

# Challenges for EU Acceding Countries' Exchange Rate Strategies after EU Accession and Asymmetric Application of the Exchange Rate Criterion

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## I Introduction

It is almost certain that on May 1, 2004, the ten acceding countries (ACs), i.e. the Czech Republic, Estonia, Cyprus, Latvia, Lithuania, Hungary, Malta, Poland, Slovenia and the Slovak Republic, will accede to the European Union.

Upon entry, these new member countries will start a formal monetary integration process that will lead eventually to the adoption of the euro. The main steps in this monetary integration process are laid down in the *acquis communautaire*. However, the concrete implementation of this official roadmap for all these individual countries and the appropriate timing is still an issue of public and academic discussion as well as the topic of an ongoing dialogue between the ACs and the European Union including the Eurosystem, i.e. the European Central Bank and the national central banks of the euro area.

This paper explains the official roadmap for monetary integration and discusses possible designs of the EU acceding countries' exchange rate strategies prior to euro area entry.

The paper is structured as follows: Section 2 gives a short description of the current monetary and exchange rate strategies. Section 3 describes the European Union's official roadmap for the further monetary integration of EU acceding countries after EU accession as well as the objectives and main features of the exchange rate mechanism II, ERM II. Moreover, it outlines the necessary adjustments to current exchange rate regimes for ERM II participation. Section 4 then discusses economic challenges for EU acceding countries' exchange rate strategies after EU accession, and section 5 focuses on the economic function of ERM II in that context and considers the possible timing of ERM II entry. Section 6 examines the application of the convergence criterion on the exchange rate in the Treaty establishing the European Community (the Treaty). Section 7 concludes.

## 2 Current Monetary and Exchange Rate Strategies in EU Acceding Countries

Currently, of the EU acceding countries:

- Two countries have a currency board arrangement (CBA) with a peg to the euro, namely Estonia and Lithuania;
- Two countries have a narrow-band fixed peg against currency baskets, namely Latvia (SDR basket) and Malta (EUR/GBP/USD basket);
- Two countries have a wide-band fixed peg to the euro, namely Cyprus and Hungary;

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- Three countries have a managed float, namely the Czech Republic, Slovakia and Slovenia. The latter has maintained a tightly managed float orientated on the uncovered interest rate parity since the very beginning of its transformation; and
- One country has a free-float exchange rate regime, namely Poland.

While the CBAs as well as the narrow-band fixed pegs constitute cases of pure exchange rate targeting, the wide-band fixed peg in Hungary, the managed float in the Czech Republic and the free float in Poland are combined with direct inflation targeting, whereas the managed-floating regimes in Slovakia and in Slovenia are coupled with multi-indicator monitoring.

### **3 The Official Roadmap for Monetary Integration and ERM II**

#### **3.1 The Official Roadmap for Monetary Integration**

The European Union's *official roadmap* provides for *three stages* of monetary integration after EU accession.

In a *first stage*, upon entering the European Union, the new Member States also become members of the Economic and Monetary Union as "Member States with a derogation." Based on the agreements reached during the accession negotiations, their formal legal status will be similar to that of Sweden, but different from that of the United Kingdom and Denmark, since the latter two countries have an "opt-out clause." While the new Member States will not take part in EMU to the full extent, as they cannot immediately join the euro area, they are already required to observe a number of obligations embodied in the stability architecture of EMU: They generally have to bring into line their economic and monetary policies with the overall goals of EMU. Thus, in principle, they are obliged to pursue the adoption of the euro as a goal to which their policies have to be oriented. However, the main policy challenge is to design an appropriate speed for this process. Their central banks will be represented in the General Council of the ESCB and will take part in monetary policy coordination within the EU. The new Member States will participate in the coordination of economic policies and in multilateral fiscal surveillance. Moreover, they must treat their exchange rate policies as a matter of common interest, as the functioning of the single market must not be weakened by real exchange rate misalignments or excessive nominal exchange rate fluctuations. The ACs may continue their existing exchange rate regimes or may follow any other exchange rate regime as long as this requirement is respected.

The *second stage* in the new Member States' monetary integration is participation in the exchange rate mechanism ERM II, which is voluntary and therefore does not have to start promptly after joining the EU, but can take place at a later point in time. Nevertheless, the new Member States can be expected to join the mechanism. Indeed, it is the right of a new Member State to join ERM II upon request any time after accession, subject to the agreement on the level of the central rate and the width of the fluctuation band in accordance with the common procedure. On the other hand, participation in ERM II is a necessary, albeit not sufficient condition to fulfill the convergence criterion on the exchange rate.

In this second stage, the new Member States have to fulfill, inter alia, the convergence criterion on the exchange rate so that they may adopt the euro. The convergence criterion on the exchange rate is stipulated by the Treaty provisions, including the respective protocol.

The *third and final stage* of monetary integration will be participation in the euro area, i.e. full participation in EMU, following the adoption of the euro upon fulfillment of all convergence criteria.

### 3.2 The Objectives and Main Features of ERM II

The *legal basis for ERM II* is the resolution of the European Council on the establishment of an exchange rate mechanism in the third stage of EMU passed in Amsterdam on June 16, 1997. This resolution puts the euro at the center of the new mechanism and enumerates the following *principles and objectives*, inter alia, for ERM II:

- As lasting convergence of economic fundamentals is a prerequisite for sustainable exchange rate stability, all Member States must pursue disciplined and responsible monetary policies directed towards price stability as well as sound fiscal and structural policies.
- A stable economic environment is necessary for the good functioning of the single market and for higher investment, growth and employment. The single market must not be endangered by real exchange rate misalignments or by excessive nominal exchange rate fluctuations between the euro and the other EU currencies, which would disrupt trade flows.
- The exchange rate mechanism will help to ensure that Member States outside the euro area participating in the mechanism orient their policies to stability and foster convergence, which will help them in their efforts to adopt the euro. It will provide those Member States with a reference for their conduct of sound economic policies in general and monetary policy in particular.
- At the same time, the mechanism will also help to protect both the Member States outside and those inside the euro area from unwarranted pressures in the foreign exchange markets. In such cases, the mechanism may assist Member States outside the euro area participating in it when their currencies come under pressure in combining appropriate policy responses, including interest rate measures, with coordinated intervention.
- The exchange rate mechanism will also help to ensure that Member States seeking to adopt the euro after January 1, 1999, receive treatment equal to that of countries that have adopted the euro in fulfilling the convergence criteria.
- It should be ensured that any adjustment of central rates is conducted in a timely fashion to avoid significant misalignments.
- Furthermore, sufficient flexibility is allowed, in particular, to accommodate the varying degrees, paces and strategies of economic convergence of Member States outside the euro area that join the mechanism. Exchange rate policy cooperation may be further strengthened by allowing closer exchange rate links, particularly narrower fluctuation bands, wherever and to the extent that these are appropriate in the light of progress towards convergence.

