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Monetary Policy Strategies before Euro Adoption: The Art of Chasing Many Rabbits

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Abstract This policy paper deals with the main strategic issues for monetary policy in new EU member states before their euro adoption. These are typically rooted in the challenge of fulfilling concurrently of the Maastricht inflation and exchange rate criteria. In this paper we first put forward that these criteria are vaguely defined and distinguish between the wording, written interpretation and 'revealed' interpretation (by the European authorities) of these criteria. Next, the paper contain the comprehensive discussion of the strategic options for monetary policy in the period of fulfilment of these criteria in terms of (i) its transparency, (ii) its continuity with the previous monetary policy regime, (iii) the choice of central parity for the ERM II, (iv) the setting of the fluctuation bandwidth, (v) the probability of fulfilment of both criteria and (vi) the impact on the autonomy of monetary policy.

Keywords Monetary policy, euro adoption, ERM II, EU
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1. Introduction

Several European countries currently face, or will face in the near future, the question of whether and in what time horizon their economies will be capable of fulfilling the conditions for entering the euro area. In general, those conditions can be understood as attaining such parameters in various fields of economic life that will ensure successful operation of the economy in the environment of the single monetary policy of the European Central Bank (hereinafter the "ECB"). An important aspect of the conditions for the entry into the euro area is the obligation to fulfil the convergence criteria officially incorporated into the EU Treaty (hereinafter the "Treaty") at the Maastricht summit in 1992.

The requirement to fulfill these "Maastricht criteria" before entering the euro area implies a number of challenges for domestic policy-makers in relation to the state of the economy (see Angeloni et al. 2005; Buiter and Grafe 2002; Coricelli 2002; de

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Grauwe and Schnabl 2005; Hochreiter and Tavlas 2004; Dabrowski and Rostowski 2006; Komárek et al. 2003; or Schadler 2005).

Our article deals with the challenges ensuing from the Maastricht criteria for the monetary policies of the relevant countries' national central banks. The inflation criterion, the exchange rate criterion and the long-term nominal interest rate criterion are of primary concern to the central banks. Fulfillment of the criterion for long-term nominal interest rates is, in particular, closely linked with the fulfillment of the inflation criterion and with market confidence in the country's entry into the euro area.[1] Consequently, we will concentrate on the inflation and exchange rate criteria.

Why is parallel fulfillment of inflation and exchange rate criteria a challenge for the policy maker? Obviously, in a case of trend-less real exchange rate, the Maastricht criteria may provide a reasonable test for a country aiming to adopt euro. On the other hand, many countries in Central and Eastern Europe that are currently considering joining the monetary union exhibit trend real exchange rate appreciation due to their convergence process (Égert et al. 2006). In consequence, this makes fulfilling the inflation and exchange rate criteria cumbersome, as greater chances of fulfilling one criterion implies greater risk of failure in the other criterion. Clearly, this all depends on how strong the trend real exchange rate appreciation is. The recent experience of this set of countries suggests that the ability to fulfill these two criteria varies. While Lithuania did not fulfill the inflation criterion in 2006, Slovakia managed to go through the fulfillment of Maastricht criteria successfully and adopted euro in 2009 (see Horváth and Rusnák 2009, for analysis of Slovak macroeconomy and the issues dealing with euro adoption in Slovakia).

The majority of papers dealing with the potential conflict between the inflation and the exchange rate convergence criteria focus on trend real exchange rate appreciation and the Balassa-Samuelson (BSE) effect in particular. While earlier analyses estimated the BSE to be relatively large, the estimates of more recent studies reveal a smaller effect. As Mihaljek (2002) points out, earlier studies often neglected productivity growth in the non-tradable sector. Moreover, positive productivity growth in the tradable sector has also been estimated in the euro area, lessening the real appreciation tendency. Égert et al. (2006) also do not find BSE effect to be the main driving force behind the trend appreciation. Different factors have rather been put forward instead. First, a trend of a diminishing risk premium in the real version of the uncovered interest parity relation may translate into trend appreciation. Second, other effects such as improvements with regard to the terms of trade, price deregulation and initial undervaluation of transition country currencies also tend to generate trend real appreciation.

However, there is additional, often neglected, aspect that makes euro adoption cumbersome, which is the degree of ambiguity existing in the formulations of the inflation and exchange rate criteria in the Treaty. Therefore, the manner in which the individual Maastricht criteria are interpreted by the ECB and the European Commission (hereinafter the "EC") in their Convergence Reports is gaining in importance. At the level

[1] Besides the three criteria mentioned, the Treaty formulates another two criteria in the fiscal policy area. These criteria within the euro adoption processes in the new EU member states are discussed, for example, by Coricelli (2004).

of the practical implementation of monetary policy, the question, then, is how to deal with the ambiguity or more specifically, how to set the central bank euro adoption strategies accordingly.[2]

The added value of this paper compared to other studies discussing the preparations for euro area entry is also in its comprehensive approach, encompassing all the main issues relevant to the national central bank, including, for example, transparency and credibility of monetary policy strategies or the asymmetry in the exchange rate criterion. What we also consider to be a step in the right direction and also new in the literature is our pragmatic focus on the interpretation of the criteria, and, conversely, the fact that we refrain from analysing the economic meaningfulness of their wording in the Treaty.[3] Pushing through changes in the wording of the Treaty itself (and its Protocols) we find politically very difficult and unlikely. Indeed, the EU summit which took place in Brussels in June 2007 and whose primary purpose was to formulate a "reform treaty" for the EU, did not open these issues at all. As a result, we do not regard any analysis of potential change of the wording of the Treaty as very useful.

Komárek et al. (2003) investigate the issue of management of the candidate countries' exchange rates under the existing institutional and legislative framework of the EU. They also discuss the "economic" factors influencing exchange rate strategies on the path towards euro-area accession and briefly review the present exchange rate strategies of the EU candidate countries. We also contribute to the literature by investigating alternative scenarios for ERM II participation depending on the features of chosen exchange rate regime and central parity setting with respect to market exchange rate. We focus on the factors behind the potential conflict between conducting autonomous monetary policy and meeting the convergence criteria.

