current policy setting. It is for this reason that constant reiteration of the medium-term goal of price stability is useful as a means of conditioning market expectations."

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