According to the resolution, the *main features* of ERM II include:

- A central rate against the euro for the currency of each Member State outside the euro area participating in the exchange rate mechanism; this central rate is a fixed but adjustable peg.
- A standard fluctuation band of  $\pm 15\%$  around the central rate (defined in terms of national currency units per euro).
- Intervention at the margins that will in principle be automatic and unlimited, with very short-term financing available. However, the ECB and the central banks of other participants could suspend intervention if this were to conflict with their primary objective.
- The flexible use of interest rates and the possibility of coordinated intramarginal interventions.
- Decisions on the level of the central rate will be taken by mutual agreement of the ministers of the euro area Member States, the ECB and the ministers and central bank governors of the non-euro area Member States participating in the new mechanism, following a common procedure involving the European Commission. All parties to the mutual agreement will have the right to initiate a confidential procedure aimed at reconsidering central rates.
- On a case-by-case basis, formally agreed fluctuation bands narrower than the standard one and backed up in principle by automatic intervention and financing may be set by mutual agreement at the request of the non-euro area Member State concerned.

Based on the resolution, an *agreement* between the ECB and the national central banks of the Member States outside the euro area was established that lays down the operating procedures for ERM II. In particular, this agreement specifies the rules for marginal as well as for unilateral or coordinated intramarginal interventions, and the terms and conditions of the Very Short Term Financing facility for marginal and intramarginal interventions.

### 3.3 The Acceding Countries' Current Exchange Rate Regimes and ERM II

The European Union's *informal Ecofin*, i.e. the council of the ministers of finance and the governors of the central banks of EU member countries, in its statement of April 5, 2003, entitled "Acceding countries and ERM II," underlines that decisions are taken on a case-by-case basis at the time of entry in the mechanism, given the differences in the economic situation among new member countries, and that these decisions are to ensure equal treatment between new and current Member States.

Basically, the standard ERM II can accommodate a range of very different exchange rate strategies. There are some regimes, however, which the European Union's informal Ecofin in its statement of April 5, 2003, does consider incompatible with ERM II. These are in particular a free float without any band, a crawling peg or a peg to a currency other than the euro. Moreover, the European Union reserves the right to a case-by-case assessment of the compatibility of CBAs.

Taking the standard feature of ERM II, the  $\pm 15\%$  fluctuation band around a central rate, as the reference point, the following *changes to current exchange rate regimes* will be necessary for entering ERM II:

- The wide-band fixed peg regimes of  $\pm 15\%$  of Cyprus and Hungary can be considered to be already broadly in line with the ERM II requirements (referred to as ERM II shadowing). Only some institutional details may have to be adjusted, for instance the rules of decision-making for the exchange rate regime.
- The CBAs which pursue a euro peg, if considered compatible, will only have to be complemented with multilaterally supported wide bands, while the CBAs can be continued as a unilateral commitment.
- The narrow-band fixed peg regimes have to switch to the euro as the anchor currency from their current peg to currency baskets (Latvia: SDR as a basket, Malta: EUR/USD/GBP basket). In addition, they have to add multilaterally supported wide bands, complementing their unilateral commitment to a narrow band.
- Both managed-floating and free-floating regimes have to be complemented with a central rate and limited by wide bands. Thereby, countries with a managed-float regime have to enhance (Czech Republic and Slovakia) or to modify (Slovenia) their explicit taking into account of the exchange rate in the economic policy framework, while Poland, which has a free-float regime, has to start to take into account the exchange rate more explicitly.

It has to be highlighted that, independently of the type of exchange rate regime currently operated, a common agreement with all the parties has to be reached on the *level of the central rate*.

A major challenge for entering ERM II is finding a central rate against the euro. Ideally, the central parity rate should be as close to the equilibrium exchange rate as possible, as adjustments of the central rate should rather be an exception. This will preserve the role of the central rate as a guiding anchor for exchange rate and inflation expectations and will avoid knock-on effects on market perceptions of other participating member countries' central rates.

However, it is not easy to define the equilibrium exchange rate: there are various methods and approaches to empirically calculate this rate. Thus, most probably a range of potential equilibrium exchange rates will be offered at the time of decision-making.

In procedural terms, one should be aware of the problem that setting an entrance rate with one country will have implications for the bilateral exchange rates of this country against other new member countries not participating in ERM II. To some extent, this problem will be tackled on the basis that all EU member countries will attend the decision-making, even though not all will have the right to vote.

#### **4 Economic Challenges for New EU Member Countries' Exchange Rate Strategies**

##### **4.1 The Objective of Eventual Euro Area Entry**

The official roadmap for the monetary integration of the new EU member countries has not been left unchallenged. In particular, some representatives of EU acceding countries and several academics have voiced *doubts* about ERM II participation as a necessary condition for joining the euro area. It has been proposed that the new member countries should be allowed to switch

directly from the current exchange rate regime to the euro – without being required to participate in ERM II prior to adopting the euro.

On the other hand, it is quite remarkable that most proposals dissenting from the official roadmap concur with this roadmap in that they *share the objective* that these countries should join the monetary union in the foreseeable future. There is a kind of consensus that for all the new member countries the benefits of participation in monetary union eventually outweigh the corresponding costs. In general terms, it is argued that only within the single currency area can the benefits of the single market be reaped to the full extent. In particular, the following *benefits* of belonging to the single currency area are highlighted: first, the lowering of transaction costs; second, the elimination of several kinds of risks related to having an own currency; and third, the decrease of interest rates, which is usually not followed in an equally quick manner by further disinflation or enhanced deflation, and the resulting cheaper access to financing. Finally, the import of credibility is also mentioned sometimes. The high trade openness of the acceding countries combined with their high share of trade with the euro area (and even more so with all the countries of the enlarged European Union) in total foreign trade enhances the importance of these benefits.

However, apart from this tentative consensus on the merits of the monetary union and thus on the objective of eventually adopting the euro, the discussion centers on the optimal path to achieve this objective. For a more comprehensive economic assessment of possible appropriate exchange rate strategies, it seems useful to recall the economic challenges involved in the future integration and catching-up process of the acceding countries.

#### **4.2 The Need for Adjustability of the Exchange Rate after Accession**

In general, participation in the single currency area also entails certain costs and risks that should not be overlooked. These risks include first of all the risk of a misalignment resulting from entering the monetary union at an overvalued rate or from the occurrence of an adverse asymmetric external shock. This risk is compounded by the fact that countries will no longer be able to adjust nominal exchange rates. It remains doubtful whether all the other adjustment mechanisms will work sufficiently flexibly and quickly. Second, there is the risk of boom-bust cycles that arises from the decline in real interest rates. An interest rate shock in the form of negative real interest rates could lead to a boom with excessive indebtedness and asset bubbles that finally ends in rising default premia and a severe credit crunch. This risk is combined with the fact that countries will no longer be able to use an independent monetary policy to accommodate shocks.