The questions to which this paper seeks answers, are, or will be, relevant to the EU member states with a derogation from adopting the euro that have not yet entered ERM II mechanism (currently Bulgaria, the Czech Republic, Hungary, Poland and Romania), and also to those countries which will stand at the gates of the euro area in the future after joining the European Union (e.g. Croatia, Montenegro and possibly Turkey). All these countries will for simplicity be termed euro-candidates (even if some of them are not the EU members yet and thus their prospects of euro adoption are still quite distant). Notwithstanding all the evident differences between these countries, there are some prevailing tendencies in their current monetary policy strategies which should be borne in mind, such as their preference for inflation targeting (this applies to most euro-candidates mentioned above). We can also see, at least in the countries where the question of ERM II entry is already relevant (the Czech Republic, Hungary and Poland), a prevailing intention to spend the minimum necessary time in the ERM II system. In order to simplify some of our considerations, we will assume that this intention applies generally, i.e. that the euro-candidates intend to enter the ERM II only for around 2–3 years in order to meet the requirements of the exchange rate criterion. Given that assumption, the period of membership in the ERM II more or less coincides

[2] Note that many central banks prepare regularly an analysis to assess the country's readiness to adopt euro such as the "Analyses of the Czech Republic's current economic alignment with the euro area."

[3] For a recent example of such an analysis, see Pisani-Ferry, Aghion, Ahearne, Belka, von Hagen, Heikensten and Sapir (2008).

with the period of fulfilment of the criterion. In the following text we will call this period, for simplicity's sake, the period of fulfilment of the criteria.

Needless to say, an analysis — as provided in this policy paper — of the perspective from which a euro-candidate's national central bank looks at the issues of Maastricht criteria fulfilment may prove relevant also for the ECB and the EC themselves. In a sense, these institutions look at the same issues from the "opposite" angle. Therefore, their better understanding of the euro-candidates' viewpoint may make the dialogue over euro area accession smoother.

The paper is structured as follows: Section 2 looks in detail at the interpretation of the exchange rate and inflation criteria, drawing on the experience of countries which have already adopted the euro and on the Convergence Reports of the ECB and the Commission. Section 3 builds on the interpretations outlined in the preceding part, analysing the monetary policy regime/strategy options in the run-up to euro area entry. Section 4 concludes.

2. The ambiguity of exchange rate criterion and the inflation criterion

Article 121 of the Treaty stipulates that both the EC and the European Central Bank (ECB) are to examine the state of convergence of the Member States. The Convergence Reports are then to be submitted to the Council of the EU, which, based on the recommendation of the EC, judges whether a given country fulfils the necessary conditions for the adoption of the single currency. The fact that it is up to the EC, but not up to the ECB, to give an official recommendation, explains some of the differences — to be mentioned below — in how the two institutions treat the two criteria in their Convergence Reports. Generally speaking, the ECB never gives an explicit verdict on whether a given country being assessed has met a given criterion.

In order to discuss the strategic monetary policy options in the period of fulfilment of the criteria, we must first identify the requirements and restrictions ensuing from the exchange rate and inflation criteria for monetary policy. In other words, we must identify the probable manner in which the euro-candidate will be evaluated against these criteria by the Commission and the ECB in their Convergence Reports. This problem may seem trivial at first sight: it is sufficient to read the wording of the criteria in the Treaty. In fact this is only the first step, as the wordings of both criteria in the Treaty (and in the relevant Protocol to the Treaty) contain some ambiguous passages.

Both these institutions are thus forced to choose and describe in their Convergence Reports interpretations which eliminate these ambiguities. A detailed reading of these interpretations, however, reveals that some vagueness remains even here. Our last chance to get a more precise idea of the application of the criteria is to rely on the principle of equal treatment and, in the light thereof, to examine the experience of countries which have already undergone the evaluation process. Where a given country with a particular value of a given parameter has (un)successfully undergone the review process, the Commission and the ECB have thereby revealed an interpretation of the relevant criterion under which that value is (un)acceptable, and it can be hoped that both institutions will retain this revealed interpretation in the future. The interpretation of

the criteria described explicitly in the Convergence Reports will be called the "written interpretation", while the interpretation derived from the experience of the countries which have already been evaluated will be labelled as the "revealed interpretation".

2.1 The wording and written and revealed interpretation of the exchange rate criterion

The third indent of Article 121(1) of the Treaty stipulates a requirement to participate in the exchange rate mechanism for at least two years and that during this period the exchange rate should fluctuate in the normal fluctuation band and its central parity should not be devalued (without the need to spend an additional two years in the ERM II the parity may only be revalued). The exact wording of Article 121(1) of the Treaty is as follows:

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

Article 3 of Protocol No. 21 to the Treaty further specifies with respect to the convergence criteria that the exchange rate should fluctuate within the set band without severe tensions and that the parity may not be devalued on the initiative of the member state striving to enter the EMU. The exact wording of Article 3 of Protocol No. 21 to the Treaty is as follows:

"...the criterion on participation in the exchange rate mechanism of the European Monetary System referred to in the third indent of Article 121(1) of this Treaty shall mean that a Member State has respected the normal fluctuation margins provided for by the exchange rate mechanism of the European Monetary System without severe tensions for at least the last two years before the examination. In particular, the Member State shall not have devalued its currency's bilateral central rate against any other Member State's currency on its own initiative for the same period."

The wording of the criterion in Article 121 of the Treaty, despite being clarified in the Protocol, remains ambiguous and has become the subject of much debate (see for example Égert et al. 2005). A question mark hangs over the actual margins of the fluctuation band within which movement of the exchange rate is considered acceptable by the European institutions. Not entirely clear, however, is also the tolerated intensity of the tensions which accompany the maintenance of the exchange rate within this band, and the period of time for which the exchange rate must participate in the ERM II system.

Some clarification as regards the question of which band is in fact tolerated can be found in the formulations that have appeared in past Convergence Reports produced by the Commission and the ECB. Of these two reports, the one prepared by the Commission can be considered more important, for it is the Commission that will prepare, on the basis of the reports and the member state's application to enter the EMU, the recommendation for the EU Council on whether to grant the application or not.

The Commission's convergence reports reveal that a deviation of the exchange rate in excess of the normal ERM fluctuation band of $\pm 2.25\%$ is not automatically evalu-

ated as failure to satisfy the exchange rate criterion. When evaluating an exchange rate deviation outside the ±2.25% band, the Commission takes the duration of the deviation into account, but also its amplitude and above all its direction, i.e. whether it is on the weak or strong side of the band. A deviation towards a stronger exchange rate beyond the 2.25% limit is not, according to the Commission, inconsistent with fulfilment of the exchange rate criterion (Convergence Report 1998, p. 153). The ECB's approach in its convergence reports is similar.

Furthermore, we may attempt to trace the outlines of the revealed interpretation of this criterion by looking at the exchange rate developments which the present member countries underwent prior to entering the euro area and which were found to be in compliance with the Treaty. Specifically, the exchange rate of the Irish pound in the review period fluctuated within the margins of -5% to +10% relative to the parity and the exchange rate of the Greek drachma fluctuated near the limit of +10%.

