

NEW EFFECTIVE EXCHANGE RATE INDEX FOR THE PORTUGUESE ECONOMY*

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1. INTRODUCTION

Effective exchange rates are indicators of the purchasing power of currencies and, when properly deflated, their change is an indicator of developments in the external competitiveness of the economy.

This paper presents an updated nominal effective exchange rate index for Portugal (NEERIP), which corresponds to an international goods trade structure encompassing a higher number of countries than those considered for the calculation of the previous index⁽¹⁾. This update was necessary due to changes in the international trade structure on which the previous version of the index (dating from 1990) was based. In addition, two real indices are presented, using consumer price indices and GDP price indices to deflate nominal changes in exchange rates.

With the implementation of Stage Three of Economic and Monetary Union a number of institutions started to calculate euro effective exchange rates, namely the European Central Bank publishes, on a regular basis, in its *Monthly Bulletin* effective exchange rates, in nominal and real terms, for the euro area as a whole⁽²⁾. However, for each participating country it remains important to obtain national effective exchange rate indices, which replace the previous effective exchange rates of

their currencies, given that their individual behaviour is different from that of the euro area as a whole. In fact, each country has a different external trade structure, namely regarding the relative importance of the several intra and extra-euro area trading partners, different domestic developments in terms of prices and production costs, different institutions and different ways to conduct national economic policies. Moreover, if in nominal terms the change in the effective exchange rate indices translates exchange rate developments of the euro against the currencies of extra-euro area trading partners (which in the case of the Portuguese economy have a minority part on external trade⁽³⁾), in real terms, the change in the effective exchange rate index also reflects changes in the relative behaviour of inflation and production costs between national economies belonging to the euro area. Thus, the real effective exchange rate index is still important as an indicator of the external competitiveness of the economy.

However, a real effective exchange rate index is an external competitiveness indicator in the narrow sense, given that competitiveness is assessed only in terms of the relative change in prices or costs. In fact, this index does not reflect other qualitative factors relevant for the overall competitiveness of the economy, such as the ability to innovate, the quality of the product or the ability to adapt to market demands.

* The views expressed in this paper are those of the authors and do not necessarily coincide with those of Banco de Portugal.

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(1) See Vidal, Maria José and Balcão Reis, Teresa (1994).

(2) Other institutions, e.g. the European Commission, IMF and OECD, also publish these rates.

(3) In 2003 extra-euro area trade accounted for 33.2 and 28.9 per cent respectively of exports and imports of goods.

This paper is organised as follows: Section 2 discusses the methodologies underlying the calculation of effective exchange rates, ending with a summarised description of the methodologies used by some international bodies and central banks; Section 3 presents the new nominal effective exchange rate index and two real effective exchange rate indices; the last section presents the conclusions, where the main results obtained are summarised.

2. METHODOLOGICAL ASPECTS

2.1. Methodological options to be considered

The nominal effective exchange rate (NEER) of country j is generally obtained as a geometric average of bilateral nominal exchange rates according to the following formula:

$$NEER_j = \prod_{i=1}^N (e_{i,j})^{W_i},$$

where N is the number of trading partners considered, $e_{i,j}$ is the exchange rate of the currency of partner i against the currency of country j and W_i is the total weight assigned to partner i . An increase in the rate reflects an appreciation of the value of the currency of country j .

The real effective exchange rate (REER) is calculated by deflating the nominal effective exchange rate:

$$REER_j = \prod_{i=1}^N \left(\frac{d_j e_{i,j}}{d_i} \right)^{W_i},$$

where d_j and d_i are, respectively, the deflator of the country for which the real effective exchange rate is calculated and the deflator of partner i .

The use of these formulas implies the determination of the partners to be considered, the method and the reference period for the calculation of weights W_i , and, to obtain the index in real terms, the deflators to be used. Options in this respect should depend on the purpose underlying the calculation of this indicator and also on operational aspects, namely regarding the regular availability and the statistical quality of the information to be used.

If, as usual, real effective exchange rates are used to build external competitiveness indicators, bilateral exchange rates to be selected should cor-

respond to partners with which the country has more significant trade relations.