In the case of the ACs, it has to be added that most of these countries still have to complete their transition process and are in the midst of a far-reaching integration and a long-term catching-up process. Thus, their equilibrium exchange rates will be subject to gradual changes and (potentially adverse) shocks over time.

Clearly, most ACs have far lower GDP-per-capita levels than the current euro area countries, primarily reflecting lower productivity levels. The long-term process of catching-up in productivity levels leads to the gradual

appreciation of the equilibrium real exchange rate, which should be neutral with respect to competitiveness, even though productivity-fueled rises in market-based nontradable prices may feed through to some moderate extent to the prices of tradables, in as far as nontradables are used as inputs for tradables.

On the other hand notwithstanding available estimates of the degree of business cycle synchronization already achieved, it has to be stressed that EU accession itself, i.e. the entrance into the single market, will definitely constitute an asymmetric external shock, given the differences in the sheer size of the economies. The immediate economic implications for the current EU are rather limited, considering that the ten acceding countries' nominal GDP amounts to only 6% of the euro area's GDP, with Polish GDP accounting for half of this amount. In addition, the acceding countries' share in euro area foreign demand is about 11%, while the share of their exports to the euro area in their total exports is around two-thirds. As the acceding countries' share in euro area foreign demand is only slightly less than that of the U.S.A., which is about 12.5%, the impact of accession cannot be considered negligible for the euro area. However, the impact for the new member countries will be more sizeable by far.

Neither the short-term direction, nor the short- or long-term size of the effects of this shock, nor the dynamic profile of these effects can be sufficiently known today. Despite already advanced liberalization in many areas and impressive progress achieved with economic transition and integration, the effects may show up in significant shifts both in the current account and in the capital and financial account. These effects would in turn imply a shift in the equilibrium exchange rate.

Thus, it cannot be ruled out that during the first years after accession the current account balance may deteriorate significantly. In such a case, downward adjustability of the exchange rate may be economically sensible. Apart from any institutional or political consideration, this supports the official roadmap for monetary integration. Indeed, from this point of view, an additional test phase is sensible also for countries with a CBA or a narrow-band fixed peg that have successfully operated a de facto monetary union for many years and might even fulfill all the other convergence criteria. Rather, the adjustability of the exchange rate and its potential role as a shock absorber should be preserved for some years beyond EU accession.

The risk should not be neglected that negative economic consequences may arise not only for new entrants, but also for the current euro area as a whole from (1) premature, i.e. economically and thus socially and politically unsustainable euro area participation, or (2) entrance at an irrevocable conversion rate that significantly deviates from reasonable estimates of the equilibrium exchange rate. The need to minimize this risk corresponds to the economic reasoning behind the Treaty provision that the Commission and the ECB have to examine the achievement of a high degree of sustainable convergence in their convergence reports to the Council before a country can join the euro area and that the criteria to be fulfilled include, inter alia, the criterion on the exchange rate. In particular, the convergence criteria relate to certain periods during which the reference levels have to be met to ensure sustainability in nominal

convergence. The irrevocable conversion rate should be at an exchange rate level that has proven to be compatible with the balanced development of the macroeconomic fundamentals during a certain period of time.

#### **4.3 The Need to Avoid Excessive Exchange Rate Flexibility after Accession**

Capital inflows may continue to be sizeable or may even grow, driven by EU accession in particular and by the long-term catching-up process in general. Moreover, their structure may change, shifting from FDI flows towards portfolio flows and bank deposits that are sensitive to interest rate differentials. In this context, it should be remembered that transition arrangements on capital and financial account liberalization with respect to financial flows were neither formally requested nor mutually agreed during the accession negotiations. These capital inflows may exert excessive appreciation pressure that is not in line with the fundamentals and may cause excessive fluctuations of the exchange rate. In addition, these capital flows may imply the risk of fundamentally unwarranted speculative attacks and of the sudden reversal of accumulated inflows, for instance triggered by international financial contagion and abrupt changes in market perceptions. Thus, sharp depreciations may also occur. It is a matter of fact that these exchange rate risks have as a necessary precondition the maintenance of an own currency. In short, the risk cannot be excluded that the national currency itself becomes a source of instability that introduces instability into other macroeconomic variables. Indeed, the acceding countries are too small and their economies too open for them to afford completely neglecting the impact of the exchange rate on inflation, competitiveness and general external sector development. This certainly applies also to those acceding countries which pursue a direct inflation targeting framework.

An independent monetary and in particular interest rate policy may have strong repercussions on the exchange rate, which may lead to periods of excessively tight monetary conditions when interest rates are raised. The strong impact of the interest rate policy on the exchange rate makes the idea that the market freely determines the "right" level of the exchange rate illusory. Moreover, the shallowness of the foreign exchange market is an additional hurdle for the market to find the equilibrium exchange rate, leading to high short-term volatility and overshooting medium-term swings of the exchange rate. High exchange rate fluctuations imply an increase in the cost of hedging. High volatility, overshooting swings and sizeable hedging costs weaken the development of real trade links. In addition, any excessive appreciation which may result from very restrictive monetary policies or unusually large capital inflows can have severely detrimental effects on competitiveness, in particular that of the domestic-owned part of the economy, fostering the emergence of a "dual economy" structure. Furthermore, the existing foreign currency-denominated debt in general and the incurred substantial foreign currency-denominated (net) liabilities of the nonfinancial corporate sector in several ACs in particular have made these economies vulnerable to overly large exchange rate swings that imply sharp depreciations, while periods of appreciation may mislead expectations and cause excessive further indebtedness.

Thus, it may be economically sensible to aim at avoiding excessive exchange rate movements. In particular, preventing the currency from appreciating too

much, i.e. from appreciating to an extent that is not in line with the fundamentals of the economy, would reduce the risk of sudden downward corrections in the future. It goes without saying that both gradually accumulating sizeable appreciation and sudden downward corrections may be harmful for economic performance as well as for real and financial economic links.

#### **4.4 The Double Challenge for Exchange Rate Policy after Accession**

The challenge to exchange rate policy is indeed twofold: it must allow for adjustability of the exchange rate in line with the fundamentals for some years ahead, while at the same time preventing the currency from appreciating or fluctuating excessively, i.e. out of line with the fundamentals. Both premature entrance into the single currency area and excessive flexibility have to be avoided. However, warning against excessive exchange rate flexibility should not be confounded with advocating that a country should renounce all flexibility or should not implement fundamentally required adjustments to its exchange rate regime's central rate in a timely manner.

It follows that – from an economic point of view – it is not only sensible to maintain an own currency as a policy tool, but also to actually adjust the exchange rate or to let the exchange rate adjust as far as is fundamentally necessary. Simultaneously, market pressures that are not fundamentally justified (e.g. as a result of one-off transactions in shallow markets or of speculative attacks that might be triggered, for instance, by contagion) should be avoided and resisted, as opposed to exercising benign neglect on the exchange rate. To this end, all countries that do not pursue a unilateral commitment to a currency board should probably consider actively using interest rate policy as well as exchange rate management coupled with sterilization operations to prevent the currency from fluctuating or appreciating excessively. For countries with a free-floating regime, this would require a transformation of the current exchange rate strategy into a managed float.

