

Exchange Rate Policies in the Ten New Members of the European Union

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Abstract

The Economic and Monetary Union (EMU) has gone through different stages until arriving at the creation of the euro. Now the new ten member states of the European Union (EU) are in the process of trying to close policies in order to meet the macroeconomic criteria of Maastricht. An overview on exchange rate policy of those countries will be analyzed in this paper. Most of the new member states have pegged their currencies to the euro and are trying to join with it as soon as possible. Nevertheless, others are still highly linked with currencies of the international monetary system or their exchange rate policy is still far from meeting the objective of the exchange rate a short-term period of time.

Keywords: *exchange rate policy, European Monetary Union, euro, enlargement of European Union, ERM II*

JEL Classification: F33, F36

Introduction

Since 1970, with the composition of the ‘Werner Report’, the Economic and Monetary Union (EMU) has gone through different stages in order to obtain the single currency. As far as the exchange rate policy is concerned, this paper will focus on giving an account of the monetary union in Europe, and how the new EU countries have conducted their exchange rate policies with respect to the euro in the process of joining the EU and how strongly linked their currencies have become with the euro. For this purpose, we will apply an empirical analysis of exchange rate series from 1999 to the first semester of 2004 (since the creation of the euro up to the entrance of the new ten members) of the affected currencies. Using a factorial analysis of these series, we will offer some predictions about

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the progress of the European Union in the upcoming years. We follow with an analysis of some of the changes that have taken place since the accession of the new members to the European Union in preparation for their incorporation to the euro.

1. From the European Monetary System to the Euro

Between 1960 and 1968 (after the devaluation of the sterling pound in 1967) there was very little progress made in monetary integration. It was a period of stability in the international monetary system with the Bretton Woods Agreement and the discipline of the International Monetary Fund.

The European Economic Community (EEC) launched its first attempt at harmonising the exchange rates, using the so called 'snake in the tunnel' mechanism whereby participating governments were required to confine the fluctuations of their currencies within a range of $\pm 2,25$ per cent against each other.

The next step towards Economic and Monetary Union was in September, 1978 where the European Monetary System (EMS) was created to establish the basis of a stable monetary zone. At the core of this system was the European Currency Unit (ECU) with a value derived by a weighted 'basket' of all the participating currencies. Since August 1993, the EMS currencies could fluctuate within an extended zone by ± 15 per cent.

As a balance of the EMS we can conclude that it was a success in spite of its readjustments. Primarily because it created a stable zone in a period where the international monetary system supported a high pressure, which could be especially attributed to the US dollar revaluation at the beginning of the 80's, the international debt crisis, and the crisis of the EMS in September 1992. Finally, all the readjustments were in accordance with the Minister Council of the EU and not individual. Hence the adjustments in most cases were only partially affected (De Grauwe, 2000).

The establishment of the internal market in the European Union (EU) brought a new stimulus to the idea of a single currency, and the Hanover European Council concluded that in adopting the Single Act, the Member States of the Community confirmed the objective of progressive realisation of economic and monetary union. A committee was set up under the chairmanship of Commission President Jacques Delors with the task of studying and proposing concrete steps leading towards this union.

The Delors Report (1989) set out a plan to introduce EMU over three stages, including an institutional framework to allow policy to be decided and executed at the Community level in economic areas of direct relevance for the functioning of EMU.

It included the creation of a monetary institution, namely a European System of Central Banks (ESCB), which would become responsible for formulating and implementing monetary policy as well as managing external exchange rate policy. Unlike the Werner Plan, it did not propose a new body to co-ordinate economic policy, but rather that these functions could be carried out within the existing institutional framework.

Most of the ideas set out in the Delors report later formed the basis for the EMU provisions agreed in the Maastricht Treaty. The Delors Report was adopted by the Madrid European Council, which decided to launch the first stage of EMU on 1st July 1990.

Since 1998 important measures were taken to prepare for introduction of the euro on the international scene. The final stages of the euro took place in 1998 when the EU announced which countries were going to participate in the euro. It was only Greece who had failed to meet the criteria at that moment, but finally the country was incorporated into the European Monetary Union on 3rd January 2001. The UK and Sweden form part of the group of temporarily self excluded countries.

