THE CHOICE OF MONETARY POLICY REGIMES IN THE ERA OF GLOBALIZATION: INFLATION TARGETING VERSUS CURRENCY BOARD

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Abstract

This paper examines the basic features and the efficacy of two monetary policy strategies that gained large support in the last decade and their constraints and prospects in the context of further globalisation, with the main focus on the case of the EU accession countries.

In the 1990s currency board and inflation targeting regimes were adopted by a significant number of countries as their monetary policy framework. Argentina (1991), Estonia (1992), Lithuania (1994), Bulgaria (1997) and Bosnia (1997) introduced currency board-like systems, joining Hong Kong, where this regime has been operating since 1983. Direct inflation targeting regimes have been adopted by New Zealand (1990), Canada (1991), Great Britain (1992), Israel (1992), Sweden (1993), Australia (1993) and other advanced countries, but also by emerging economies as Chile (1990), Czech Republic (1998) or Poland (1999). The first years of functioning generated remarkable macroeconomic performances for the countries that implemented these two types of monetary regimes, especially in pursuing price stability. Until the recent collapse of Argentina's currency board arrangement, the authorities of the countries that had opted for either of the two regimes kept, if not even strengthened, their commitment to the adopted strategies.

The cross-country empirical evidence is used in order to elaborate on the main advantages and drawbacks of the two alternatives. The potential of each regime to develop a large imitation effect and to become a standard solution in a global world is also subject to scrutiny. The results of the monetary policy regimes cannot be assessed without taking into consideration the main elements of the macroeconomic policy mix, for accomplishment of the ultimate target of the monetary policy is critically dependent on the main macroeconomic equilibria. The choice of monetary policy strategies for the Central and Eastern European Countries is discussed against the specific background of their ongoing process of integration into the European Union. The possible paths of the monetary policy frameworks of these countries towards the adoption of the euro as official currency are analysed as well. The constraints imposed on the setting of monetary policy by the obligation to participate in the European exchange rate mechanism ERM2 for at least two years before the adoption of the single currency are approached in a forward-looking manner.

The author concludes that in the context of increased globalisation the achievement of low inflation is better served by an independent and credible central bank, practising an enlightened discretion, rather than by an "automatic pilot" currency board-like system. For the EMU membership applicant countries, the currency board system is not able to ensure the accomplishment of the nominal convergence criteria in the medium term, whereas direct inflation targeting seems to be a viable solution –possibly under a "managed floating plus" regime –, although the fulfilment of the inflation, exchange rate and interest rate criteria is achievable only at the expense of a significant output loss.

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1. A stylised framework

A review of the recent literature in the field of monetary and exchange rate policy shows that there are both theoretical support and empirical evidence in favour of the assumption that transition and developing countries have to make a choice – a very difficult one – between two extreme alternatives. The research papers published by Kopits (1999), Mishkin (2000), Edwards (2001), Pal (2001), Buiter and Grafe (2002), Berg et al. (2002) and others converge in this direction. Williamson (2000) expresses the opposite view, but he favours intermediate regimes only in combination with some forms of capital controls.

Accepting the former approach as correct, I will undertake a comparative analysis of the two corner regimes, focusing on the particular case of the EU accession countries. Paraphrasing Shakespeare, *currency board* or *direct inflation targeting - this is the question*.

Being aware that in modern macroeconomics almost everything is a matter of definition, I will attempt to propose a synthetic conceptual framework in order to facilitate the accurate understanding and settlement of this dilemma.

In terms of monetary regime, the two corner alternatives are named *currency board* and *direct inflation targeting,* whereas in terms of exchange rate arrangement we might call them *hard peg* and *clean* (not necessarily pure) *float*. From the perspective of monetary policy independence they represent *binding rules without discretion* and *constrained discretion* (or *discretion with contingent rules*).

The evanescent intermediary regimes can be classified *as monetary targeting, interest rate targeting* and *exchange rate targeting* (in terms of monetary policy regime) and as *crawling band, crawling peg, adjustable peg* and *soft peg*. All these arrangements, located around the centre of the monetary and exchange rate regime spectrum, have had their glory years, but in the last decade they have lost their viability mainly due to their structural incompatibility with

one of the paramount vectors of globalisation: the free capital movement. The ever-higher world-wide integration of financial markets forces central banks to depart from the area of hybrid arrangements and to find harbourage in the corners of the spectrum of monetary and exchange rate regimes. The current monetary policy regimes of the Central and Eastern European accession countries (presented in Annex 1) reflect this tendency very well.

This shift towards both extremities looks like a paradoxical effect of the economic globalisation. The central banks adjust their behaviour in an attempt to adapt to the imperatives of globalisation, but they are moving in opposite directions. Which direction is the right one? Or both directions are correct and only remaining in the in-between area is a mistake? These intriguing questions have already been debated, but they still wait for an answer.