*Exchange rate management* need not be limited to on-market transactions. In particular, the possible practice of handling sizeable one-off transactions between the state and the central bank off market in order not to distort the foreign exchange market deserves attention. The approach applied to foreign currency-denominated privatization proceeds may be useful for the implementation of increasingly sizeable EU transfers as well. While it is true that potential sterilization measures may be costly, this need not necessarily be the case, but depends on the sign and size of the interest rate spread vis-à-vis the euro area. Usually the sign will be positive, so sterilization operations will normally involve costs. Still, the actual size of these costs depends on the size of the interest rate spread, apart from the transaction volumes involved. On the other hand, the opportunity costs of not intervening should not be neglected, as the valuation losses avoided by preventing further appreciation with the help of interventions have to be set against the usually negative interest income resulting from sterilization that is necessitated by these interventions.

Clearly, the possible exchange rate policy sketched out above entails a *double role for interest rate policy*, which is then simultaneously a tool for targeting the exchange rate and achieving domestic stabilization. Put differently, central bank interest rate policy will face the simultaneous task of achieving

and maintaining price stability and of contributing to managing the exchange rate. At the same time, the monetary and exchange rate policy has to take into account the general economic development as well as, in particular, the external balance. Even though the interest rate channel of the monetary transmission mechanism may be considered to be still weak, it seems to have become stronger in recent years and will probably strengthen further in the years to come. Its importance should, hence, not be neglected. The challenge for setting key policy rates is to strike a balance between avoiding too large interest rate differentials and avoiding too low real interest rate levels. In order to avoid overburdening interest rate policy and to alleviate its double role, there are two complementary options. First, an active exchange rate management by both off-market and on-market interventions on the foreign exchange market has to be accorded an important role. Second, it is important to develop a broader range of policy instruments that could partly substitute for the role of the interest rate in counteracting domestically generated external imbalances and inflation. This relates, for instance, to the adjustments of wage policy institutions and fiscal policy structures. More generally, prudent fiscal policy would probably ease the double-tasking of interest rate policy and be conducive to reducing the scope of risks related to the exchange rate.

It is obvious that the challenge of conducting such a macroeconomic policy mix is formidable. However, it is still more promising than following the seemingly easy solutions of quickly adopting the euro or letting the currency float completely freely.

## **5 ERM II Participation**

In principle, the above-mentioned challenges can be tackled both outside and within ERM II. Correspondingly, the exchange rate policy sketched out above that would strive to respond to these challenges can be conducted outside and within ERM II.

### **5.1 ERM II as a Useful Convergence Framework**

Basically, *ERM II* aims at fostering (nominal and real) convergence within the European Union by supporting some degree of exchange rate stability, as an announced central rate provides guidance to participants in foreign exchange markets and anchors expectations. At the same time, ERM II provides for sufficient flexibility to accommodate varying degrees and strategies of economic convergence and to avoid real exchange-rate misalignments, as it comprises a wide standard band of  $\pm 15\%$  and foresees the adjustability of the central rate under a multilateral agreement if necessary according to the fundamentals. The wide bands leave a margin for catching-up-related equilibrium appreciation and room for flexible nominal exchange rate responses to shocks. Moreover, the mechanism entails not only common automatic and unlimited foreign exchange interventions at the margins, but also voluntary (unilateral or coordinated) intramarginal interventions, combined with the flexible use of interest rate policy. Finally, the multilateral nature and the ultimate exit, i.e. conversion to the euro, make ERM II less subject to the weaknesses usually attributed to (unilateral) intermediate regimes, like the lack of an exit strategy. Thus, it may be considered a *useful opportunity* in terms of economic policy, which

is oriented towards achieving real and sustainable nominal convergence, and it should not be seen as a mere waiting room or a pure legal requirement for the adoption of the euro. It follows that it may turn out to be advisable to stay within ERM II for a longer term than just the minimum period that is legally required.

ERM II is sometimes viewed as being an intermediate exchange rate regime that is subject to the risk of speculative attacks. While it is certainly true that ERM II is formally an intermediate exchange rate regime, it has to be stressed that its standard design is not a narrow-band fixed peg, but a wide-band fixed peg, which is probably *less vulnerable* to speculative attacks than the narrow-band fixed peg. Moreover, the *risk* of fundamentally unwarranted speculative attacks on the band ceilings, fundamentally unwarranted implying that the central rate is relatively close to the probably only slightly upward-moving equilibrium exchange rate, may be considered to be *rather limited*, given (1) a wide rather than narrow fluctuation band, and (2) flexible and timely active exchange rate management and interest rate policy. In particular, it seems recommendable to avoid a pure free float within the band and to act beforehand in time to avoid a dilemma at the upper end of the band.

## 5.2 The Timing of Entrance into ERM II

The *timing of entrance into ERM II* has to be assessed on a case-by-case basis, taking into account the empirical facts. The appropriate entry time depends on the specific features of individual countries, inter alia on the type of exchange rate regime in place.

First, in the case of currency board arrangements and fixed-peg regimes – whether they are combined with a narrow or a wide band – any realignment in the form of central rate adjustments or regime changes such as a widening of the band may trigger market reactions that entail the risk of significant overshooting. Such realignments or regime changes could probably be handled more safely within ERM II than outside ERM II. Indeed, the need for adjustment might arise as a result of the asymmetric shock of EU accession. Thus, countries with such exchange rate regimes may be inclined to enter ERM II sooner rather than later. However, it would be an equally viable option to take a wait-and-see attitude, reserving the option to combine any adjustment that may arise as necessary after integration into the single market with the entrance into ERM II and the setting of the central rate. This approach would aim to avoid an adjustment of the central rate within ERM II.

Clearly, any decision with regard to ERM II entrance timing ultimately has to be taken on a case-by-case basis, taking into account all the other country-specific factors and in particular any signs of potentially already existing misalignments.

During ERM II participation of countries which maintain a CBA or a narrow-band fixed-peg exchange rate regime as a unilateral commitment, all available indicators are to be observed carefully for indications of any fundamental need for a realignment or regime change, in order to implement necessary adjustments within the framework of multilateral procedures in a timely manner. Indeed, complementing the vigilant attitude of the new member countries, a regular common monitoring exercise will take place within the

General Council of the ESCB. Moreover, according to the Resolution of the European Council establishing ERM II, the multilateral surveillance of macro-economic policies under Article 99 of the Treaty will be organized, *inter alia*, with a view to avoiding real exchange rate misalignments (or excessive nominal exchange rate fluctuations). In this way, ERM II may constitute a “training room” that offers the possibility to counteract in a timely fashion emerging misalignments by adjusting macroeconomic policies and/or to actually implement any exchange rate realignments which may be fundamentally necessary.