2. The Euro and the Exchange Rate Mechanism ERM II

The ERM II began to operate on the 1st of January 1999. Greece and Denmark joined at the moment of its constitution, while the UK and Sweden stayed out. But as Greece joined the euro in 2001, the Danish krone was left as the only participant member. The Estonian kroon, Lithuanian litas, and Slovenian tolar were included in the ERM II on June 28, 2004, the Cyprus pound, the Latvian lats and the Maltese lira on May 2, 2005 and the Slovak koruna on November 28, 2005.

For the six new members, the standard fluctuation bands of ± 15 per cent will be observed. Prior to ERM II entry, both the Cyprus pound and the Latvian lat were already unilaterally pegged to the euro. While a fluctuation band of ± 15 per cent applied in the case of Cyprus. Latvia retained a ± 1 per cent fluctuation band when the lat was re-pegged from the Special Drawing Right (SDR) to the euro. In line with the preceding exchange rate regime, the Latvian authorities have declared that they will unilaterally maintain the exchange rate against the euro with a fluctuation band of ± 1 per cent.

Prior to ERM II participation, the Maltese lira was pegged to a basket including the euro, the sterling and the US dollar with no fluctuation band. Upon entry in the mechanism, the Maltese lira was re-pegged to the euro from the basket arrangement. Moreover, the Maltese authorities have declared that they will unilaterally maintain the exchange rate of the Maltese lira at the central rate against the euro.

As the participation in the ERM II does not assure a nominal convergence, the participants must complete the Stability Pacts. At any time a country will be able to call on the Council to examine its economic situation and if it agrees, approve its adherence to the EMU.

The ERM II framework may result with two potential dangers. First, the ERM II, as a combination of intermediate exchange rate (fixed with adjustment possibility) and full capital account liberalisation, is likely to induce large capital flows that will exert strong pressure on the real exchange rate and make it difficult to meet the nominal convergence criteria. And while not only impeding the chances for adopting the euro quickly, the ERM II may induce serious speculative attacks (Gonda, 2005).

The second danger arising from the participation in the ERM II is the possibility of a widespread currency and asset substitution (informal euroisation). In this sense there is a great possibility that, at least in some cases, the ERM II may become a self-defeating mechanism.

Table 1

Exchange Rate Arrangements in New Members of Central and Eastern Europe (1995 – 2003)

Country/Years	1995	1996	1997	1998	1999	2000	2001	2002	2003
Czech Republic	3	6	7	7	7	7	8	8	8
Estonia	2	2	2	2	2	2	2	2	2
Hungary	6	6	6	6	6	6	4	4	4
Latvia	3	3	3	3	3	3	3	3	3
Lithuania	2	2	2	2	2	2	2	2	2
Poland	6	6	6	6	6	8	8	8	8
Slovak Republic	3	6	6	7	7	7	7	7	7
Slovenia	7	7	7	7	7	7	7	7	7

1. – Exchange rate arrangements with no separate legal tender
2. – Currency board arrangements
3. – Other conventional fixed peg arrangements (within a band of most +/- 1 per cent)
4. – Pegged exchange rate arrangement within horizontal bands (at least +/- 1 per cent)
5. – Crawling peg (with small, pre announced adjustment),
6. – Exchange rates with crawling bands.
7. – Managed floating with no pre-announced path for the exchange rate.
8. – Independent floating (market-determined exchange rate and independent monetary policy).

Source: IMF and Schnabl (2004).

No single exchange rate regime is good for all countries. Some countries should be allowed to retain their current strategies, including inflation targeting, and to adopt the euro only when the degree of their real convergence becomes sufficient. But this way of reasoning neglects the fact that serious financial instability will have a negative impact throughout the whole integration process in Europe and there will be no country left unhurt (Frankel, 1999).

For that reason during the period 1995 – 2003 each country adopted an exchange rate regime that maximized their own interests.

For the economic situation of the accession countries, the European Bank for Reconstruction and Development (EBRD) has analyzed the institutional structure and capital markets with the use of convergence indicators. Convergence is more advanced for goods markets than for capital markets, institutional and capital market convergence towards the standards set by the EMU has yet to be achieved. (EBRD, 2000).

3. The Recent Exchange Rate Policies of the New Member States

According to the EU membership criteria, new members must be able to demonstrate their ability to accept the obligation of membership including adherence to the aims of political, economic and monetary union. The new members are thus expected to adopt the euro when they are ready to do so, but no immediately upon accession (Breton, 2002; 2002)

In the Slovak Republic the bands were gradually widened during 1996 to ± 7 per cent by early 1997. Its currency has fluctuated within ± 15 margins since 1999, which will stimulate the entry to the ERM II. Nevertheless, after the elections in 2002 the appreciation has been continuous due to the difference that it has maintained versus the interest rate in the euro zone.