Regarding the tolerated intensity of the tensions underlying the fluctuations of the exchange rate close to the central parity, the ECB concentrates on indicators such as the distance of the exchange rate from the central parity, the short-term interest rate differential and the size of foreign exchange interventions. It also takes into account whether there are any reasons for appreciation of the exchange rate (Convergence Report 2004, p. 11). It is not, however, clear from the ECB's and the Commission's statements, or from the experience of the founder members of the EMU, whether there is a maximum permissible size of foreign exchange interventions which is still compatible with the fulfilment of the exchange rate criterion and whether significant interventions in one direction only are permissible.

The ECB (2003, p. 6) points out that the assessment of exchange rate stability against the euro will focus on the exchange rate being close to the central rate while also taking into account factors that may have led to an appreciation, which is in line with what was done in the past. Moreover, the issue of absence of "severe tensions" is, according to the ECB, addressed by examining the degree of deviation of exchange rates from the ERM II central rates against the euro, by using indicators such as short-term interest rate differentials vis-à-vis the euro area and their evolution, and by considering the role played by foreign exchange interventions.

In any case, one can assume that, provided the exchange rate is maintained — by whatever means — within the narrow band of ±2.25% during the ERM II, it would be very difficult for the Commission to talk of non-fulfilment of the exchange rate criterion. This assumption arises in particular in the case of the countries participating in the ERM II with a currency board (Estonia and Lithuania). Under this exchange rate regime, the size of the interventions is, by definition, beyond the decision of the central bank and may take on significant values.

Another uncertainty associated with the interpretation of the exchange rate criterion concerns the period of stay in the ERM II. What brings uncertainty into this seemingly unambiguous aspect of the exchange rate criterion is the experience of Finland and Italy that had spent more than two years in the then ERM before adopting the euro, but the Commission and the ECB evaluated the fulfilment of the Maastricht criteria by these countries before they had participated for two years in the ERM II, and the

same goes for the EU Council's final decision on the fulfilment of the convergence criteria by these countries. In these two cases, therefore, the revealed interpretation of the criterion was inconsistent with the wording of the criterion, introducing a new ambiguity into the criterion. It may be, however, that the then more liberal approach of the European institutions was due in part to an endeavour not to complicate the early phase of existence of the euro area and that this tolerance will not be repeated in the case of the euro area expansion.

The revealed interpretation from Convergence Reports can be summarized as follows: (i) Participation in the ERM II at the time of assessment is mandatory and expected for at least two years. Some exchange rate stability during a period of non-participation before entering ERM II can be taken into account, too. (ii) No downward realignment (devaluation) of the central parity within the two year examination period. (iii) Exchange rate to have been maintained within a fluctuation band of $\pm 2.25\%$ around the currency's central parity against the euro. An assessment of any deviation from the $\pm 2.25\%$ fluctuation band would have to take account of the reasons for that deviation. A distinction is to be made between exchange rate movements above the $\pm 2.25\%$ upper margin and movements below the $\pm 2.25\%$ lower margin.

All this means that the exchange rate criterion should basically be understood as 2.25% on the weaker side and wider band on the stronger side. In addition, going beyond the 2.25% limit on the weaker side does not automatically mean a violation of the criterion, and at the same time, the possibility of revaluation of the central parity questions the existence of any limit on the stronger side. It is thus possible to conclude that to meet the criterion, it is necessary to avoid devaluation of the central parity and to ensure that the exchange rate is not too frequently well beyond the 2.25% limit on the weaker side despite interventions via interest rate hikes and exchange reserves sales.

On the basis of all the information mentioned above, we can identify the following "pragmatic" interpretation of the exchange rate criterion, which on the one hand will provide clear scope for exchange rate fluctuations, and on the other hand should ensure, with an acceptable degree of probability, approval of the fulfilment of the criterion by the Council:

"Participation in the ERM II exchange rate mechanism for a period of two years within a fluctuation band of -2.25% to +10%. A short-term deviation outside this band (even in the depreciation direction, see the experience of Ireland) may be tolerated; in the case of a marked strengthening, the parity may be revalued bilaterally. Significant interventions are acceptable at least where they lead to the exchange rate being maintained within a band of $\pm 2.25\%$."

Let us add that maintaining the exchange rate in any band narrower than the standard $\pm 15\%$ ERM II band is exclusively up to the given country: under the rules of the ERM II system any interventional assistance by the ECB can be expected mainly when the limit of $\pm 15\%$ is in jeopardy.

2.2 The wording and written and revealed interpretation of the inflation criterion

The first indent of Article 121(1) of the Treaty stipulates price stability as a further condition for adoption of the single currency. This condition is fulfilled if inflation in the candidate country does not exceed that in the three best performing countries by more than 1.5 percentage points. The exact wording of the Treaty is as follows:

"...the achievement of a high degree of price stability; this will be apparent from a rate of inflation which is close to that of, at most, the three best performing Member States in terms of price stability."

The subsequent Protocol to the Treaty, first paragraph, specifies the calculation method. Inflation is measured by means of the HICP and as a twelve-month moving average:

"...the criterion on price stability referred to in the first indent of Article 121(1) of this Treaty shall mean that a Member State has a price performance that is sustainable and an average rate of inflation, observed over a period of one year before the examination, that does not exceed by more than 1.5 percentage points that of, at most, the three best performing Member States in terms of price stability. Inflation shall be measured by means of the consumer price index on a comparable basis, taking into account differences in national definitions."

Just as in the case of the exchange rate criterion, the wording of the inflation criterion, despite being clarified in the Protocol, is ambiguous.[4] The vagueness relates above all to the term "best performance", which constitutes the key for selecting the three countries whose inflation rates are to enter the calculation of the reference value. Also vague, however, is the meaning of the term "sustainable".

No matter how vague the words "best performance" may be, in the older Convergence Reports the Commission and ECB agreed on a plain and unambiguous written interpretation, i.e. that "best performance" means the lowest inflation. In the Convergence Reports for 2004 a country with negative inflation (Lithuania) appeared for the first time, and both institutions thus faced the question of whether to apply their interpretation to countries with negative inflation. The Commission took a rather strict and still unambiguous stand on this issue: "best performance", according to the Commission, is the lowest non-negative inflation.

By comparison, the ECB adopted a rather more benevolent position:

"The price developments in Lithuania over the reference period, which resulted in a 12-month average rate of -0.2% due to the accumulation of specific factors, have been judged to be an outlier. This figure has consequently been excluded from the calculation of the reference value as it might otherwise have given rise to a distortion in the reference value and reduced the usefulness of the reference value as an economically meaningful benchmark."