Second, in the case of a managed-floating regime without any central rate and fluctuation bands, it may be economically sensible to stay outside ERM II for some time after EU accession. One argument is to avoid establishing formal limits to exchange rate flexibility precisely during the period after EU accession when enhanced downward flexibility of the exchange rate might be required.

On the other hand, one can put forward arguments that it is better to enter ERM II sooner rather than later. First, the setting of a central rate, which ERM II entry requires, may provide a useful guidance to the markets and may stabilize expectations. Second, the standard ERM II will usually provide for enough flexibility to allow for possibly required depreciations or appreciations, given (1) its wide band and (2) its built-in possibility of any adjustments in the central rate that are fundamentally required. Third, as already mentioned, the risk of fundamentally unwarranted speculative attacks on the band ceilings may be considered to be rather limited. Fourth, it should not be left unmentioned that ERM II participation also includes the component of multilateral marginal interventions. While it is true that the ECB has the right to suspend these interventions if they were to conflict with the primary goal of price stability in the euro area, the relatively small size of the new member countries' foreign exchange markets reduces the probability of such a conflict. Moreover, the probability that a realignment procedure would be initiated in response to market pressures that are not fundamentally justified can be assessed as rather low.

With respect to the necessary introduction of bands when entering ERM II, the perceived value added of participating in ERM II on balance depends probably on the assessment of (1) the probability of unwarranted market pressures on the upside versus on the downside, (2) the extent to which these probabilities are changed by the adoption of a wide band, and (3) the available exchange rate management capabilities, in particular for intramarginal action in a timely manner.

Hence, the overall assessment of the appropriate ERM II entrance timing has to be done on a case-by-case basis, after a comprehensive analysis of all relevant empirical facts.

## **6 The Convergence Criterion on the Exchange Rate and the Experience of ERM and ERM II**

Article 121 (*ex Article 109j*) provides the framework for the adoption of the euro. The convergence reports that the European Commission and the ECB have to prepare will include an examination of the achievement of a high degree of sustainable convergence, by reference to the fulfillment of the following criteria:

- “The achievement of a high degree of price stability: this will be apparent from a rate of inflation that is close to that of, at most, the three best performing Member States in terms of price stability;
- The sustainability of the government financial position: this will be apparent from having achieved a government budgetary position without a deficit that is excessive as determined in accordance with Article 104(6);
- 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;
- The durability of convergence achieved by the Member State and of its participation in the exchange rate mechanism of the European Monetary System, as reflected in the long-term interest-rate levels.”

In addition, according to Article 121, these reports must also take account of the development of the euro, the results of the integration of markets, the situation and development of the balances of payments on current account and an examination of the development of unit labor costs and other price indices.

Article 3 of the Protocol on the Convergence Criteria, i.e. Protocol No. 21 (ex 6) of the Treaty, stipulates the following: “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 final decision on the fulfillment of the conditions for joining the euro area will be taken by the Council (Ecofin) of the EU by a qualified majority, on a proposal from the European Commission, after consultation with the European Parliament and discussion in the European Council, and on the basis of the convergence reports of the European Commission and the ECB.

Before the 1993 ERM crisis, the prevailing  $\pm 2.25\%$  fluctuation bands<sup>1)</sup> provided a yardstick for interpreting the criterion on exchange rate stability: A currency was viewed to meet the criterion insofar as its bilateral nominal exchange rates vis-à-vis the other participating currencies were kept within a tunnel of 4.5% around the central parity without severe tensions. Thus, at the time when the Maastricht Treaty was drafted and ratified, the main questions addressed by the criterion were primarily (1) whether a currency succeeded in staying within the given narrow band with or without severe tensions, and (2) whether the central rate was devalued on the initiative of the country itself. In particular, the challenge to maintain a unilateral formal or informal narrow band after a potential widening of the multilateral band was not seriously considered at that time.

However, because of the widening of the bands to  $\pm 15\%$  in August 1993, which was prompted by the exchange rate crisis and hence took place before the Maastricht Treaty entered into force on November 1, 1993, the interpretation of the criterion became less clear cut. It is evident that exchange rate

1 Italy was an exception, as the lira was allowed to fluctuate in a band of  $\pm 6\%$  against the other participating currencies.

fluctuations of 30% are too wide to be economically interpretable. Therefore, and not surprisingly, the wording of the criterion "*the normal fluctuation margins . . . without severe tensions*" has given rise to alternative but not necessarily conflicting views when interpreting the criterion.

### 6.1 What Do Past Convergence Reports Tell Us?

In accordance with the *equal treatment principle*, the way the criterion was interpreted in the past will also determine how it will be applied to any EU member country still outside the euro area in the future. This appears to be confirmed in point 8 of the statement of the informal Ecofin meeting of April 2003: "*The assessment of the fulfilment of the Maastricht convergence criteria and the procedures to be followed for the introduction of the euro will ensure equal treatment between future Member States and the current participants in the euro area. A minimum stay of two years in the mechanism prior to the convergence assessment without severe tensions is expected. Moreover, 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, in line with what was done in the past.*" Therefore, it is of great interest to analyze the past convergence reports with a particular emphasis laid on how the criterion on exchange rate stability was interpreted.

In its 1998 convergence report, the *European Monetary Institute* (EMI) considered a currency stable if it was traded close to its unchanged central parity.<sup>1)</sup> In the report, all bilateral exchange rates are considered, using a ten-day moving average based on daily data at business frequency.<sup>2)</sup> Whether or not severe tensions characterized the foreign exchange market of a given country was assessed based on so-called tension indicators such as exchange rate volatility and short-term interest rate differentials. Exchange rate volatility was calculated against the Deutsche mark,<sup>3)</sup> whereas the three-month interbank interest rates of the country under consideration were compared with a weighted average of the rates of five countries, namely Austria, Belgium, Germany, the Netherlands and France. However, it should be noted that no explicit guidance was provided to clarify what "traded close to" meant and how much exchange rate volatility and how big an interest rate differential would have meant a breach of the criterion on exchange rate stability.

According to the 1998 convergence report of the European Commission, the widening of the fluctuation margins was originally meant to be transitory so as to prevent the complete collapse of ERM. At the same time, the report also acknowledges that because no officially announced return to the  $\pm 2.25\%$  bands occurred, the wider bands should somehow be accounted for in the convergence assessment. In its report, the European Commission introduced the concept of a median currency. The median currency is defined as the currency whose deviation from its ECU central parity was the "median" deviation among

1 "... in the assessment of exchange rate developments the emphasis is placed on exchange rates being close to the central rates." EMI (1998), pp. 37.