The EU accession candidate countries have somewhat privileged positions as they are confronted with this dilemma only in the short term, their medium-term destiny being the full EMU membership. This is more than a prediction, it is a logic assumption based on the content of the Copenhagen Criteria, that specify the obligation of all the newcomers into the EU to undertake every effort in order to be able to enter the EMU in the medium term. What has been allowed to Sweden or to United Kingdom will not be permitted to the EU late joiners. A modification of this provision (or a form of derogation for a specific country), although theoretically possible, is highly improbable, given the modest bargaining power of the Central and Eastern European countries relative to the old members of the EU.

2. The impact of the Maastricht criteria on the choice of the optimal regime

All the EU accession countries know that the final point of their independent monetary journey will be the adoption of the euro and full EMU membership, but they are very far from reaching a consensus concerning the best way that is supposed to lead them there. If the

Copenhagen Criteria are not very specific regarding the monetary policy of the EU members-to-be, the Maastricht Treaty has established precise benchmarks for inflation, interest rate, exchange rate, budget deficit and public debt.

The choice between currency board and direct inflation targeting should be based on the capacity of each of these two monetary regimes to ensure the fulfilment of these nominal criteria or at least of the three of them that refer to monetary variables.

These three Maastricht criteria that are directly linked with the stance and framework of monetary policy are as follows:

- Inflation rate criterion: the applicant country should demonstrate a sustainable price stability and an average rate of inflation, observed over a period of one year before the examination, that must not exceed by more than 1.5 percentage points that of the three best performing member states;
- Exchange rate criterion: the applicant country should respect the normal fluctuation margins (+/-15 percent) provided for by the ERM without severe tensions for at least two years before examination;
- Interest rate criterion: the applicant country should have an average nominal long-term interest rate, measured on the basis of long-term government bonds or comparable securities, that does not exceed by more than 2 percentage points that of the three best performing member states.

If both currency board and direct inflation targeting regime are found to be able to produce results compatible with the EMU membership criteria, preference should be given to the one that generates a more vigorous economic growth. In other words, the ability to fulfil the Maastricht criteria without causing an unnecessary slowdown in the growth rate of the national economy represents the key prerequisite for qualifying one of the two monetary regimes as the optimal choice for an accession country. The one-size-fits-all approach might not be fitted for this issue. For some of these countries, both regimes could prove equally

effective in securing their medium-term goals; difficult years may stay ahead of other countries if they fail to make the right choice at the right timing.

3. The "impossible trinity" problem in the EMU applicant countries

In their effort to join the eurozone, the applicant countries will be confronted with the basic tenets of Mundell's "impossible trinity" theorem: they cannot simultaneously have unrestricted capital flows, fixed exchange rate and monetary independence.

On one hand the European Union requires to all the candidate countries to liberalize their capital accounts by the time of accession. On the other hand, the EMU membership criteria impose extremely strict ceilings for inflation and interest rates. In order to preserve the ability to exert a control on the interest rates and inflation under unrestricted capital mobility, the countries have to pursue an independent monetary policy. If capital flows are free, monetary policy operates through the exchange rate channel – fact that calls for a certain level of exchange rate flexibility. However, the EMU exchange rate criterion demands at least two years of fluctuation inside a band. The width of the fluctuation band of the exchange rate is not very narrow (+/-15 percent) and it might offer the only way out from the "impossible trinity" trap. The 1992-1993 crisis of the European Exchange Rate Mechanism took place against the background of a narrower fluctuation band (+/-2.25 percent) and can be interpreted as a confirmation of the inescapability from the trilemma. In the aftermath of a strong currency attack, both United Kingdom and Italy decided to leave the ERM, while Spain opted for re-establishing some forms of capital controls.

In the context of a higher degree of capital mobility, the countries that opt for passing the Maastricht criteria while maintaining a currency board lose their capacity to effectively influence the interest rates and inflation rates and consequently they will be confronted with a severe conflict of policy targets. Sticking to the super-fixed nominal exchange rate (which is

probably more or less misaligned as it was established long time ago) in times of substantial net capital inflows will lead to higher inflation rates and sizeable real exchange appreciation.

4. The uncovered interest rate parity in the pre-EMU period

In order to hamper an increased inflow of speculative capital, domestic interest rates have to become negative in real terms if the nominal exchange rate appreciates significantly.

According to the simplified form of the uncovered interest rate parity:

$i = i^* + dER + r$,

where i is the domestic interest rate, i* is the world interest rate, dER is the anticipated nominal depreciation of the domestic currency and r is the risk of holding domestic assets.

If r is low, a negative dER implies $i < i^*$. If inflation is higher in the applicant countries than in the current EMU countries, a strong nominal appreciation of the domestic currency against the euro leads to massive speculative foreign capital inflows. The investments in domestic currency denominated fixed-income instruments are extremely sensitive to the movements of the interest rates, while equity capital does not develop a significant direct correlation with the interest rates (Rosati 2001).