With regard to the weighting method, the purpose is to obtain a proxy for the effective weight that each currency has in external trade relations of the country for which the index is calculated.

The most frequently used method implies the calculation of bilateral weights for imports and double weights for exports⁽⁴⁾.

The imports bilateral weights reflect the weight of partner i in imports of country j from the group of partners considered. Thus, the weight of country i in the index of j is given by:

$$W_{ij}^m = \frac{M_j^i}{M_j},$$

where M_j^i are the imports of j from i and M_j are the imports of j from the partners considered.

Weights assigned to exports are double weights that take into account, in each market, the competition of the domestic producer and other exporters. The weighting of country i in the exports of j , W_{ij}^x , results from the combination of the weight of the trading partner i in the total supply of each market with the importance of that market for the exports of the country for which the index is calculated, i.e.:

$$W_{ij}^x = \left(\frac{X_j^i}{X_j} \right) \times \left(\frac{Y_i}{Y_i + \sum_{h \neq i,j} X_h^i} \right) + \sum_{k \neq i} \left(\frac{X_j^k}{X_j} \right) \times \left(\frac{X_i^k}{Y_k + \sum_{h \neq k,j} X_h^k} \right),$$

where X refers to exports (the index in the lower corner stands for the country of origin and the index in the upper corner stands for the country of destination) and Y_i (Y_k) represents the domestic production of country i (country k). The following example shows the calculation of the relative weight of the pound sterling in the context of exports (country j , in this case, is Portugal and country i is the United Kingdom). In order to obtain this weight, first it is necessary to determine the weight of the domestic production of the United Kingdom in its domestic market ($Y_i / Y_i + \sum_{h \neq i} X_h^i$) and in the remaining markets ($X_j^k / Y_k + \sum_{h \neq k,j} X_h^k$). These weights reflect, respectively, the competition faced by the United Kingdom production in

(4) For a more detailed description of the double weighting method see Turner, Philip and Van't dack, Jozef (1993).

the domestic and external markets. Second, each of these markets is weighted by its relative importance in Portuguese exports (X_j^i / X_j in the case of the United Kingdom domestic market and X_j^k / X_j in the remaining cases).

Finally, total weights are a linear combination of both partial weights:

$$W_{ij} = \left(\frac{M_j}{M_j + X_j} \right) \times W_{ij}^m + \left(\frac{X_j}{M_j + X_j} \right) \times W_{ij}^x,$$

where the weighting factor is the weight of imports or exports of j in its total external trade in the markets considered.

The International Monetary Fund created a triple weighting scheme where double weights were calculated for 143 categories of manufactured goods, afterwards they were aggregated using the weight of each category of goods in total exports of manufactured goods. The complexity of its application together with the negligible gains obtained led to the discontinuance of this method⁽⁵⁾.

Regarding the selection of the reference period for the calculation of weights, it might appear that the ideal solution would be to admit that this period is always the most recent possible, i.e. a reference period updated on a yearly basis. However, the choice of time varying weights raises some problems of a practical nature. One of them results from the need to include one adjustment element that makes it possible to obtain consistent results between the end of each reference period for the calculation of the weighting structure and the beginning of the new reference period. Assuming that the weights are annual, a possible calculation formula for the annual effective exchange rate would use an adjusted index⁽⁶⁾:

$$NEER_t = NEER_{t-1} \times \frac{\prod_i e_{i,j;t}^{W_{i,j;t}}}{\prod_i e_{i,j;t-1}^{W_{i,j;t-1}}},$$

where t and $t-1$ refer, respectively, to the year that corresponds to the new reference period and to the previous year. Moreover, for the current year and while information is not complete, the new weights are not available and therefore the weights for the previous year must be used, or any

other expedite solution, thus introducing a methodological discontinuity. Another problem results from the use of very recent data that may be revised. Indeed, the revisions of the series of external trade flows are generally very frequent and, sometimes, of a great magnitude, which brings instability to the determination of weighting structures.

These aspects led to the choice, in most cases, of fixed weights. These fixed weights are often derived via an average of external trade structures corresponding to a few years, usually 3-year averages, in order to obtain a weighting structure that is not significantly affected by irregular fluctuations. If these fixed weights are updated at regular intervals, the differences resulting from the use of time varying weights will obviously tend to be negligible.