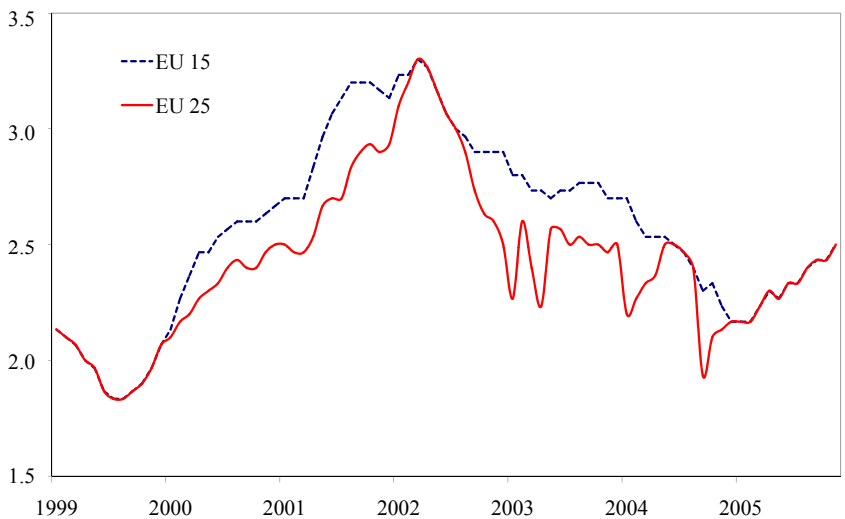
[4] Proposals have been made for a change of wording of the criterion directly in the Treaty (Buiter 2004; Buiter and Grafe 2002, *inter alia*). For example, it has been proposed to select the three reference countries only from among the euro area countries; to base the reference value of the criterion not on the average of the three countries with the best inflation results, but instead on the average for the entire euro area; to concentrate only on inflation of traded goods; and so on. In this paper, however, we concentrate exclusively on the issue of the interpretation within the limits of the present wording of the Treaty.

It is, therefore, the ECB's written interpretation in particular that leaves some degree of ambiguity as regards the inflation criterion. This interpretation has so far explicitly been used only once. Thus, it is impossible to get a clear idea at least about the revealed interpretation. At least, we can perhaps infer that the ECB intends to use the outlier concept only very cautiously. What leads us to this hypothesis is the fact that in 2004 one of the countries included in the calculation of the reference value of the criterion in the ECB's Convergence Report was Finland, with an inflation rate of mere 0.4%. Moreover, the extraordinarily low inflation in Finland during 2004 was largely due to a clearly exceptional, administrative measure: sharp decrease in excise duty on alcohol (Bank of Finland 2005). The reluctance of the ECB to use the concept of outlier transpires also from Spring 2006 Convergence Report where the reference value is calculated from three "best performers" of which at least two — Finland and Sweden — again are countries with exceptionally low inflation rates (not exceeding 1%).

Although it cannot be entirely ruled out that in the future countries with low positive inflation might also be exempted from the calculation of inflation in the reference countries, on the basis of the above-mentioned considerations it is possible to designate as a pragmatic interpretation of the inflation criterion the one which appeared in the Commission's Convergence Report for 2004, i.e. the interpretation in which the reference countries are the three EU members with the lowest non-negative inflation.

This interpretation, however, in no way clarifies the use of the term "sustainable". Sustainability was raised — at least indirectly — as an issue in the 2006 Convergence Reports for Lithuania and Slovenia where the assessment included a look at whether inflation had been above or below the reference values in the previous months and

Figure 1. Development of the inflation criterion



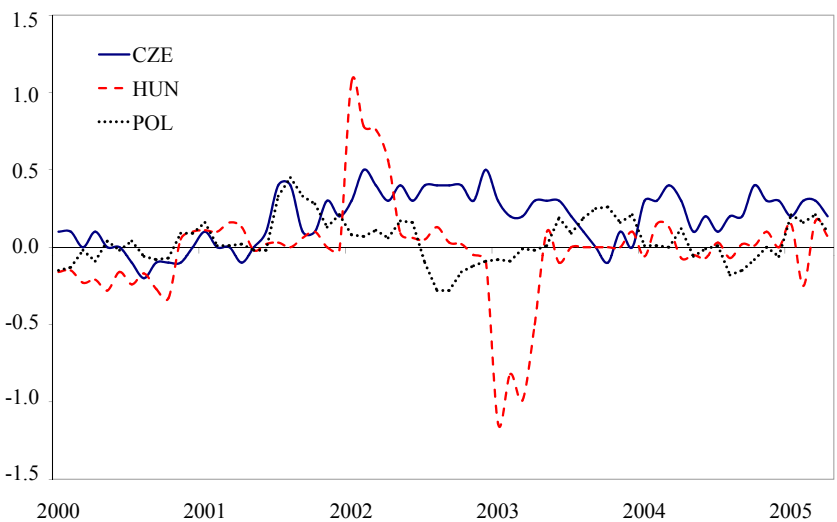
Source: Eurostat

whether it was likely to be above or below the reference values in the months ahead. For each of the two member states, however, these sustainability considerations were pointing in the same direction as the single-month comparison of the reference value versus actual value. Therefore, it is not obvious how much such considerations would influence the overall assessment in other cases. So far, thus, there is a lack of clear signals for a "pragmatic" interpretation of the term "sustainable".

The past development of the reference value of the inflation criterion according to the above-mentioned interpretation is shown in Figure 1. The variability of this value over time is quite evident in the chart. At the same time one can see that in the enlarged EU this value often fluctuates at a lower level than in the original, 15-member Union. Both these factors increase the risk that not even relatively low inflation can guarantee with certainty the fulfilment of the inflation criterion in accordance with the above-mentioned pragmatic interpretation.

As regards euro-candidates whose monetary policy operates under a regime of inflation targeting with inflation targets set in terms of their national consumer price indexes (CPI), these countries should, of course, also take into consideration any methodological, and therefore also quantitative, differences between this CPI and the harmonized index of consumer prices (HICP), with which the criterion operates. As indicated by Figure 2, this difference may be at least temporarily relatively large.

Figure 2. Difference between the CPI and HICP in selected countries targeting CPI inflation (Czech Republic, Hungary, and Poland)



Note: Positive values — in percentage points — indicate higher CPI inflation than HICP inflation.
Source: Eurostat

3. Monetary policy regime options in ERM II

This section discusses the main issues related to monetary policy strategy for euro-candidates. It first investigates the attributes of optimum monetary policy regime and then discusses the complexity of the choice of exchange rate regime and ERM II central parity.