In 2002, $i - (i^* + dER)$ registered extremely high values in some of the EU accession countries. For 1-year treasury bills of US and EU accession countries and under the assumption of perfect anticipation of the domestic currency/US dollar exchange rate at year-end, $i - (i^* + dER)$ recorded 26 percentage points in Romania, 18 percentage points in Hungary, 16 percentage points in Czech Republic and 7 percentage points in Poland. The "Visegrad Three" countries largely opened their capital accounts, whereas Romania sequenced its capital account liberalisation over a short time interval (2001 – January 2004) with only two exceptions - regarding specific money-market instruments and domestic land purchasing by non-residents – to be liberalised at the moment of EU entry. The expectations

regarding a very tight monetary policy (required by the Maastricht criteria) in the pre-EMU period might encourage these flows as well. If the increased exposure to capital inflows takes place in the context of high uncovered interest rate disparities, Romania risks to be subject to highly volatile short-term capital inflows in the years to come.

Moreover, the inter-country differences in levels of monetization play an important role and impose distinct policy responses to capital inflows. The EU accession countries with a low level of monetization (Romania, Lithuania and Bulgaria among them) have an insufficient capacity to absorb the capital inflows and to avoid the inflationary pressures. A policy of full sterilisation in an underdeveloped money market can prove to be extremely costly and ineffective (the increase in the interest rate generated by the central bank interventions induces new speculative capital inflows).

The currency board regime eliminates the exchange rate risk (although maintaining a nominal exchange rate misalignment for too long could be a wrong option); under direct inflation targeting the monetary authorities can discourage speculative inflows by making the short-term fluctuations of the exchange rate unpredictable.

5. The Balassa-Samuelson effect inside EU and in EU accession countries

After a sharp depreciation in the first half of the 1990s, the real exchange rates of all the ten EU accession countries are under a strong appreciation pressure. There are three major factors behind this common pattern of exchange rate movements:

- the sizeable net foreign capital inflows;
- the labour productivity gains;
- the Balassa-Samuelson effect.

The process of real convergence toward the economic level of the European Union countries, essential for the successful integration of the candidate countries, tends to reinforce all the

three factors that support the real exchange rate appreciation trend. To slow down the positive dynamics of these factors is not a realistic option, because it affects dramatically the GDP and productivity catch-up process.

The Balassa-Samuelson effect has been very active inside the European Union. The catch-up countries (Portugal, Spain, Greece, Italy and Ireland) recorded real exchange rate appreciation and higher-than-EU-average inflation rates, proving the fact that the BS effect is an empirical regularity. In order to comply with the Maastricht inflation criterion, Portugal, Spain, Ireland and Italy forced disinflation in 1997 and 1998 – the last years when they had a relatively independent monetary policy. Their central banks used real exchange rate appreciation as an instrument for speeding-up disinflation. After joining the EMU, the inflation rates in all the four countries increased substantially and the spread (differential) between the lowest and the highest inflation rate in the euro-zone increased from less than 1 percentage point in 1997 to more than 3 percentage points in 2000 and 2001, reflecting very well the magnitude of this phenomenon and its persistence after entering a monetary union.

The EU accession countries share a series of common characteristics that favour a strong Balassa-Samuelson effect:

- the average wages are situated well below the ones in the current EU member countries;
- the prices of non-tradables are inferior to the ones that prevail in the EU;
- some of the prices in the tradable sector are not yet fully adjusted to the tradable prices in the EU, a high degree of convergence being expected to be reached after joining the EMU, when the “law of one price” will play a very strong role;
- the initial industrial productivity and technological levels have been extremely poor;
- the per capita income gap between candidate countries and UE countries is still substantial, although it is progressively diminishing.

The magnitude of the Balassa-Samuelson effect in the accession countries is estimated to oscillate between 1 and 4 percentage points of the headline inflation rate[1]. The persistence of the BS effect can obstruct the fulfilment of the Maastricht inflation criterion.

Under a currency board system, the nominal exchange rate is kept constant, but the presence of the Balassa-Samuelson effect leads to inflationary pressures. The only way to allow the real appreciation to happen without freeing the nominal exchange rate from the hard peg is to accept the increase in the headline inflation rate. The inflation differential relative to the anchor country (or relative to the Euroland in the specific case of accession countries) consequently rises, a development that represents a step back in the effort to comply with the Maastricht inflation criterion (which is, in fact, an inflation differential criterion).

Under a direct inflation targeting regime, the nominal exchange rate is more or less flexible (free float as in Poland or wide fluctuation band as in Hungary). The productivity growth in the tradable sector exerts no unavoidable impact over the inflation rate, due to the fact that the exchange rate is able to act as a shock absorber: it absorbs the Balassa-Samuelson effect through nominal appreciation. The pace of inflation is lowered by the nominal appreciation, which can even lead to deflation in the tradable sector, where prices are determined by the international prices and the nominal exchange rate.