2 EMI (1998), pp. 53.

3 "Annualised monthly standard deviation of daily percentage changes of the exchange rate against the DEM, in percentages" EMI (1998), pp. 53.

the participating currencies. In more practical terms, for each participating country,<sup>1)</sup> the deviation of the bilateral exchange rate against the ECU from its official ECU central parity is determined. Subsequently, the countries are ranked and the 6<sup>th</sup> out of the 11 participating currencies is chosen in the ranking. For any given currency, its official bilateral central parity against the median currency is derived as the cross rate of the official ECU central parities of this given currency and the median currency. Similarly, its bilateral exchange rate against the median currency is derived as the cross rate of the bilateral exchange rates against the ECU of this given currency and the median currency. Then, the deviation of the bilateral exchange rate against the median currency from the official bilateral central parity against the median currency is calculated. It should be noted that the median currency is chosen on a daily basis, implying that the currency chosen as the median currency could have changed day by day. Furthermore, deviations are measured in terms of daily data and not on the basis of a ten-day moving average.

Only one current euro area Member State, namely Greece, went through ERM II. The practice of the EMI in its 1998 convergence report is followed by its successor, the ECB, when analyzing the state of convergence of Greece in 2000 and that of Sweden in 2000 and 2002 (ECB, 2000, and ECB, 2002). Both in the ECB's and in the European Commission's convergence report on Greece, exchange rate stability is assessed in two stages. In a first step, exchange rate stability is analyzed in the ERM according to the practices in EMI (1998) and European Commission (1998). The second stage then involves the investigation of the Greek drachma's developments against the euro.

While both the European Commission and the ECB are required to prepare a convergence report when a given country is analyzed to see whether it complies fully with the Maastricht criteria, it is the European Commission that makes a direct recommendation to the Council. However, this does not mean that the final decision by the Council will correspond to this proposition.

Table 1

**Analysis of the Criterion on Exchange Rate Stability by the EMI/ECB  
 and the European Commission in Their Convergence Reports**

	European Commission	EMI/ECB
<b>ERM</b>		
Reference period	two years for all countries: March 1996 to February 1998	two years: March 1996 to February 1998 except for Italy and Finland (15 and 16.5 months)
Reference currency	median currency	bilateral
Reference fluctuation band	±2.25% and ±15%	"close to parity"
Reference time series	daily exchange rate	ten-day moving average
Tension indicators	duration and size of large deviations  size of forex interventions	exchange rate volatility against the Deutsche mark short-term interest rate differential against a basket of five participating currencies
<b>ERM II</b>	the reference currency is the euro; otherwise the same	the reference currency is the euro; otherwise the same
<b>Decision-making</b>	recommendation to the EU Council as to whether a given country complies fully with the Maastricht criteria	

1 Before the entry of Greece the following countries were already participating in ERM: Austria, Belgium, Denmark, France, Finland, Germany, Ireland, Italy, the Netherlands, Portugal and Spain.

## 6.2 Widening the Horizon of the Analysis

The following benchmark currency could theoretically be used to gauge the variation of the exchange rates in the ERM and whether or not a given country meets the criterion on exchange rate stability:

- the ECU
- the median currency proposed by the European Commission
- bilateral exchange rates (no benchmark currency) used by the EMI/ECB
- the strongest currency of the system
- the Deutsche mark
- the synthetic euro (only ex post and only for information)

### 6.2.1 Evaluation Based on the ECU

The examination of maximum deviations against the ECU reveals that there was indeed a more narrowly defined implicit nominal exchange rate target. Instead of the  $\pm 15\%$  bands, all countries involved in the ERM two years prior to the launch of the euro<sup>1)</sup> made considerable efforts to keep their currency in a band of  $\pm 2.25\%$ .

Table 2

#### Maximum Deviations from the Official Central Parity

#### of the ECU in the ERM, 1996 to 1998

	01. 03. 1996 – 28. 02. 1998 <sup>1)</sup> )				17. 03. 1998 – 31. 12. 1998			
	daily observations		ten-day moving average		daily observations		ten-day moving average	
	APPR	DEPR	APPR	DEPR	APPR	DEPR	APPR	DEPR
	%							
Austria	<b>4.034</b>	<b>2.808</b>	<b>3.904</b>	2.221	2.022	-0.162	1.681	-0.282
Belgium	<b>4.411</b>	<b>2.833</b>	<b>4.199</b>	2.215	1.765	-0.126	1.594	-0.268
Denmark	- 2.103	<b>3.513</b>	-1.980	<b>2.840</b>	-1.249	0.607	-1.121	0.492
France	<b>2.346</b>	<b>2.661</b>	1.900	<b>2.499</b>	1.991	-0.205	1.662	-0.346
Finland	<b>2.431</b>	<b>3.091</b>	2.086	<b>2.550</b>	1.169	0.566	0.789	0.377
Germany	<b>4.083</b>	<b>2.803</b>	<b>3.870</b>	2.183	1.926	-0.140	1.660	-0.271
Ireland	<b>10.061</b>	0.253	<b>9.694</b>	0.018	<b>2.964</b>	-0.978	2.772	-1.299
Italy	1.100	<b>2.660</b>	0.754	<b>2.384</b>	1.359	0.545	0.980	0.251
Netherlands	<b>4.793</b>	<b>2.923</b>	<b>4.515</b>	2.216	1.980	-0.095	1.642	-0.255
Portugal	<b>3.692</b>	<b>2.676</b>	<b>3.151</b>	1.983	1.948	0.038	1.638	-0.220
Spain	<b>5.247</b>	2.204	<b>4.950</b>	1.557	1.929	0.794	1.636	-0.486

Source: Authors' own calculations.

<sup>1)</sup> For Finland the period starts on October 15, 1996, for Italy on November 25, 1996, the respective dates of (re)joining the ERM. Hence, this table follows the reference period definition for Finland and Italy applied by the EMI, as opposed to that applied by the European Commission.

<sup>2)</sup> The date format used is day/month/year.

Note: APPR and DEPR refer to the maximum appreciation and depreciation, i.e. to the maximum deviation from the central rate on the strong side ("appreciation") and on the weak side ("depreciation") of the multilateral  $\pm 15\%$  fluctuation band. Negative values for appreciation (depreciation) mean that the exchange rate stayed in the other part (weaker/stronger) part of the fluctuation band. Values higher than 2.25 are marked in bold font.

During the reference period of March 1996 to February 1998 and of October/November 1996 to February 1998 in the case of Finland and Italy, almost all currencies exceeded the implicit 2.25% narrow band on the stronger side. The same applies to the weaker side, as the currencies depreciated against

1 The reference period considered in the European Monetary Institute's convergence report is March 1, 1996, to February 28, 1998. Finland and Italy are two exceptions: Finland joined the ERM on October 15, 1996, whereas Italy rejoined the club on November 25 the same year. Hence, Finland spent only 16.5 months and Italy a mere 15 months before examination. The EMI considered only the period the two countries spent in the ERM as the reference period. By contrast, the European Commission examined the period from March 1996 to February 1998 for Finland and Italy.

the ECU central parities. On March 17, 1998, a multilateral parity adjustment took place that witnessed the devaluation of 2.68% of the central parity of all but one participating currencies and a revaluation of the Irish pound of 3.09%. Afterwards, the 2.25% on the weaker side of the fluctuation band was strictly respected.