In the Czech Republic, exchange rate flexibility was introduced in February 1996 when a peg was replaced by a $\pm 7,5$ per cent band. A managed floating arrangement was introduced according with the German mark later, and from 1999 with the euro, with an inflation target. This arrangement aimed to control an excessive volatility. Nevertheless the exchange rate has widely fluctuated because the large entry of foreign capitals that have appraised the koruna until summer 2002. For this reason, from the end of 2001 the Government tried to catch this trend with a massive intervention. Since 2002 (announced in April 2001) the Czech authorities have shifted to headline inflation targeting with a continuous linear and declining target band.

For the Czech and Slovak koruna, the monetary authorities changed their exchange rate policy to a euro-pegged system. In both cases, there was an appreciation versus the euro. On November 28, 2005 the Slovak koruna was included in the EMR II. Finally, to join the EMR II the Czech Republic must change the exchange rate arrangement to become more connected to the euro.

In January 2002 Lithuania shifted its dollar peg to the euro peg. The authorities wishes to keep the currency board up to its full integration in the EMU within floating bands of 0 per cent taking into account its experience in the last years. The Estonian kroon has been exactly pegged to the euro. Throughout the period Estonia has had a currency board arrangement linked to the euro. Both countries have already joined the EMR II (June 2004).

In Latvia, its exchange rate policy was focussed towards the Special Drawing Rights since 1994. The remarkable feature of the Latvian lat is that it has been pegged to a currency basket of the three major currencies. It means that its monetary authorities have adopted a currency basket peg system. However, the coefficients on the three major currencies have been changing over time. In April 2005 it joined the ERM II.

The forint appreciated after the crawling peg was abandoned, but since autumn of 2002 this process was completely reverted again with interventions. Hungary maintains its exchange rate within a ± 15 margins of fluctuation with an exchange rate arrangement totally compatible with the ERM II. The Hungarian monetary authorities have not had any consistent stance on exchange rate policy.

The Polish zloty appreciated until May 2001, since then it has depreciated, so that its value against the euro in July 2004 was weaker than in January 1999.

The Polish zloty has been pegged to the euro and the US dollar. Ties to the US dollar were greater than to the euro before the 3rd quarter of 2002. However, this has changed since the 2nd quarter of 2003. It means that there should be other factors in explaining the movements in the Polish zloty. Poland is the country whose currency has been allowed to float the most in the area.

From January 1999, Slovenia kept a managed floating exchange rate and did not officially use the euro as reference. Its currency has had a constant depreciation, a trend that should be stopped and the exchange rate arrangement changed. The Slovenian tolar has been strictly pegged to the euro since the 2nd quarter of 2003. In June 2004 Slovenia decided to include the Slovenian tolar in the ERM II.

In August of 2002, the monetary authorities decided to revise the weight of the components currencies of the Maltese lira basket in order to pursue exchange rate stability by pegging the Maltese lira to a basket of currencies of the country's major trading partners. This review is aimed at updating the weights of the three currency components of the basket, the euro, the US dollar and the sterling, so that these reflect more closely current trends in Malta's external trade.

The euro increased weight in the Maltese lira basket will help to attenuate fluctuations in the exchange rate of the lira against the euro, and thus have a beneficial impact on trade between Malta and the European partners as well as on domestic price levels. As a result of this review, the weightings were as follows: euro 70 per cent, sterling 20 per cent and US dollar 10 per cent.

Following the successful ECU-peg policy, the Cypriot pound was pegged to the euro on January 1st 1999. Initially, the fluctuation margins were also maintained at ± 2.25 per cent. On January 1st, 2001, however, wider bands of ± 15 per cent were introduced, in order to enable the Central Bank to absorb any shocks from possibly destabilising capital movements and deter speculative capital flows, particularly as capital account liberalisation progresses.

In April 2005, at the request of the Maltese and Cypriot authorities the pound and the lira were included in the ERM II. All the countries that have already joined the ERM II must avoid that their exchange rates would be inconsistent with the fundamental characteristics of the economic integration. The choice of an adequate exchange rate to entry in the ERM II was very important.