With regard to the deflators to be used, there is no deflator that, by itself, can give an entirely satisfactory overview of competitiveness, even when it is considered in the narrow sense in terms of relative prices or relative costs. All deflators have conceptual and/or statistical limitations. As a consequence, taking into account the relative advantages of deflators and the aims of the analysis, several real effective exchange rates are often constructed, i.e. several deflators are used. Among the deflators that can be used for this purpose, two types should be highlighted: price indices and cost indices.

Several price indices may be considered, of which the most common are export price indices, producer price indices (PPIs) and consumer price indices (CPIs).

The use of export price indices seems to be an obvious choice, given the purpose that usually underlies the computation of real exchange rate indices. However, in practice, these indices correspond in fact to mere export unit value indices⁽⁷⁾, and thus they are not actual price indices. Moreover, the different composition of the exports from the various countries, as well as the change in that composition over time can significantly affect ag-

(5) See Zanella, Alessandro and Desruelle, Dominique (1997), pp. 11-12.

(6) Banca d' Italia follows a slightly different method where the weight used is a simple average of the weight of the previous year and the current year. See Banca d' Italia (1998). The formula presented is followed, for example, by the Federal Reserve Bank. See Leahy, Michael (1998).

gregate indices.

PPIs could be a more attractive alternative, but their use is seriously hindered due to the lack of international harmonisation in terms of the degree of coverage, methodology and publication calendar.

CPIs are regularly calculated by many countries, with considerable timeliness and, in the case of European Union countries, their calculation follows some harmonisation rules. However, they are affected by indirect taxes, subsidies and price controls. Moreover, they include non-tradable goods and exclude some tradable goods, in particular intermediate goods. Nonetheless, despite these features, the relative operational advantages explain why they are commonly used to deflate nominal effective exchange rates.

The most commonly used cost indicators are unit labour costs (ULC) and GDP deflators. Usually, they are only made available with some time lag, particularly in the case of unit labour costs, and with a lower frequency (quarterly or even yearly).

Unit labour costs do not reflect all relevant costs, such as capital costs. Generally, they are highly volatile which denotes, in some cases, significant problems in terms of statistical quality, and are often presented in terms of trends⁽⁷⁾. The use of trends raises the problem of selecting the most adequate estimation algorithm, namely regarding the treatment of the latest available observations, which are precisely those that deserve more interest. Moreover, it is also necessary to choose the scope of the unit labour costs to be considered, usually between unit labour costs in manufacturing (ULCM) and unit labour costs in the total economy (ULCT). ULCM are commonly used given that manufactured goods are the main component of international trade. However, the growing importance of services in international trade also points to the use of ULCT.

Given that unit labour costs do not reflect all relevant costs, the GDP deflators, being a more general measure, are naturally an alternative to be

considered. Namely, they also reflect costs of capital utilisation. However, they include non-market sectors and, as unit labour costs in the total economy, they cover goods that are not internationally traded. Moreover, the index usually made available refers to GDP at market prices. With regard to unit labour costs in the total economy GDP deflators have, however, some advantages that make their choice as a deflator relatively attractive. One of these advantages is that, in the large majority of the developed economies, this indicator is made available on a quarterly basis and with a relatively short time lag, in the context of the production of quarterly national accounts.

2.2. Prevailing methodologies

Effective exchange rates are calculated by several central banks and international bodies. This section presents the various methodologies, with special emphasis on those used by Banco de Portugal and the European Central Bank.

a) Banco de Portugal

The methodology used by Banco de Portugal for the calculation of the nominal effective exchange rate index for Portugal (NEERIP) was first presented in 1994⁽⁹⁾.