As a consequence, monetary policy preserves the ability to ensure the desired path of the disinflation process by compensating the higher rise in the non-tradable sector with a lower price increase in tradables. The inflation differential relative to the Euroland (or EU) diminishes and the Maastricht inflation criterion is likely to be satisfied in the reasonably near future.

[1] Simon and Kovacs (1998), Pelkmans et al. (2000), Halpern and Wyplosz (2001), Mihaljek (2002) et al.

6. A single monetary policy regime until EMU membership?

In the years to come, the design of monetary and exchange rate policies in the EU accession countries has to undergo three distinct stages:

Stage I – pre-EU accession

Stage II – post-EU accession and ERM II membership

Stage III – EMU membership

It is a difficult task to find one monetary and exchange rate regime that is optimal for the first two stages (the third stage implies abandonment of the national currency and monetary policy) as each stage is characterised by distinct constraints on inflation rate and exchange rate. However, it is important to avoid a regime change in the pre-EMU accession period.

In the first stage, the externally imposed nominal constraints are still relatively relaxed. The EU accession countries operate mainly with domestically imposed constraints in the form of numerical inflation targets or exchange rate pegs. The liberalisation of capital flows can still be partial, as a full openness of the capital account is required only upon EU entry. However, the most advanced EU accession countries have already liberalised almost all the capital transactions. Rostovski (1999) remarks that the current degree of capital account openness is so high in the "Visegrad three" countries that the controls still in place are not effectively binding and they do not allow the achievement of macroeconomic results different from those which would occur in the absence of these controls. Other authors find useful a gradual approach of capital account liberalisation, a process that in the view of Wyplosz (2002) should not be completed by the time of EU entry, but only at the time of EMU membership.

The second stage is by far the most challenging one: the EMU applicant countries are expected to meet the Maastricht criteria. This stage can be divided into two periods: EU

assessed empirically the magnitude of the Balassa-Samuelson effect in the EU accession countries.

membership without ERM membership and EU membership with ERM II, but most of the accession countries already announced their intention to join the euro-zone as soon as possible and this implies that they will try to formally enroll in ERM II immediately after EU entry.

The inflation rate will have to be brought in the range of 2-3 percent and the nominal exchange rate will have to stay inside the +/-15 percent fluctuation band of the ERM II. Simultaneously, as EU members, these countries will have to allow for fully free capital movements. Under these circumstances, the countries that intend to preserve currency board regimes until EMU membership will be confronted with the "*impossible trinity*". They will have a pegged exchange rate (a zero fluctuation band instead of a +/- 15 percent band), a fully open capital account and a severe inflation target. The attainment of the inflation target in the absence of monetary policy independence is a major hazard. Moreover, the Balassa-Samuelson effect will be fully translated in the inflation differential against the euro-zone as nominal appreciation is not allowed by the CB arrangement. A Balassa-Samuelson effect with a magnitude of more than 1.5 percentage points is strong enough to prevent the fulfilment of the Maastricht inflation criterion (the average inflation rate of the three EU countries with the lowest inflation plus 1.5 percentage points).

A DIT regime avoids the "impossible trinity" problem as it takes full advantage of the exchange rate fluctuation band. The width of the band (+/-15 percent around the central parity) is large as compared with the +/-2.25 percent band in place in 1992-1993, when the European Monetary System collapsed. The crisis of the Czech koruna led to a nominal depreciation of no more than 12 percent in 1997, followed by a small nominal appreciation in the next year.

The Balassa-Samuelson effect is partly or fully absorbed by the nominal exchange rate appreciation and the inflation criterion is within reach *caeteris paribus*. It is highly unlikely that the Balassa-Samuelson effect alone can exceed the 15 percent nominal appreciation scope. Substantial net capital inflows may lead to additional appreciation and the combined

effect could be a tendency of appreciation beyond the margin of the fluctuation band. This situation will require the intervention of the central bank in the foreign exchange market in order to limit the appreciation of the currency. If non-sterilised, the central bank intervention will generate excess liquidity in the money market and a subsequent increase in the inflation rate.

7. Vulnerabilities of the ERM II

Many economists argue against the necessity of ERM II ("the ERM purgatory"[2]) as a transitory stage towards EMU membership. A system designed in the early 1990s may not be suitable under conditions of greatly increased international capital mobility and for countries with more integrated economies and financial systems (Rosati, 2001). Both the exchange rate and inflation criteria involve significant costs for the applicant countries with no prospective return. As soon as the applicant country proves that it is able to manage the exchange rate within the assigned band without severe tensions, the domestic currency is abandoned and the country joins the euro-zone. The accumulated reputational capital is scrapped. Similarly, the value of the investment in a good reputation of the monetary authorities for a very strong commitment to price stability is given up when the country joins EMU and the EMU-wide monetary policy determines its inflation profile (Buiter and Grafe, 2002). Asymmetric real shocks and fiscal imbalances are seen as other reasons for making a good case against mandatory ERM II participation (Mourmouras and Arghyrou, 1999).