3.1 Five important aspects of the optimum regime

The choice of optimum monetary policy regime is complicated by the fact that the concept of "optimum regime" may have a different content depending on what weight we attach to its individual aspects. When trying to structure the decision-making on the optimum monetary policy regime during the period of fulfilment of the criteria, we need to take the following five basic aspects into consideration:

(i) *The probability of fulfilment of the Maastricht criteria*. Almost all the countries that aspire, or will aspire in the future, to enter the euro area are experiencing marked long-term appreciation of their equilibrium real exchange rates (Égert et al. 2006). This real appreciation can take place either through an inflation differential or through the nominal exchange rate appreciation, or through a combination of the two. Apparently, there is a trade-off between the fulfilment of the two criteria. The manoeuvring space for safe parallel fulfilment of both criteria is of course larger, the smaller is the equilibrium appreciation. Assuming that the period of fulfilment of the convergence criteria is too long for the national central bank to be able, or willing, to artificially maintain the economy out of equilibrium throughout this period using monetary policy instruments, monetary policy makers face indeed a difficult task: to distribute the overall equilibrium real appreciation between the above-mentioned two channels in such a way that both the exchange rate and the inflation criteria are fulfilled, or in such a way that these criteria are fulfilled with the same probability.

(ii) *Internal consistency*. Some aspects relating to ERM II membership, or to fulfilment of the Maastricht criteria, are not necessarily mutually consistent if the country retains its existing monetary policy regime. From the point of view of successful fulfilment of the exchange rate criterion it is very difficult to retain, for example, a free float. From the point of view of fulfilling the inflation criterion it may be, on the contrary, dangerous to completely fix the exchange rate in a context of real equilibrium appreciation. Another example of inconsistent monetary policy is targeting a rate of inflation that is clearly higher than the probable inflation criterion.

(iii) *Economic appropriateness*. Even if monetary policy strategy is internally consistent during the period of fulfilment of the criteria, it might not necessarily be appropriate for the economy at that particular moment in time. For example, trying to keep inflation too low may result in an excessively restrictive monetary policy and a loss in the form of reduced economic growth (Bulíř and Hurník 2006). The opposite situation, i.e. an overheating of the economy, may occur if the exchange rate is fixed at too depreciated a level.

(iv) *Transparency*. If the central bank is transparent to the public, it is usually also more credible and attains its aims more easily (Blinder 1998). Transparency and the ensuing effectiveness is doubly important for a central bank which is obliged to attain several objectives at the same time and can only be successful if it fulfils every one of them. On the other hand, the pursuit of transparency has its limits, as it may lead to reduction in flexibility (Mishkin 2004). In spite of this, during this period the central bank should be as open as possible as regards its objectives and should not attempt to conceal any facts from the public.

(v) *Continuity with the previous regime*. A change of monetary policy regime entails considerable costs, especially if the previous regime has been in place for a long time and economic agents have adapted their behaviour to it. For this reason, central banks usually resort to a change of regime only in situations where there is no other way out (see, for example, Masson and Ruge-Murcia 2005).

While some euro-candidates operate under a fixed exchange rate (e.g. Bulgaria and Montenegro), the majority are inflation targeters (e.g. the Czech Republic, Hungary, Poland, Romania, Sweden and Turkey), mostly with managed or free floating. It is within the latter group that ERM II entry and the need to fulfil the Maastricht criteria confronts the central bank with the dilemma of whether or not to modify its regime. If a country has a favourable experience with inflation targeting and if it has succeeded in making its inflation target credible, the costs of changing the regime are understandably higher. A credible inflation target may better anchor low inflation expectations and thus foster fulfilment of the inflation criterion. Regarding the former group, countries with a fixed exchange rate would find it difficult to explain the abandonment of their previous nominal anchor in the form of a fixed exchange rate, no matter how this might facilitate their fulfilment of the inflation criterion. This is also what the experience of the countries which have already entered the mechanism would suggest (Estonia, Lithuania and Latvia retained their currency boards, while Malta switched from an exchange rate fixed to a currency basket to a rate fixed to the euro).

For most of the euro-candidates there is no regime that would satisfy all the above-mentioned desirable aspects to the full. If, for example, we gave priority to the aspect of fulfilment of the criteria, this could be only done to the detriment of continuity with previous regime, internal consistency and/or economic sustainability. For the majority of the euro-candidates, therefore, the choice of monetary policy regime for the period of fulfilment of the criteria represents a challenge to find a suitable compromise between the aspects mentioned.

3.2 Exchange rate regime and loss of autonomy

There has been a very lively debate on the role and sense of ERM II between the ECB, the EC and the acceding countries. The Eurosystem position regarding ERM II is set out in the "Policy position of the Governing Council of the ECB on exchange rate issues relating to the acceding countries" (ECB 2003). This document builds on the Position Paper "The Eurosystem and the Accession Process" endorsed by the Governing Council on 21 November 2002. The Position Paper puts forward the view that:

"*ERM II offers a meaningful framework for combining nominal and real convergence and should therefore not be seen as a mere "ante-chamber" before the adoption of the euro ... ERM II should be seen as a useful regime on its own right, as a number of policy challenges can be tackled within that framework in the run-up to the adoption of the euro ... ERM II is likely to be beneficial for the accession countries in their pursuit of real and nominal convergence.*"

One of the most striking features of this particular argumentation is the apparent lack of attention devoted to the target zones literature that developed especially in the 1990s (Krugman 1991; Bertola and Caballero 1992; or Svensson 1994). Financial crises and the subsequent literature on multiple equilibria, self-fulfilling speculative attacks and reversals of capital flows (e.g. Eichengreen and Wyplosz 1993) made economists more aware of the complicated dynamics of modern financial markets. This paved the way for an understanding of the benefits of corner solutions (e.g. Fischer 2001), i.e., of adopting either a very fixed exchange rate commitment (preferably without any inflation or other targets) or, on the contrary, a very loose exchange rate commitment (and, possibly, other targets). Indeed, the practice of the last two decades typically favours one of these "corner solutions".

While a firmly fixed exchange rate (one corner solution) is in conformity with the "pragmatic" interpretation of the exchange rate criterion as mentioned in Section 2, a flexible exchange rate regime (the other corner solution) may be at variance with it. From the point of view of fulfilment of the exchange rate criterion, the nearest solution to the above-mentioned "corner" is the widest possible fluctuation band compatible with the pragmatic definition of fulfilment of the exchange rate criterion. Fulfilment of the exchange rate criterion in the "pragmatic" interpretation, as mentioned in Section 2, may be achieved by exchange rate regimes ranging from a completely fixed rate to a rate fluctuating within the maximum fluctuation band of -2.25% to approximately +10% (wide fluctuation band henceforth). In this regard, we discuss only these two generic solutions, i.e. a completely fixed exchange rate and an exchange rate fluctuating within the maximum fluctuation band compatible with fulfilment of the exchange rate criterion.