The reason for this lies in the fact that the ECU was a composite currency that also included the nonparticipating pound sterling. But at the same time, countries such as Austria and Finland that joined the EU in 1995 and subsequently participated in the ERM were not considered in the ECU. The reason for the depreciation above the 2.25% limit is explained by the strong 25% appreciation of the pound sterling against the Deutsche mark over the period 1996–98 that was reflected in the bilateral exchange rates against the ECU because of the high share of the British currency in the ECU basket.<sup>1)</sup> This may have been the reason for the fact that the ECU was not used as the benchmark for evaluating the fulfillment of the convergence criterion.

### 6.2.2 Evaluation Based on the Median Currency

Maximum deviations from the median currency's official bilateral central parities are given in table 3, which indicates much narrower bands than in the case of the ECU. Asymmetry seems less pronounced in this case. However, excess deviation on the weaker side of the band is a feature only at the outset of the reference period March 1996 to February 1998. Indeed, this excess deviation disappears for all countries concerned, i.e. France, Finland, Ireland and Italy, if the period October 1996 to February 1998 is taken as the basis for evaluation.

Table 3

#### Maximum Deviations from the Median Currency, 1996 to 1998

	APPR	DEPR
	%	
Austria	0.310	0.470
Belgium	0.440	0.440
Denmark	0.040	1.410
France	0.050	2.350
Finland	3.740	4.210
Germany	0.340	0.460
Ireland	10.910	4.210
Italy	1.840	7.820
Netherlands	0.930	0.300
Portugal	2.760	1.360
Spain	2.610	0.000

Source: European Commission (1998), pp. 157.

Note: APPR and DEPR refer to the maximum appreciation and depreciation. Italy and Finland are considered as if they had participated in the ERM from March 1996.

### 6.2.3 Evaluation Based on Pairwise Bilateral Exchange Rates

It appears useful to have a quick look at the pairwise bilateral exchange rates of ERM participants. The  $\pm 4.5\%$  bilateral bandwidth provided by the use of the median currency is widely reflected in bilateral data.

<sup>1</sup> It should also be noted that the appreciation of the Irish pound had an effect. However, because of its low weight in the ECU basket, its overall impact was eclipsed by the pound sterling.

On the weaker edge, the French franc and the Irish pound exited the 2.25% mark against six and five fellow currencies, respectively. As in the case of the median currency, this happened at the very beginning of the reference period for a very limited period of time. However, following the definition of the reference period used by the European Commission (1998), that is, considering Finland and Italy as if they had participated in the ERM from March 1996, would lead to the conclusion that both currencies depreciated by more than 2.25% against the bilateral central parities adopted upon their entry in the ERM for a number of consecutive months before their formal entry in the ERM.

On the stronger side of the band, the most obvious excess deviation is that of Ireland, as the Irish pound appreciated by more than 10% against the other currencies following the aforementioned ephemeral depreciation against the majority of currencies at the outset. In addition, the Finnish markka, the Portuguese escudo and the Spanish peseta also underwent an appreciation of more than 2.25% vis-à-vis five currencies.

Table 4

**Maximum Deviations from the Bilateral Central Parity, 1996 to 1998**

	Austria	Belgium	France	Finland	Ireland	Italy	Netherlands	Portugal	Spain
%									
Austria	—	0.100	2.200	-0.200	<b>3.900</b>	1.100	0.000	1.100	0.100
Belgium	0.400	—	<b>2.500</b>	-0.200	<b>4.200</b>	1.100	0.100	1.400	0.200
France	0.200	0.300	—	-0.100	1.900	0.600	0.300	0.000	-0.200
Finland	<b>3.000</b>	<b>3.100</b>	<b>3.600</b>	—	-0.300	<b>3.000</b>	<b>2.900</b>	1.400	2.100
Ireland	<b>11.800</b>	<b>11.900</b>	<b>12.500</b>	<b>10.000</b>	—	<b>11.300</b>	<b>11.700</b>	<b>10.300</b>	<b>10.700</b>
Italy	1.800	1.900	<b>2.500</b>	0.400	-2.300	—	1.700	0.700	0.900
Netherlands	0.800	0.500	<b>2.800</b>	-0.200	<b>4.600</b>	1.300	—	1.800	-0.200
Portugal	<b>2.900</b>	<b>2.800</b>	1.700	1.200	<b>3.500</b>	<b>3.000</b>	<b>2.500</b>	—	<b>2.900</b>
Spain	2.000	<b>2.400</b>	<b>3.300</b>	0.200	<b>5.100</b>	1.400	1.700	<b>2.400</b>	—

Source: EMI (1998), pp. 53, 119, 134, 149, 167, 195, 211, 227, 242.

Note: Lines indicate the maximum appreciation of the currency of the given country against the other countries. Automatically, columns show the maximum depreciation of the currency of the given country against the other countries. The period considered is March 1996 to February 1998. For Finland and Italy, the reference period starts on October 14, 1996, and on November 25, 1996, respectively, which is in accordance with the practice of the EMI. Figures are obtained using ten-day moving averages. Values exceeding 2.25% are marked in bold font.

#### 6.2.4 Evaluation Based on the Strongest Currency of the System

Clearly, one important aspect of employing the median currency is not to use the strongest currency as the benchmark, which would have meant very large deviations of all currencies against the Irish pound from September 1996 onwards.

#### 6.2.5 Evaluation Based on the Deutsche Mark

The main reason why the European Commission used the median currency rather than the Deutsche mark is that taking the Deutsche mark as the benchmark would explicitly acknowledge the stability of the latter. By contrast, the use of the median currency would also allow, at least theoretically, for the Deutsche mark to be weak. However, the median currency closely mirrors the Deutsche mark. The Austrian, Belgian, Danish and Dutch currencies were very closely clustered with the Deutsche mark; therefore bearing in mind the strong appreciation of the Irish pound, and at some point in time that of the Finnish markka, the Portuguese escudo and the Spanish peseta, the median currency was always part of the cluster, i.e. either the Deutsche mark or one of its "proxies" (table 5).

Table 5

<b>Composition of the Median Currency</b>		
	Number of days of the reference period (March 1996 to February 1998)	%
Total	503	
of which the median currency was:		
DKK	181	35.98
DEM	90	17.89
NLG	77	15.31
ATS	42	8.35
No median currency	30	5.69
FRF	28	5.57
BEF	27	5.37
PTE	10	1.99
ESP	9	1.79
ITL	8	1.59
IEP	1	0.20
DKK+DEM+NLG+ATS+BEF	417	82.9

Source: Authors' own calculation based on data provided by the European Commission.