The fulfilment of Maastricht inflation rate criterion by forcing a substantial nominal appreciation could lead to an unsustainable exchange rate (an appreciation bubble), resulting in devastating effects on the external competitiveness of the tradable sector, a collapse of the exchange rate before joining EMU or an overvalued final conversion parity against euro

(Kopits, 1999; Rostowski, 2002). Even a relaxation or removal of the inflation criterion does not solve the problem of fulfilling the exchange rate criterion without provoking a dangerous departure of the current account deficit from the prudent levels[3].

Szapari (2001) points out that it is illogical to require the same level of inflation from countries at different stages of development. The Maastricht inflation criterion can be met either by very tight monetary and fiscal policies that slow-down the pace of economic growth or by a nominal appreciation of the exchange rate. This excessive strictness of the inflation target may lead to a "*weighing-in*" syndrome during the run-up to EMU. Inter-temporal substation of economic growth: the real convergence is temporarily repressed in order to hit the inflation criterion in the pre-EMU test period. Once EMU membership is obtained, there will be no formal constraint on the national inflation rates. Either the exchange rate or the inflation target should be sacrificed at the expense of the other one.

Wyplosz (2002) recommends an *ex post* application of the Maaastricht exchange rate criterion for the countries that currently run flexible exchange rate regimes and the approach of the existing currency board arrangements as an acceptable form (a zero percent fluctuation band) of ERM membership[4]. However, in the presence of a sizeable Balassa-Samuelson effect, meeting the inflation criterion is conditioned by a continuos nominal appreciation of the exchange rate.

A solution to avoid the ERM II membership that is advocated by some economists (Nuti, 2000; Buiter and Grafe; 2002; Rostowski, 2002) is the unilateral euroisation. However, the EU authorities rejected this type of "short-cut" to euro, indicating that they regard the adoption of the euro by the EMU applicant countries as the final moment of an orderly adjustment process that will ensure the progress of both nominal and real convergence. The

[2] Buiter and Grafe (2002) use this suggestive expression to refer to the period of at least two years in which the EMU applicant countries have to fulfil the Maastricht criteria.
[3] Lawrence Summers (1996) indicates the level of 5 percent of GDP as the ceiling beyond which a current account deficit becomes excessively high.
[4] Denmark has adopted a +/- 2.25 percent band against the euro instead of the official band of +/- 15 percent.

premature exposure of the not sufficiently flexible emerging economies to the strong discipline of the euro is extremely risky and so is the danger of an upsurge in net capital inflows - including highly reversible short-term flows - that may lead to increased inflation and to a lending boom, resulting in a deterioration of the bank loan portfolio. If the financial system is not consolidated and well supervised, a banking crisis may occur.

As far as the Balassa-Samuelson effect is concerned, it is obvious that unilateral euroisation does not reduce its magnitude and the inflation differential relative to the euro-zone will rise as compared with the case when nominal appreciation in line with the Balassa-Samuelson effect is permitted.

8. Direct inflation targeting and currency board regimes in EU accession countries – obstacles and hazards

In a direct inflation targeting (DIT) regime, monetary policy is conducted according to a rule that specifies adjustments of the policy instruments in response to deviations of the inflation rate from an announced target value. This regime combines the constraints deriving from the numerical inflation target with a flexibility margin as regards the instruments used by the central bank. In order to achieve the targeted inflation, the central bank uses monetary policy rules as guiding elements of the monetary policy conduct without being forced to apply them mechanically (Svensson, 1998). Moreover, the path of disinflation needs to be slower if capital and labour markets are not sufficiently flexible and the monetary authorities have not yet established a solid credibility foundation (Orlowski, 2000).

While the performance of the DIT regime in developed countries is considered to be satisfactory so far in terms of achieving low inflation and stable growth, there is an ongoing debate among specialists whether developing countries can and should adopt DIT as their monetary policy framework.

For the particular case of the EU accession countries, there are some important obstacles in the way of a successful implementation of DIT:

a) **Increased probability of inflation forecast errors and missed targets.** The central bank is exposed to the risk of losing its credibility due to its limited experience and forecast capabilities and to the unanticipated external shocks;

b) **Fiscal dominance.** If the monetary policy operates in an environment where the fiscal policy has the advantage of the first move, the room for manoeuvre of the central bank is narrow (Niepelt, 2001). The fiscal dominance may take the form of financing the fiscal deficits by direct or indirect resort to the resources of the central bank or of the imposition of low real interest rates on the money market in order to reduce the cost of the public debt.

c) **Impact of changes in administered prices.** If the segment of administered prices is still significant, they can exert an upward pressure on the headline inflation rate;

d) **Fragility of the financial system.** The underdevelopment and lack of flexibility of capital markets and the insufficient consolidation of the banking system put at risk the success of the DIT strategy. However, the recent experience of several developing and transitional countries shows that the implementation of DIT can be made consistent with a less advanced stage of financial market development. Empirical evidence indicates that a full-fledged financial system facilitates the operation of a DIT regime rather than being a *sine qua non* condition for it (Popa et al., 2002).