For both these options there is an implicit possibility of a change of central parity; given the wording of the exchange rate criterion, however, only a revaluation comes into consideration. In the following text this possibility will be explicitly mentioned only in those cases where it will have to be allowed for in advance. In all the options it is also possible to consider sub-options differing in whether the fluctuation band would be officially declared or whether it would be targeted only implicitly (see Crespo-Cuaresma et al. 2005 for empirical investigation on some euro-candidates). Refraining from any active endeavour to fulfil the exchange rate criterion, i.e. the alternative of not targeting any exchange rate band except for that given directly by ERM II membership, can also, of course, be considered one of the generic alternatives; in such case, however, the risk of the actual development of the exchange rate leading to non-fulfilment of the criterion increases.

An unpleasant fact which the central bank of a euro-candidate must take into con-

sideration is the loss of monetary policy autonomy.[5] Although formally the loss of domestic monetary policy autonomy does not occur until accession to the euro area, in reality the central bank loses part of its autonomy much earlier. The reason for this is that as the credible date of the country's assumed entry into the euro area approaches, its long-term interest rates become increasingly determined by expectations of the future development of short-term euro rates, and not domestic rates. Where a fixed exchange rate is chosen for the period of fulfilment of the criteria, the central bank must maintain interest rates at the same level as euro rates (in the case of fully credible entry into the euro area the risk premium will equal zero), and will thus, for example, lose its influence on one-year rates a year before the expected fixing of the exchange rate. In the case of the wide fluctuation band the loss of autonomy might be less apparent (the risk premium is non-zero even in the case of credible entry into the euro area). The movement of interest rates, however, is significantly curbed by the evolution of the exchange rate. Given that exchange rate appreciation expectations are typical of a large proportion of the euro-candidates, domestic interest rates should be roughly at the same level as those of the ECB (with a low, positive, risk premium), or lower than those of the ECB (with a zero risk premium).

What was the experience of the current euro area members during their stay in ERM II? Figure 3 plots the one-year interest rate differential against DEM (the anchor of the system prior to the euro birth) or EUR for eleven countries[6] for the period of 24 months before adopting the euro. Not surprisingly, some countries had rather large positive interest rate differential against DEM. In addition, the differential persisted even half a year before the final conversion. Also Slovenia, as a representative of NMSs experienced nearly a two percent differential even a year before adoption of the euro. Such a differential nevertheless does not indicate the existence of large scope for an autonomous interest rate policy. It concerned primarily the countries with relatively high inflation during the 1990s and low policy credibility that was reflected in the lack of the date-of-switch-to-euro credibility.

3.3 Fixing of the exchange rate versus utilization of the maximum bandwidth

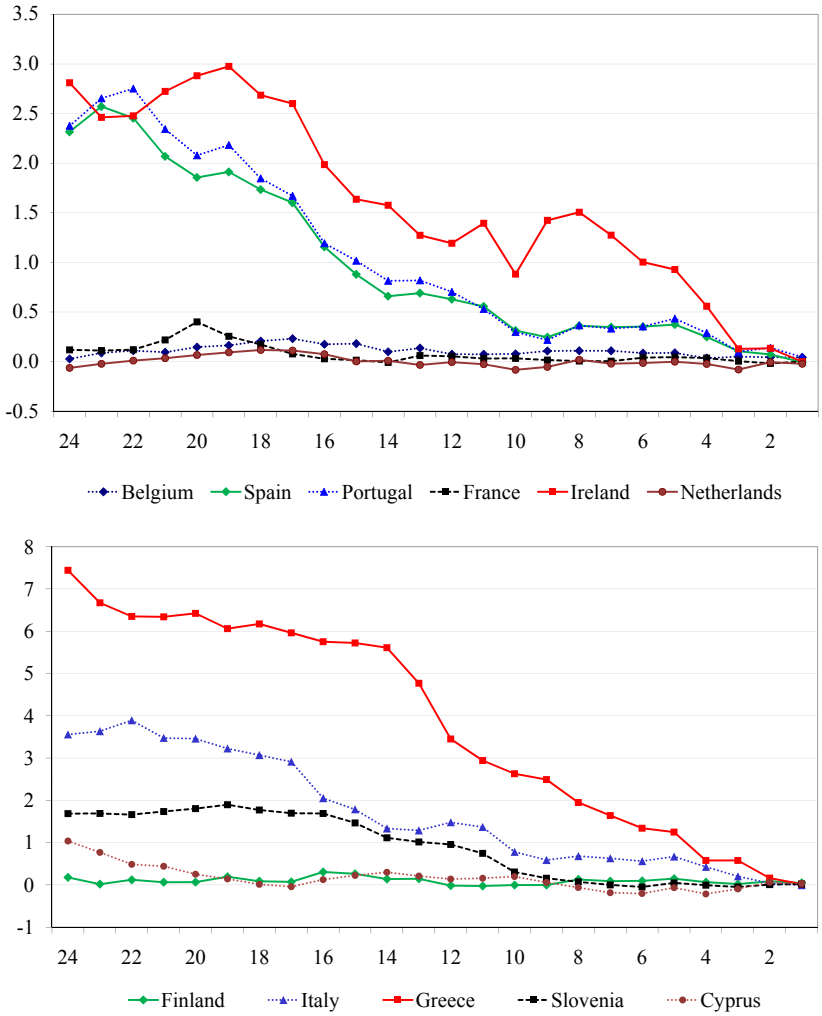
In the following passage we address the question of choosing the optimum exchange rate bandwidth and central parity so as to minimize the risks ensuing from the requirement to fulfil the Maastricht criteria and make maximum use of the merits of each of the options discussed.

As aforementioned, the exchange rate criterion permits revaluation of the central parity. If the exchange rate, owing to adverse circumstances or a speculative attack, shows a strong tendency towards appreciation, it is, in principle, possible in both regimes discussed — the fixed exchange rate and the wide fluctuation band — to take

[5] By autonomy we mean the ability to influence interest rates with maturities of one year or longer. Crespo-Cuaresma and Wojcik (2006) measure monetary policy autonomy in selected EU new member states and find that although greater exchange rate flexibility is associated with greater monetary policy autonomy, none of the countries analysed has a fully autonomous monetary policy, even with a floating exchange rate.

[6] Luxembourg and Austria as the countries without own monetary policies and Malta due to the lack of data on money market rates are not included.

Figure 3. Interest rate differentials prior to euro adoption



Source: Bloomberg

advantage of this asymmetry and revalue the parity. However, the possibility that the pressure concerned is only transitory can never be ruled out; this might lead to a later requirement to devalue the parity back to its original level and thus to breach one of the requirements of the exchange rate criterion. It will therefore be important to make use of the possibility of revaluation only after careful consideration and, where appropriate, after making use of the possibilities for defending the original parity.