A feature of the Maltese lira is that it had links to both the euro and the US dollar. However, the coefficients linking the two major currencies have changed over time. The coefficients on the euro have increased while those of the US dollar have diminished since the 4th quarter of 2003.

The Cyprus pound had been linked to both the euro and the US dollar before the 2nd quarter of 2000 but the monetary authorities in Cyprus have adopted the euro peg system since the 2nd quarter of 2002.

4. Method of Analysis: The Application of Principal Component Factor Analysis to the Exchange Rates Series of the Currencies Considered (1999 – 2004Q2)

Factor analysis is one of the most frequently used procedures among multivariate techniques, which are described as the set of statistical techniques that work simultaneously with more than two variables in a sample of observations.

Principal component factor analysis reveals the type of correlation that exists among the considered currencies, which will be very useful for estimating the trends of the series in the period (Jackson, 2003).

There are many reasons for carrying out a factor analysis, such as the desire to obtain some idea of what constructions can be used to explain the correlations among the variables studied.

- Period of analysis and variables considered:

In our case, we performed an exploratory analysis of exchange rate series of the currencies of the ten new member states of the EU, the three of the non euro zone currencies (Danish krone, Pound Sterling and Swedish krona), and the US Dollar and the yen, two basis currencies in the international monetary system.

The period of time was from 1999, the year that the euro was born in the markets, to the second quarter of 2004, when the new members join the European Union (Annex 1).

We have applied Principal component factor analysis by the method of Varimax rotation through the SPSS 11.5 computer program. The multivariate analysis of the variables chosen estimates the principal factors that explain the evolution of the exchange rates in order to decipher what criteria and objectives to which they have responded (Kaiser, 1958).

4.1. Study of the Correlations Matrix: Conditions of Application

Before applying this procedure, it is necessary to corroborate the suitability of the technique for the data available.

The statistical procedures applied for this purpose are as follows:

- Identification of the determinant of the correlations matrix.

The very low value demonstrating the presence of high correlations among the variables chosen, shows that the data may be adequate for performing a factor analysis.

- Bartlett sphericity test (Barlett, 1939).

The correlations matrix obtained is not an identity matrix, there are no significant correlations among the variables. Consequently, our data matrix is adequate to proceed with the factor analysis.

- Anti-image correlations.

These correlations express the intensity of the relations between two variables and suppress the influence of the rest of the data, so their coefficients outside the main diagonal have to be low.

The values obtained in the anti-image correlations matrix of the variables of the exchange rate series, apart from the main diagonal, are very small, indicating that it may be adequate for applying factor analysis and for consolidating the set of items into components.

- Kaiser, Meyer and Olkin (KMO) compares the correlation coefficients observed in the correlations matrix with those of the anti-image matrix, which suggests that factor analysis can be suitably applied.

4.2. Application of Principal Components Analysis

The main aim of this procedure is to determine the minimum number of common factors that can adequately reproduce the correlations between the variables following the steps below:

- Extraction of components.

The first step is the analysis of the factor that best explains the dimension analysed.

- Number of factors to be conserved.

This is about maximizing the explanation of the variance with the smallest possible number of factors. With the SPSS 11.5 program we clearly demonstrate that three factors explain most of the variability.

- Rotation of factors.

Once the number of principal components (three) has been verified by means of the above steps, the axes must be interpreted on the basis of the 'components

matrix', which represents the correlation coefficients between the original variables and the principal factors. For each one of the latter we must find out which of the former are most highly correlated in absolute value.

This kind of analysis has been recently used by Ogawa and Shimizu (Ogawa and Shimizu, 2004).

5. Trend of the Currencies vis-à-vis the Euro (1999 – 2004): Results of Our Analysis

With the series of the exchange rates already mentioned, we have estimated the correlations and the factors which have determined the exchange rate policy of the new countries before they became members of the European Union, with the following results:

Table 2
Summary Statistics

	Mean	S. D.	Max	Min	Kurtosis*	Asimmetry**
Czech koruna	33.68	2.27	37.99	29.73	-1.18	0.18
Slovak koruna	42.57	1.34	45.90	39.90	-0.26	0.12
Estonian krone	15.65	0.00	15.65	15.65	-2.06	-1.02
Latvian lat	0.60	0.04	0.67	0.53	-1.37	0.12
Lithuanian litas	3.67	0.32	4.64	3.41	0.84	1.41
Hungarian forint	253.39	7.68	266.99	236.07	-0.86	-0.08
Polish zloty	4.10	0.35	4.86	3.39	-0.62	0.17
Slovenian tolar	218.13	15.17	239.90	189.07	-1.12	-0.34
US dollar	1.02	0.12	1.26	0.85	-0.99	0.42
Japanese yen	117.57	12.53	138.05	92.74	-1.12	-0.19
Cypriot pound	0.58	0.00	0.59	0.57	-0.93	0.49
Maltese lira	0.41	0.01	0.44	0.39	-1.18	-0.05
Danish krone	7.44	0.01	7.46	7.42	-0.74	0.64
Swedish krona	8.98	0.32	9.67	8.24	-0.14	-0.64
Pound sterling	0.65	0.03	0.71	0.59	-0.99	0.43

* The kurtosis represents the elevation or flattening of a distribution, compared with the normal distribution. A positive kurtosis indicates a relatively high distribution, while a negative kurtosis indicates a relatively plane distribution. Value outside of the interval +/- 1 they represent significant differences with the normal distribution.

** It refers to the degree of asymmetry of a distribution with regard to their media. The positive asymmetry indicates a unilateral distribution that extends toward more positive values. The negative asymmetry indicates a unilateral distribution that extends toward more negative values. Value outside of the interval +/- 1 they represent significant differences with the normal distribution.

Source: Own calculation.

According to Table 2, the Estonian krone (-2,6), the Latvian lat (-1,37), the Czech koruna (-1,18), the Maltese lira (-1,18) and the Slovenian tolar (-1,12) were the currencies (during that period of time) which presented the most significant differences from the normal distribution, perhaps because a certain amount of intervention of the economics authorities (see kurtosis values).

The Estonian krone (-1,02) and the Lithuanian lita (-1,41) also present an asymmetrical distribution.

After the series standardization the method of principal components factor was applied. The Estonian krone was eliminated due to its fixed exchange rate with the euro in that period.

The standardized values of a variable allows us to obtain a new variable with mean zero and typical deviation 1 through the expression $\left(z_i = \frac{x_i - \bar{x}}{\sigma} \right)$, where \bar{x} is the mean of the variable and σ is its standard deviation. This transformation allows the homogeneous comparison among different currencies with very different nominal values.

The results shows the three factors obtained explain 87.52 per cent the global variance. After the rotation of the factors, the results appear in Table 3:

Table 3
Rotated Factor

	Rotated Factor Loadings*			
	1	2	3	Uniqueness
Czech koruna	-0.05	0.86	0.42	0.07
Slovak koruna	-0.40	0.71	-0.19	0.31
Latvian lat	0.98	-0.03	-0.13	0.01
Lithuanian litas	0.20	0.95	-0.02	0.05
Hungarian forint	0.09	0.11	0.89	0.19
Polish zloty	0.90	-0.07	0.20	0.15
Slovenian tolar	0.25	-0.95	-0.11	0.02
US dollar	0.98	-0.11	0.01	0.03
Japanese yen	0.85	-0.21	-0.41	0.07
Cypriote pound	0.87	-0.24	0.06	0.17
Maltese lira	0.96	0.16	-0.16	0.02
Danish krone	-0.40	0.06	0.81	0.18
Swedish krona	0.14	-0.50	-0.59	0.38
pound sterling	0.93	-0.10	-0.16	0.10

* Varimax rotation 87.52 per cent proportion cumulative explained.

Source: Own calculation.

In the first factor retained, the currency rate with the largest weights are the Latvian lat, Polish zloty, USA dollar, Japanese yen, Cypriote pound, Maltese lira and the British pound, among them the correlation is very high. In this group the currencies are less linked to the euro at that moment and connected to the US dollar, the Special Drawing Rights or with independent floating for reasons that will be discussed.

In a second factor it has a higher presence of the currency rate of the Czech koruna, the Slovak koruna, the Lithuanian litas and the Slovenian tolar more linked to the euro.

Finally, in the last selected factor the highest influence links with Hungarian forint, Danish krone and the Swedish krona, the last one being a little bit lower .

The residuals (uniqueness is the per centage of variance for the variable that is not explained by the factors) are very low, that means that the model fit well except for the Slovak koruna and Swedish krona that neither are high too.

The correlations matrix (Table 4) shows as well a high link between the Latvian lat with the currencies which compose the basket of the Special Drawing Rights (Pound sterling, US dollar, yen), the Polish zloty (very correlated to the US dollar) and the Cypriote pound and Maltese lira were very linked to other non euro zone currencies.