Three accession countries (Estonia, Lithuania and Bulgaria) adopted the currency board regime in the 1990s. The main reason behind their choice was the commitment technology offered by this regime for small open economies where the monetary authorities were unable to establish a strong reputation. The hard currency peg is a commitment to perfect exchange

rate stability and the "no domestic credit expansion" rule acts as a commitment to budgetary discipline.

However, the successful operation of the currency bard arrangements currently in place in the EU accession countries is subject to several major hazards:

a) **The initial or subsequent misalignment of the nominal exchange rate.** This misalignment leads to increased inflation and strong real exchange rate appreciation induced by both the Balassa-Samuelson effect and the net capital inflows;

b) **The *no sterilization* rule.** In the presence of significant capital inflows, the mechanical application of this rule generates excessive monetary expansion and puts upward pressure on the inflation rate. When the country is confronted with a capital exodus, the monetary authorities are unable to attenuate the economic recession;

c) **The capacity to defend the fixed parity.** The limited level of official international reserves and the difficulty to assess the probability of a speculative attack against the domestic currency require a prudent attitude toward adopting a currency board arrangement.

9. Policy implications of the Maastricht inflation criterion

Among the set of values that are promoted by the process of economic globalisation, the culture of low inflation holds a top place. Price stability is going global. If the provisions of the Maastricht Treaty remain unaltered, after all the twelve accession countries have joined the EMU, Europe will already be a continent of unprecedented price stability.

During their stay in the "ERM purgatory"[5], direct inflation targeters will be able to formulate a time schedule for the path of their headline consumer price indices towards the level

[5] Buiter and Grafe (2002) use this suggestive expression for the period – of at least two years – in which EMU applicant countries have to fulfill the Maastricht criteria.

imposed by the Maastricht Treaty. They will conduct and implement the monetary policy in a forward-looking manner.

The countries with currency boards will have to sit and wait for inflation to go down. The "automatic pilot" monetary policy will not look forward or backward. The hard peg will be there to make sure that real exchange rate appreciation is possible only in the presence and at the expense of an inflation rate that exceeds the inflation rate of the main trade partners of these countries. And the main trade partners of all these countries are located inside the EU (most of them are also inside Euroland).

A possible way out from this trap could be to stop, at least for a while, the action of the factors that generate real exchange rate appreciation. The trouble is that the main determinants of real appreciation in transition countries are the rise in labour productivity and the upsurge in foreign investments. Both factors respond to imperative needs in these countries that are striving for growth, being engaged in a GDP and productivity catch-up effort. To slow down the positive dynamics of these factors is not a realistic option, because it affects dramatically the real convergence process essential for the successful integration into the European Union.

A comparative analysis of the implications of the Balassa-Samuelson effect in a currency board and respectively in a direct inflation targeting regime is extremely relevant in this respect.

Under a currency board system, the nominal exchange rate is kept constant. The rapid productivity growth in the tradable sector leads to real exchange rate appreciation *caeteris paribus*. The only way to allow this real appreciation to happen without freeing the nominal exchange rate from the hard peg is to accept an increase in the headline inflation rate. The inflation differential relative to the anchor country (or relative to the Euroland in the specific case of the EMU applicant countries) consequently rises, a development that represents a step back in the effort to comply with the Maastricht inflation criterion (which is, in fact, an inflation differential criterion).

Under a direct inflation targeting regime, the nominal exchange rate is allowed to float. The fast growth in the tradable sector exerts no unavoidable effects over the inflation rate, due to the fact that the exchange rate is free to act as an absorber of the Balassa-Samuelson effect through nominal appreciation. Nominal appreciation leads to a lower pace of inflation or even to deflation, in the tradable sector, due to the fact that the prices of tradables are determined by the international prices and the nominal exchange rate. As a consequence, monetary policy is able to ensure the desired path of the disinflation process by compensating the higher rise in the non-traded sector prices with a lower price increase in tradables (Kohler, 2000). The inflation differential relative to the Euroland diminishes and the Maastricht inflation criterion is likely to be satisfied in the reasonably near future. *Quod erat demonstrandum*.