In many countries the fixed exchange rate regime has not proved successful ending often in speculative attacks (Fisher 2001). Nevertheless, this experience is not neces-

sarily relevant to the euro-candidates. A fixed exchange rate based on a hard-set point in the form of a permanent fixing of the exchange rate on euro area entry (so-called "exit") at a predetermined moment in time may be much more robust to speculative pressures.[7] A fixed exchange rate within the ERM II is the approach that so far predominates among the new EU member states which, however, is probably due to the fact that these countries operated in the fixed exchange rate regime already before their ERM II entry.

It is true that in the case of a fixed exchange rate — provided that the selected assumptions of equilibrium exchange rate and price development apply — the stability of the nominal exchange rate implies some inflationary pressure and hence also the threat of failure to satisfy the inflation criterion. This danger, however, can be consciously reduced. The parity can be fixed, for example, at a slightly stronger level relative to the actual exchange rate which will roughly correspond to the equilibrium exchange rate at the horizon of the permanent fixing against the euro. A fixed exchange rate may even have the important advantage in terms of meeting the inflation criterion in a small open economy, as is characteristic of the majority of the euro-candidates. Since any fluctuation in the exchange rate passes through significantly to the price level (Coricelli et al. 2006), a fixed exchange rate, may eliminate the risk of inflation fluctuations resulting from excessive exchange rate movements.

The second generic exchange rate regime option for the period of fulfilment of the criteria is maximum utilization of the fluctuation band, i.e. within the margins of approximately -2.25% to +10%. The main theoretical advantage of the wide fluctuation band should be the ability to absorb shocks through the exchange rate. However, this has received little empirical support for euro-candidates. For example, Borghijs and Kuijs (2004) have studied the ability of Central European currencies to respond to shocks and have found that currencies in the Central Europe have tended to generate shocks rather than to absorb them. Another advantage of the wide fluctuation band is that it preserves some, though rather limited, degree of domestic monetary policy autonomy during the period of fulfilment of the criteria. For the countries operating under IT before entering ERM II, the wide fluctuation band may be advantageous due to the lack of experience with firm fixing of exchange rate and thus potentially lower credibility in doing so. As regards the approximately two-year period of fulfilment of the criteria, it is, generally, not possible to say with certainty whether maximum utilization of exchange rate flexibility will foster a stabilization of the economy or, on the contrary, will damage it.

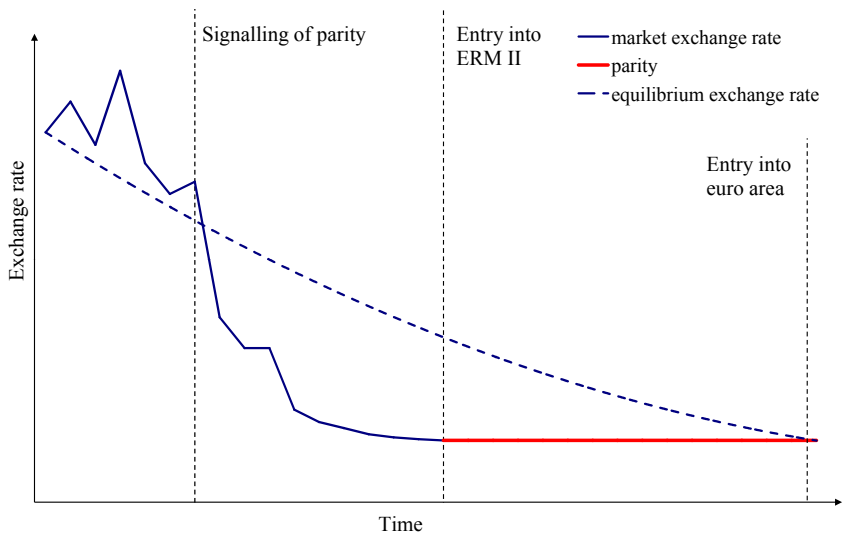
3.4 Setting the parity

In this section we study certain scenarios dependent on the exchange rate regime of a given euro-candidate and parity setting with respect to actual exchange rate. We focus on the differences between fixed versus flexible exchange rate arrangements in the context of a long-run appreciation.

[7] Nevertheless, it is vital to note that a breach of the fixed exchange rate commitment would not necessarily mean failure to satisfy the exchange rate criterion.

An issue that enters into the debate on the setting of the initial ERM II parity is that of the long-term equilibrium exchange rate. It is reasonable to assume, especially under the fixed exchange rate regime, that the irrevocable conversion rate of the domestic currency to the euro will be identical to the ERM II parity. Then, parity should be derived from the estimated equilibrium real exchange rate as of the expected euro area entry date and, if any, assumed inflation differential. For most of the euro-candidates this would imply setting the parity at a stronger level relative to the actual exchange rate when entering ERM II.[8] It is not, however, entirely clear whether the benefits of such a step (lower inflation over a longer period, i.e. an endeavour to maximize aspect (i) from Section 3.1) will prevail over the potential costs (an excessively strong exchange rate over short period and increased market volatility, i.e. a deterioration of aspect (iii) from Section 3.1).

Figure 4. Exchange rate development under the fixed exchange rate regime



The question is whether the parity value should be signalled by the central bank in advance, and, if so, how far in advance. Early publication would on the one hand quash speculation and steer the exchange rate in the right direction from the central bank's point of view. On the other hand, however, such a signal represents a commitment which in time may prove to be hasty. It is also necessary to take into consideration that the parity is set by joint decision of the EU member states and the authorities of

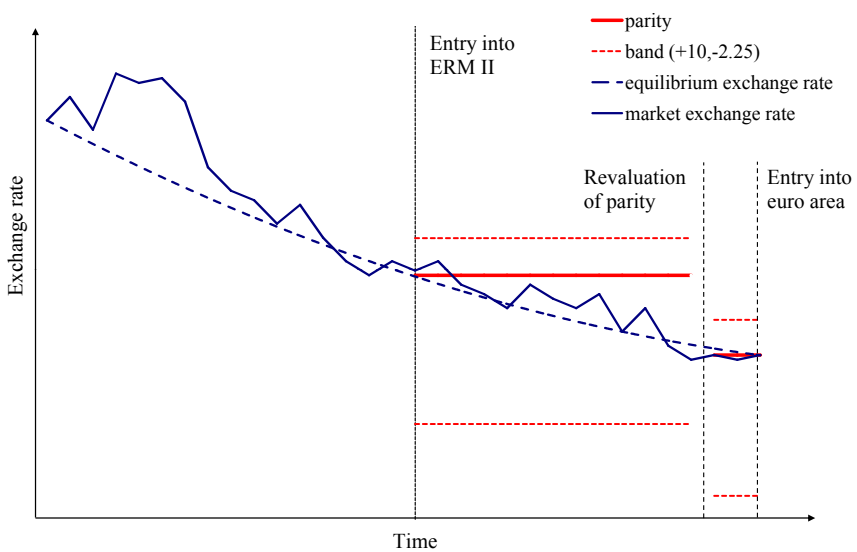
[8] The experience of the countries that are fulfilling, or have already fulfilled the criteria, speaks in favour of fixing the parity at the current market value. The only exceptions have been Slovenia, which fixed at a rate stronger than the current market value due to its earlier than initially planned entry into the ERM II (before expected appreciation of the domestic currency had enough time to run its full course), and Cyprus, which set its parity at the level of an earlier parity (the more appreciated current level of the exchange rate was considered to be only a temporary blip). The relevance of these countries for many of the future members of the ERM II is reduced, however, by the fact that neither of them had a floating exchange rate, hence they *de facto* continued to fix their exchange rate at the current level of the fix.