In terms of the scope of external trade, it was decided to include only manufactured goods, given their relevance for Portugal in terms of external competitiveness. The reference currency basket continued to include 13 currencies⁽¹⁰⁾, covering 81.9 per cent of the Portuguese (direct) external trade. The use of a larger basket would not have very relevant effects in terms of results. Moreover, by including more countries, the timely construction of real indices could be jeopardised. The weighting method was also revised, with double weights replacing bilateral weights. This change aimed at considering not only bilateral trade relations but also competition in third markets. Finally, the choice of the base period for

(7) Generally, for each group of products included in a given category of the external trade nomenclature, these indices are originally derived through the ratio of its monetary value to the overall weight of these products.

(8) See IMF, Zanello, Alessandro and Desruelle, Dominique (1997), p. 11.

(9) See Vidal, Maria José and Balcão Reis, Teresa (1994).

(10) Deutsche mark, Belgian franc, French franc, Italian lira, Dutch guilder, Danish krone, pound sterling, Spanish peseta, US dollar, Japanese yen, Swedish krona, Norwegian krone and Swiss franc.

weights fell on a single year, 1990, given that it is a representative and recent year.

In practice, the choices made in terms of the above-mentioned variables made it possible to apply the weights calculated by the Bank for International Settlements (BIS)⁽¹¹⁾, standardised⁽¹²⁾ to the 13-currency basket.

The nominal effective exchange rate index for Portugal series has a monthly frequency and has been regularly published in the *Statistical Bulletin* of Banco de Portugal.

The *Annual Report* of Banco de Portugal presents real effective exchange rate indices for Portugal, calculated using the CPI and unit labour costs. These indicator series have a yearly frequency.

b) European Central Bank (ECB)

The ECB methodology for the calculation of the euro effective exchange rate (EER)⁽¹³⁾ is largely based on the one presented by the BIS. The trade flows considered by the ECB refer to manufactured goods. Services were excluded due to the lack of data. Obviously, intra-euro area trade was excluded.

As for the choice of the basket of currencies, they tried to find an equilibrium between the degree of coverage of external trade and the quality of information. Thus, two baskets were created, one involving 12 industrialised or recently industrialised countries⁽¹⁴⁾ and another, with a wider coverage, involving 38 trading partners⁽¹⁵⁾, including emerging markets and transition economies. In the 1995-1997 period, these baskets covered respectively 61 and 89 per cent of the euro area external trade in manufacturing goods. The criteria for the group of 12 were, in addition to significant trade links, the existence of daily data on the exchange rate as well as a set of cost and price indices made available in due time. In the wider group

were included the countries that fulfilled at least one of the following conditions: individual share of the euro area trade higher than 1 per cent; accession country status; significant trade links with individual euro area countries. They also needed to have available monthly data on the CPI released in due time and with good quality. With the 2004 revision, the group of 38 countries was extended to encompass Latvia, Lithuania, Bulgaria and Malta and another group of 23 countries was created, including the 12 countries of the already existing group, the 10 new EU Member States and China, which will be the reference group. In the 1999-2001 period, trade flows of the groups of 42, 23 and 12 countries represented respectively 89.6, 74 and 59.8 per cent of the euro area external trade in manufacturing goods.

The weighting method adopted was double weights and the base period is fixed, since it was considered that changes in the pattern of international trade are very gradual, and therefore the weights only need to be revised at five-year intervals. The 1995-1997 base period was applied until 1999. Thenceforth the reference period was changed to 1999-2001. The current EER series results from the link between the two indices in early 1999.

The deflators applied to obtain the real effective exchange rate (REER) are the consumer price index (CPI), producer price index (PPI), unit labour costs in manufacturing (ULCM), unit labour costs in the total economy (ULCT) and the gross domestic product deflator (GDPD). Whenever possible, the ECB applies harmonised indicators for EU countries.

c) Other central banks and international bodies

The methodologies applied by other international institutions and central banks are summarised in Table 1.

(11) For more details on BIS methodology, see Turner, Philip and Van't dack, Jozef (1993).

(12) Theoretically, this standardisation is not correct and weights should be recalculated. However, in practice, results are very similar.

(13) For a detailed description of the methodology, see Buldorini, Luca, Makrydakis, Stelios and Thimann, Christian (2002). The changes introduced in 2004 are summarised in the September 2004 issue of the *Monthly Bulletin* of the European Central Bank.