As Annex 2 shows, in 2000 and 2001 all the ten transition economies currently in process of EU accession experienced positive economic growth and real exchange rate appreciation[6]. The real exchange rate appreciation process occurred not by chance or accident, but as part of a medium-term development that is illustrated by the positive annual average changes in the real exchange rate (CPI based) against the euro that all these countries (Slovenia, as the frontrunner in the real convergence process, seems to be already beyond the acute stage of the Balassa-Samuelson effect) registered in the period 1997-2001. The story that these figures are trying to tell us is that the BS effect is quite active lately in the accession countries. With this effect here to stay, the fast growth and increasing labour productivity that are expected in the next years in order to reduce the considerable gap relative to the EU countries will generate further real exchange rate appreciation.

If we look at the inflation numbers (Annex 3) we see that in the currency board countries inflation bounced back in these two years. Bulgaria, Estonia and Lithuania registered in 1999 remarkable price stability, all of them having inflation rates well below 4 percent, a result that,

[6] Relative to the euro, but, as preliminary data suggest, also the real effective exchange rate appreciated, a development that is hardly surprising, given the high share of the Euroland in the foreign trade of all the accession countries.

in conjunction with the maintenance of the hard peg and the relative low interest rates, made them believe that the nominal convergence criteria are within reach and a speedy transition towards EMU membership is feasible. The next two years, when none of these countries posted inflation rates below 4 percent, brought them back to the unpleasant arithmetic of the crude reality.

After mixed performances in 2000, the countries that have more flexible exchange rate regime, inflation targeters among them, registered declines in the inflation rates in 2001, with the sole exception of the Czech Republic. The 2001 average inflation rate decline of these countries is of 3 percentage points (1.4 percentage points in the case of the subset of direct inflation targeters). Monetary policy has been successful in controlling inflation even against the background of substantial real exchange rate appreciation.

Now we have a more complete picture and it becomes obvious that, due to the strong BS effect that occurs in a period of fast economic growth, only a flexible exchange rate policy is able to lead towards the fulfilment of the inflation criterion for full EMU membership. A direct inflation targeting regime that allows an appreciation of the exchange rate inside the +/- 15 percent fluctuation margins of the ERM band while pursuing the overriding goal of price stability responds to this requirement. The danger here is that the nominal appreciation will lead to a significant increase in the current account deficit. Taking into account that the size of the current account deficit of some of the accession countries is presently well above the optimal or prudent levels, a worsening of this indicator is hardly a desirable development. A period of low growth (if growth is led by exports) and the possibility of a currency crisis (if the current account deficit is perceived as unsustainable) are the risks associated with the current account deficit widening. However, a balanced policy of exchange rate floating strictly in line with the Balassa-Samuelson effect, without any attempt to force disinflation by an additional appreciation (by means of central bank interventions on the forex market) should

be able to prevent the occurrence of a currency crisis. A slower growth rate in the two-year test period is probably the price to be paid by the inflation targeters for attaining the nominal convergence criteria for EMU membership.

A relaxation of the inflation criterion can be obtained by defining the differential versus the HICP rate of the euro-zone instead of the three best performing EU members. This change would offer a supplementary margin of between 0.7 and 1 percentage points, that can attenuate the recessionary effect of accomplishing the inflation criterion.

In a currency-board accession country, the full commitment to the fixed parity rules out the possibility to operate a revaluation of the domestic currency, revaluation that – unlike devaluation – is not expressly prohibited by the EMU membership criteria. A softer peg seems more appropriate for managing the fulfilment of the Maastricht inflation criterion.

One conclusion is straightforward: the *currency board/hard peg/binding rules* corner appears to be less endowed for passing the EMU admission inflation test than the *direct inflation targeting/float/constrained discretion* one. Moreover, from this specific, inflation-related perspective, even the repudiated intermediate exchange rate arrangements are better suited to serve an accession country than the draconian currency board system.

10. Is "managed floating plus" the optimal solution for the EU accession countries?

The "fear of floating" has been very present in the emerging-market countries in the 1990s, when the central banks of most of these countries that pursued a floating regime – at least *de jure* – have intervened quite heavily in the foreign exchange market in order to avoid significant fluctuations of the exchange rate. Confronted with large asymmetric shocks, the non-currency-board accession countries tend to moderate exchange rate volatility at the cost of higher variability of international reserves.

How can the authorities of an emerging-market economy conciliate a paramount goal of price stability with the policy concern to maintain the external competitiveness and to smooth output fluctuations? Is it possible to make the direct inflation targeting strategy compatible with a significant policy concern for the exchange rate movements?

One solution can be a regime that combines the exchange rate regime of managed floating with the monetary policy regime of inflation targeting. Goldstein (2002) calls this type of regime "managed floating plus", where the "plus" refers to inflation targeting and vigilant policy actions against currency mismatching. The ability to limit the currency mismatches is very important in countries facing high levels of currency substitution (especially the second-wave EU accession countries). Balance-sheet vulnerability to unpredicted exchange rate movements could be lowered by creating some exchange rate stability instead of perfect exchange rate stability. The currency risk awareness is critical for the success of such a strategy and this awareness can be preserved by a certain degree of short-term exchange rate volatility.