the EU and so any signalling of the parity may be seen as anticipating the result of this joint decision. This interpretation can be avoided by the central bank declaring in advance that the parity will be set roughly at the level derived from the estimation of the equilibrium value of real exchange rate as of the expected euro area entry date. A similar scenario is proposed by Buiter (2004). Figure 4 illustrates this hypothetical exchange rate scenario with early signalling of the parity.

On the other hand, this strategy requires a fairly accurate idea of the value of the equilibrium real exchange rate at a horizon of around three years. Estimates of the equilibrium value of the exchange rate are associated with considerable uncertainty (see Égert et al. 2006) and central banks tend to have only a general idea of the range within which the exchange range is more or less in equilibrium. An excessively fast appreciation might, moreover, have a negative impact on economic activity. The strategy of an "overvalued" parity also increases the risk of speculation on a devaluation of the exchange rate and hence the risk of a breaking ERM II margin on the weaker side (depending on the effectiveness of foreign exchange interventions), leading to the commencement of a new compulsory two-year stay in the ERM II.

If the wide fluctuation band is opted for, the solution might be to set the ERM II parity near to the equilibrium exchange rate as of the ERM II entry date, from which the current market exchange rate should not differ too much. Assuming that the annual pace of real equilibrium appreciation is lower than 5% and that the exchange rate does not deviate markedly from its equilibrium path, the exchange rate would stay within the wide fluctuation band during the roughly two-year period of fulfilment of the criteria and there would likely be no need for any major interventions or early revaluation of the parity.

Figure 5. Illustration of exchange rate development under the wide fluctuation band regime



In such a situation it may be desirable to revalue the parity shortly — such as several months — before euro area entry (based on an assessment of the current market rate and on the authorities' idea of the development of the equilibrium), as in the case of Ireland and Greece. This would allay concerns that the currency will be fixed at the initial parity level (as these concerns would probably lead to depreciation of the exchange rate back towards this parity). The above-described exchange rate development under the wide fluctuation band regime is shown schematically in Figure 5.

4. Conclusions

The aim of this paper was to investigate the monetary policy options of a euro area accession country during the period of fulfillment of the Maastricht exchange rate and inflation criteria. We first analyzed the "rules of the game" (i.e. how the two criteria are implemented by the Commission and the ECB) and then we identified possible monetary policy strategies within these rules.

We pointed out that some degree of ambiguity was contained not only in the wording of both criteria in the Treaty and the Protocols, but also in their interpretation of both criteria as recorded in the past Convergence Reports of the Commission and the ECB. Hence there is a need to search for the likely interpretation with the help of the experience of the countries that have already, successfully or unsuccessfully, undergone the evaluation. Even at the end of this search, however, some ambiguities still persist with respect to both criteria; hence the efforts of the euro-candidates to satisfy these criteria are, to some extent, like shooting at a target which is only vaguely defined.

We then gave some thought to the question of whether and how a candidate can steer a course through the likely interpretations of the two criteria (with all their ambiguities). The considerations of the national central bank of a euro-candidate country in the period of fulfilment of the criteria are not concentrated solely on fulfilment of the criteria. The central bank must also keep in mind other aspects such as the internal consistency and economic appropriateness of its monetary policy, and continuity with the previous monetary policy regime. A deeper analysis of these aspects reveals that for most of the euro-candidates there is no regime which would satisfy all the above-mentioned desirable aspects completely. Hence the choice of monetary policy regime for the period of fulfilment of the criteria represents for the majority of the euro-candidates a challenge and they need to find a suitable compromise between the aspects mentioned.

In line with the prevailing opinion in theoretical as well as practical central-banking community that "corner" solutions in the exchange rate regimes are preferable, we focused our attention on two boundary exchange rate regime options for a euro-candidate country: a completely fixed exchange rate and an exchange rate fluctuating within the widest fluctuation band compatible with fulfilment of the exchange rate criterion. The choice between these two regimes depends on many factors which are typically country-specific, such as the expected pace of equilibrium real appreciation, the previous monetary policy regime and its credibility or the ability and willingness of the

government to adjust its fiscal policy as needed. Therefore, we investigated the advantages and disadvantages of both exchange rate regime options and make proposals for the specific implementation of the chosen regime until the setting of the central parity. The wide fluctuation band may look advantageous for the countries operating under IT before entering ERM II. However, it is not possible to say with certainty whether maximum utilization of exchange rate flexibility will foster stabilization of the economy or, on the contrary, will damage it. It is, of course, up to the policy-makers in the relevant countries to set all these considerations into the specific context of their economy and to identify the approach that will maximize the chances of successful adoption of the euro.

Finally, we focused on the possible conflict between the attempt to conduct autonomous monetary policy and meeting the convergence criteria when the wide fluctuation band was opted for. This scope for policy autonomy is nevertheless rather limited since it would be difficult to achieve significant changes in the relevant interest rates without associated changes in exchange rate expectations and risk premia. The decision on the distance of parity from the actual exchange rate will have important implication for the subsequent interest rate and exchange rate dynamics. First, setting the central parity stronger than the actual exchange rate may be a useful tool for curbing inflation. It may, however, also be a risky strategy since the exchange rate may not move gradually but in jumps. And jumps may be accompanied by over-shooting. Second, a practical option is to set the central parity at the prevailing exchange rate level. This may have some potential to create initial appreciation expectations and thus somewhat reduce inflationary expectations. Third, under some circumstances, the central parity may be set even at a level weaker than the actual exchange rate. Both the second and the third option may finally be "assisted" by revaluation of the parity (the so-called "Greek" way). The sustainability of all three options depends to a great extent on the credibility of not only the central parity but rather the overall macroeconomic environment.

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