Note: When the Finnish markka joined the ERM, the number of participating currencies increased to 12, which made the calculation of the median currency impossible. This period lasted until the Italian lira reentered the ERM (from October 14, 1996, to November 22, 1996, i.e. 30 days).

The ERM was built around the Deutsche mark. Although it was not explicitly called the benchmark currency, tension indicators were based on either the Deutsche mark (exchange rate volatility) or the cluster around it (interest rate differential).

Table 6

### Maximum Deviations from the Official Bilateral Central Parity against the Deutsche Mark in the ERM, 1996 to 1998

	01. 03. 1996 to 28. 02. 1998				25. 11. 1996 to 28. 02. 1998			
	daily observations		ten-day moving average		daily observations		ten-day moving average	
	APPR	DEPR	APPR	DEPR	APPR	DEPR	APPR	DEPR
%								
Austria	0.382	1.079	0.081	0.432	0.054	0.091	0.022	0.049
Belgium	0.473	0.192	0.387	0.116	0.182	0.158	0.120	0.116
Denmark	0.044	1.892	0.042	1.234	0.044	1.892	0.042	1.234
France	0.294	<b>2.321</b>	0.224	2.131	0.294	1.298	0.224	1.040
Finland	<b>3.668<sup>1)</sup></b>	<b>4.421<sup>1)</sup></b>	<b>2.978<sup>1)</sup></b>	<b>4.033<sup>1)</sup></b>	<b>3.668</b>	0.164	<b>2.978</b>	-0.189
Ireland	<b>10.943</b>	<b>4.073</b>	<b>10.581</b>	<b>3.869</b>	<b>10.943</b>	-2.726	<b>10.581</b>	-2.986
Italy	<b>2.274<sup>1)</sup></b>	<b>7.756<sup>1)</sup></b>	1.846 <sup>1)</sup>	<b>7.250<sup>1)</sup></b>	<b>2.274</b>	2.005	1.846	1.258
Netherlands	1.121	0.743	0.864	0.131	0.562	0.743	0.474	0.131
Portugal	<b>3.024</b>	1.640	<b>2.744</b>	1.045	<b>3.024</b>	0.684	<b>2.744</b>	0.060
Spain	<b>2.734</b>	0.415	<b>2.330</b>	0.079	<b>2.370</b>	0.122	1.849	-0.225

Source: Authors' own calculations.

<sup>1)</sup> In accordance with the methodology applied by the European Commission.

Note: APPR and DEPR refer to the maximum appreciation and depreciation. Negative values mean that the market exchange rate remained in the other side of the band. Values higher than 2.25% are marked in bold font.

### 6.3 Summarizing the Features of Exchange Rate Developments in the ERM

When the structure of the ECU and especially the pound sterling is controlled for, the following features emerge:

- First, depreciation against the central parity beyond the 2.25% on the weaker side of the band occurred only at the onset of the reference period. These cases occurred in early 1996, and no excessive depreciation against the central parity happened after November 25, 1996, the date of Italy's reentry. The timing of the deviation appears important, i.e. it is possible that if deviations of the same size had taken place at the end of the reference

- period, they would have led to the conclusion in the convergence reports that the criterion on exchange rate stability was not fulfilled.
- Furthermore, the depreciation of the French franc shrinks below 2.25% when applying the ten-day moving average to the nominal exchange rate series.
  - Third, while the 2.25% limit on the weaker side is reasonably well respected in every participating country, the exchange rate appreciated by between 2.25% and 10% against the central parity in Finland, Ireland, Italy, Portugal, Spain and Denmark.

#### 6.4 ERM II and the Case of Greece and Denmark

Greece became a member of the ERM on March 16, 1998, just shortly after the end of the reference period used in the European Commission's and the EMI's convergence reports in 1998 and stayed in ERM II until Greece adopted the euro on January 1, 2001. Following an up-front devaluation of 12.3% of the central parity (by setting the central parity at ERM entry below the market rate prevailing at that time), the market rate remained constantly on the stronger side of the fluctuation band, both in ERM and ERM II, with the exchange rate coming as close as 5% to the stronger edge.

Table 7

#### Greece Maximum Deviation from the ECU Central Parity, March 1998 to December 1998

	17. 03. 1998 to 31. 12. 1998			
	daily observations		ten-day moving average	
	APPR	DEPR	APPR	DEPR
Greece	8.557	-1.681	8.428	-2.479

*Source: Authors' own calculations.*

*Note: APPR and DEPR refer to the maximum appreciation and depreciation. Negative values mean that the market exchange rate remained on the other side of the band. Negative values mean for appreciation (depreciation) that the exchange rate stayed in the other part (weaker/stronger) part of the fluctuation band.*

Denmark's experience in ERM II is somewhat different from that of Greece. First, Denmark is still in ERM II. Second, the Danish currency has been extremely close to the central parity of the euro since the very beginning with a de facto fluctuation band of less than  $\pm 1\%$  and a formal multilaterally agreed narrow band of  $\pm 2.25\%$ . Probably, such a narrow fluctuation band can be maintained only with the help of a flexible interest rate policy and foreign exchange interventions by the central bank.

Table 8

#### Greece and Denmark in ERM II: Minimum and Maximum Deviations from the Euro Central Parity, 1999 to between 2000 and 2003

	daily observations		ten-day moving average	
	APPR	DEPR	APPR	DEPR
	%			
Denmark	0.799	0.593	0.474	0.119
Greece	8.557	-1.681	8.428	-2.479

*Note: Greece: January 1, 1999, to December 31, 2000; Denmark: January 10, 1999, to April 14, 2003.*

### 6.5 Changes in the Official Central Rates in the ERM and ERM II

The experience of the present EU Member States in the euro area shows that the only adjustments in the central rates both during the respective reference periods and in the time up to the adoption of the euro were the multilaterally agreed revaluations of the Irish pound (once) and of the Greek drachma (twice).

Consequently, the convergence reports considered the corresponding element of the convergence criterion, which stipulates that the examined Member State must not have devalued its currency's bilateral central rate against any other Member State's currency on its own initiative during the reference period, as fulfilled.

Moreover, the central rate prevailing on the last day before the adoption of the euro was taken as the irrevocable conversion rate in all cases.

Given past experience and the possible need for realignments, it has to be underlined that there should be no presumption that the initial central rate will be the ultimate conversion rate for euro adoption.

## 7 Conclusions

This paper explained the official roadmap for monetary integration and discussed the possible designs of EU acceding countries' exchange rate strategies prior to euro area entry. In view of the economic challenges that accession to the single market and the future catching-up process of the acceding countries involves, the official roadmap of the European Union for monetary integration seems to strike a suitable balance between the various needs. In particular, participation in ERM II can be understood as a useful convergence framework. The basic principle governing the examination of the achievement of a high degree of sustainable convergence with reference to the fulfillment of the convergence criteria will be the equal treatment of the individual new member countries among each other and by comparison to the current EU member countries.

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