Table 4
Correlations Matrix

Pairwise Correlations Matrix															
	CZK	SKK	LVL	LTl	HUF	PLN	SIT	USD	JPY	CYP	MTL	DKK	SEK	GBP	
CZK	1														
SKK	0.52	1													
LVL		-0.39	1												
LTl	0.80	0.53		1											
HUF	0.46				1										
PLN		-0.48	0.86			1									
SIT	-0.88	-0.70	0.29	-0.87		0.28	1								
USD		-0.50	0.98			0.92	0.35	1							
JPY	-0.38	-0.37	0.90		-0.28	0.64	0.46	0.84	1						
CYP	-0.22	-0.46	0.84			0.72	0.43	0.84	0.80	1					
MTL		-0.24	0.97	0.35		0.82	0.93	0.84	0.77	1					
DKK	0.44		-0.49		0.69	-0.29	-0.25	-0.39	-0.63	-0.28	-0.49	1			
SEK	-0.62		0.23	-0.39	-0.40		0.59		0.52	0.29		-0.41	1		
GBP	-0.21	-0.33	0.92			0.74	0.36	0.88	0.89	0.87	0.92	-0.49	0.33	1	

Notes: Pearson correlations.

Displaying coefficients for 10 per cent significance level.

Bold for 5 per cent significance level.

Source: Own calculation.

In our results, we see that in factor 1 the variables with the greatest weight are the Latvian lat, Polish zloty, USA dollar, Japanese yen, Cypriote pound, Maltese lira and British pound; in factor 2 the outstanding variables are Czech koruna, the Slovak koruna, the Lithuanian litas and Slovenian tolar; while in factor 3 are they are the Hungarian forint, Danish krone and Swedish krona (Table 5).

Table 5
Principal Components

Factor 1	Latvian lat, Polish zloty, USA dollar, Japanese yen, Cypriote pound, Maltese lira and British pound
Factor 2	Czech koruna, the Slovak koruna, the Lithuanian litas and Slovenian tolar
Factor 3	Hungarian forint, Danish krone and Swedish krona

This demonstrates that in the period of time analyzed we could distinguish three groups of currencies according to their policies vis-à-vis the euro and their wishes for joining it as soon as possible. The recent events have ratified our conclusions.

5.1. Recent Events

After the period we have analyzed, some significant changes have occurred, related to the future incorporation of certain countries to the euro zone. In this respect, six countries have already become members of the EMU II (Lithuania, Latvia, Estonia, Slovenia, Cyprus, Malta and the Slovak Republic), and others are considering it.

At the same time they have to satisfy the convergence conditions for joining the euro area (Nutti, 2000) (Cazorzi and De Santis, 2003).

With the trends of the previous analysis and considering other factors, the date these countries join the euro should be for a first group (Cyprus, Malta, Slovenia, Estonia, Latvia and Lithuania and Slovakia) 2007/2008, for the second (Czech Republic), 2009, and Hungary and Poland in the third, and will not join the euro before 2010.

At the moment only Slovenia has surpassed convergence conditions and will join the euro in January 2007.

Conclusions

The euro brings many benefits to the participating countries, it eliminates exchange rate risks between countries that adopt it. It also paves the way for a deep, liquid and integrated capital market among countries that adopt it. Euro area enlargement means that a larger number of EU Member States can enjoy these benefits. Furthermore, some of the economic advantages of monetary union, such as the elimination of exchange rate uncertainties, increase with the size of the euro area. However, in order to be able to fully exploit the benefits, a country must be ready for the euro.

For the ten new members, this was an enormous task due to the significant difference in economic conditions in relation to the 15 previous member states. In the period analyzed every country has adopted a more suitable exchange rate arrangement vis à vis the euro. Over time, even if every country had its own exchange rate policy, all their currencies have started to approximate the European currency with different intensity. Following this trend, once the integration has taken place, Lithuania, Latvia, Estonia, Slovenia, Cyprus, Malta and the Slovak Republic will have already joined the EMU II.

Poland, Hungary and the Czech Republic progressed slowly for domestic reasons and would have to redefine their exchange rate strategy in order to avoid macroeconomic problems on their path towards the euro. Therefore, Hungary and the Czech Republic have already adopted a more active exchange rate management in last few months, even though all of them have expressed their preference for joining ERM II at a later date.