Another factor that can contribute to the lowering of currency mismatches is the development of the market for medium and long-term bonds denominated in local currency, thus overcoming the „original sin". A good track record in meeting the inflation targets can support this development as well.

Summary of conclusions

The ever-higher worldwide integration of financial markets forces central banks to depart from the area of hybrid arrangements and to find harbourage in the corners of the spectrum of monetary and exchange rate regimes. The currency board and direct inflation targeting regimes are viewed as viable solutions in the era of globalisation. The central banks of many countries need adequate benchmarks and criteria for making the right choice between these two alternatives.

In 2001, all the three EU accession countries that use a currency board system registered inflation rates higher than they had two years ago. The three EU accession countries that opted for direct inflation targeting enjoyed enhanced macroeconomic stability, even though the pace of economic growth decelerated in Poland and Hungary, partly reflecting the high output sacrifice ratio of disinflation in the single-digit inflation area.

From the EMU membership criteria perspective, accession countries have a long and difficult way in front of them before entering the Euroland. The unilateral euroisation in advance is definitely not an option, the currency board system is not able to ensure the accomplishment of the nominal convergence criteria in the medium term – due to the persistence of a significant inflation differential against the euro-zone –, whereas direct inflation targeting seems to be the right solution, but the fulfilment of the inflation and exchange rate criteria is achievable only at the expense of a significant loss of output that leads to a significant delay in the real convergence process. The Balassa-Samuelson effect, that is entirely translated into inflation under the currency board system, is partially absorbed by the nominal exchange rate movements in the inflation targeting regime. The "fear of floating" can be defeated by adopting a "managed floating plus" regime, where

“plus” stands for inflation targeting and currency risk awareness through short-term fluctuations of the exchange rate. However, the decisions concerning the adoption or maintenance of the optimal monetary policy regime have to take into account all its strengths and vulnerabilities against the specific background and goals of each country.

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Annexes

Annex 1

Monetary policy regimes of the EU accession countries

Country	Current monetary policy regime	Year of inception	Reference currency for the exchange rate
Bulgaria	Currency board	1997	euro
Czech Republic	Direct inflation targeting	1998	euro
Hungary	Direct inflation targeting	2001	euro
Estonia	Currency board	1992	euro
Latvia	Exchange rate targeting (fixed peg)	1994	SDR
Lithuania	Currency board	1994	euro
Poland	Direct inflation targeting	1999	euro
Romania	Monetary targeting	1992	US dollar
Slovakia	No explicitly stated nominal anchor	-	euro
Slovenia	Monetary targeting	1991	euro

Source: central banks, IFS

Annex 2

Real exchange rate appreciation and GDP growth in the Central and Eastern European accession countries

annual change in percent

Country	Real exchange rate appreciation (+)/depreciation (-) against the euro (CPI based)			Real GDP growth	
	2000	2001	1997-2001, annual average	2000	2001 *
Bulgaria	10.6	4.8	15.3	5.4	4.0
Czech Republic	7.6	9.4	6.2	2.9	3.5
Hungary	6.7	10.7	6.2	5.2	3.8
Estonia	4.0	5.8	6.0	7.1	5.0
Latvia	14.9	2.3	9.0	6.5	7.7
Lithuania	16.6	4,5	11,1	3.8	5.8
Poland	16.1	15.2	8.5	4.0	1.1
Romania	19.0	3.1	12.4	1.8	5.3
Slovakia	16.0	5.6	6.4	2.2	3.3
Slovenia	2.5	3.7	3.1	4.6	3.0
Average	11.4	6.5	8.4	4.4	4.3

Note: *) preliminary data

Source: WIIW (February 2002), national statistics, BIS

Annex 3

Inflation rates in the Central and Eastern European accession countries

Change in percent against previous year

Country	CPI inflation rate (annual average)		
	1999	2000	2001
Bulgaria	**2.5**	**10.3**	**7.4**
Czech Republic	*2.1*	*3.9*	*4.7*
Hungary	*10.0*	*9.8*	*9.2*
Latvia	**3.3**	**4.0**	**5.8**
Latvia	2.3	2.7	2.5
Lithuania	**0.8**	**1.0**	**4.3**
Poland	*7.3*	*10.1*	*5.5*
Romania	45.8	45.7	34.5
Slovakia	10.6	12.0	7.3
Slovenia	6.1	8.9	8.4
Currency board countries, average	**2.2**	**5.1**	**5.8**
Non-currency board countries, average	**12.0**	**13.3**	**10.3**
Inflation targeting countries, average	*6.5*	*7.9*	*6.5*

Source: central banks, IFS, WIIW (February 2002)