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A n n e x 1**Exchange Rate Series Analyzed (1999 – 2004Q2)****Exchange rates, Foreign currencies per euro, Averages**

	1999Q1	1999Q2	1999Q3	1999Q4	2000Q1	2000Q2	2000Q3	2000Q4	2001Q1	2001Q2	2001Q3	2001Q4
US dollar	1.12	1.06	1.05	1.04	0.99	0.93	0.91	0.87	0.92	0.87	0.89	0.90
Japanese yen	130.75	127.70	118.73	108.42	105.50	99.55	97.43	95.30	109.06	106.93	108.27	110.45
European Union (no euro)												
Danish krone	7.44	7.43	7.44	7.44	7.45	7.46	7.46	7.45	7.46	7.46	7.44	7.44
Swedish krona	8.98	8.90	8.71	8.65	8.50	8.28	8.40	8.60	9.00	9.13	9.41	9.48
Pound sterling	0.69	0.66	0.65	0.64	0.61	0.61	0.61	0.60	0.63	0.61	0.62	0.62
European Union new members												
Czech koruna	37.22	37.59	36.41	36.34	35.77	36.28	35.47	34.90	34.79	34.29	34.02	33.17
Estonian krone	15.65	15.65	15.65	15.65	15.65	15.65	15.65	15.65	15.65	15.65	15.65	15.65
Cyprus pound	0.58	0.58	0.58	0.58	0.58	0.57	0.57	0.57	0.58	0.58	0.57	0.57
Latvian lats	0.65	0.63	0.62	0.61	0.58	0.56	0.55	0.54	0.57	0.55	0.56	0.56
Lithuanian litas	4.49	4.23	4.19	4.15	3.95	3.73	3.62	3.47	3.69	3.49	3.56	3.58
Maltese lira	0.44	0.43	0.42	0.42	0.41	0.41	0.40	0.40	0.41	0.40	0.40	0.40
Hungarian forint	251.68	250.65	253.08	255.62	256.07	259.11	261.14	263.94	265.72	257.22	251.83	251.62
Polish zloty	4.22	4.18	4.17	4.34	4.06	4.09	3.97	3.92	3.77	3.48	3.76	3.66
Slovenian tolar	189.94	193.77	196.73	197.27	201.32	205.30	208.53	211.39	215.33	217.25	219.37	219.96
Slovak koruna	43.48	45.42	44.44	43.13	42.05	42.28	42.70	43.37	43.71	43.12	43.08	43.29

	2002Q1	2002Q2	2002Q3	2002Q4	2003Q1	2003Q2	2003Q3	2003Q4	2004Q1	2004Q2
US dollar	0.88	0.92	0.98	1.00	1.07	1.14	1.12	1.19	1.25	1.20
Japanese yen	116.07	116.46	117.24	122.42	127.59	134.74	132.14	129.45	133.97	132.20
European Union (no euro)										
Danish krone	7.43	7.43	7.43	7.43	7.43	7.43	7.43	7.44	7.45	7.44
Swedish krona	9.16	9.16	9.23	9.09	9.18	9.14	9.16	9.01	9.18	9.15
Pound sterling	0.61	0.63	0.64	0.64	0.67	0.70	0.70	0.70	0.68	0.67
European Union new members										
Czech koruna	31.77	30.40	30.23	30.86	31.62	31.47	32.17	32.10	32.86	32.02
Estonian krone	15.65	15.65	15.65	15.65	15.65	15.65	15.65	15.65	15.65	15.65
Cyprus pound	0.58	0.58	0.57	0.57	0.58	0.59	0.59	0.58	0.59	0.58
Latvian lats	0.56	0.57	0.59	0.60	0.62	0.65	0.64	0.65	0.67	0.65
Lithuanian litas	3.48	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45	3.45
Maltese lira	0.40	0.41	0.41	0.41	0.42	0.43	0.43	0.43	0.43	0.43
Hungarian forint	244.04	242.94	245.35	239.47	243.63	250.95	259.65	259.82	260.00	252.16
Polish zloty	3.62	3.72	4.08	4.00	4.19	4.36	4.42	4.62	4.78	4.69
Slovenian tolar	221.91	225.19	227.25	229.37	231.28	233.00	234.88	236.14	237.65	238.87
Slovak koruna	42.23	42.99	43.81	41.70	41.79	41.23	41.75	41.18	40.56	40.08

Source: ECB.