(14) Australia, Canada, Denmark, Hong Kong, Japan, Norway, Singapore, South Korea, Sweden, Switzerland, United Kingdom, United States.

(15) Includes the group of 12 countries and Cyprus, Czech Republic, Estonia, Hungary, Poland, Slovenia, Slovakia, China, New Zealand, Algeria, Argentina, Brazil, Croatia, India, Indonesia, Israel, Malaysia, Mexico, Morocco, Philippines, Romania, Russia, South Africa, Taiwan, Thailand, Turkey.

The choice of the scope of external trade fell mainly on manufactured goods, owing to their relevance in terms of international trade and to the good quality of the data. However, in practical terms, the definition of manufactured goods adopted is slightly different.

The basket of currencies adopted varies widely, and there are even institutions that opt for more than one basket. Banco de Portugal had one of the most reduced baskets, reflecting in part the relatively high geographical concentration of the Portuguese external trade in goods.

The double weighting method is used by all the institutions presented in Table 1⁽¹⁶⁾, reflecting the

fact that it is modestly complex but guarantees quite satisfactory quality levels. However, it is important to take into consideration that there are some differences in the application of this type of weighting.

Most of the institutions presented adopted fixed weights, taking as a basis the average of three consecutive years (in contrast to BIS, Banco de Portugal and Danmarks Nationalbank that took as a basis only one year). The others opted for time

(16) In the case of the inclusion of primary goods, the double weights no longer make sense, since these are non-differentiated goods with only one international market.

Table 1

**COMPARISON OF THE METHODOLOGIES OF SOME CENTRAL BANKS
AND INTERNATIONAL BODIES**

	Scope of external trade	Reference trading partners	Weighting method	Base period of weighting	Deflators
Banco de Portugal	Manufactured goods	14	Double	Fixed (1990)	CPI, ULCM, ULCT
European Central Bank	Manufactured goods	12, 23, 42	Double	Fixed (revised at five-year intervals: 1995-1997; 1999-2001)	CPI, PPI, ULCM, ULCT, GDPD
IMF ^(a)	REER (ULC)	20	Double	Fixed (1989-1991)	ULCM
	REER (CPI)	146 ^(b)	Double (Manufactured goods and tourism), "special" (primary goods)	Fixed (1988-1990)	CPI
BIS	Manufactured goods	25	Double	Fixed (1990)	CPI, export unit value index (EUVI), ULCM
European Commission	Merchandise	12, 24, 25, 34, 41	Double (only exports)	Moving	CPI, EUVI, ULCM, ULCT, GDPD
OECD	Manufactured goods	41	Double	Moving	CPI, ULCM
Banca d'Italia	Manufactured goods	24	Double	Moving	PPI, EUVI, ULCM
Banco de España	Manufactured goods	14, 21, 28	Double	Fixed (1995-1997)	CPI, PPI, EUVI, ULCM
Danmarks Nationalbank	Manufactured goods	25	Double	Fixed (1995)	CPI, ULC, hourly earnings, hourly wage costs
Bank of Canada	Merchandise	16	Double	Fixed (1994-1996)	CPI, ULCM, GDPD
Federal Reserve Bank	Merchandise excluding primary goods ^(c) and military exports	18, 19, 37	Double	Moving	CPI

Notes:

- (a) The International Monetary Fund (IMF) will update its methodology in the near future. See Bayoumi, T., Jaewoo, L., Jayanthi, S. (2004). Bank of England applies directly the weights calculated by the IMF. Recently a proposal for the revision of methodology was presented (Lynch, B e Whitaker, S., 2004), which will be applied in the Spring 2005. The main changes suggested are the application of time varying weights (in year t, weights based on t-2 are applied, while t-1 weights are not available) and the incorporation of external trade in services, although with some limitations.
- (b) The IMF calculates effective exchange rates for 147 countries. However, for 16 of these countries, the CPI is not available, and therefore it is not possible to calculate the REER including this subgroup.
- (c) From January 2002 onwards, exports of agricultural goods are not excluded.

varying weights.

Finally, almost all institutions use the CPI as a deflator. ULCM are also quite common.

3. EFFECTIVE EXCHANGE RATE INDEX FOR PORTUGAL

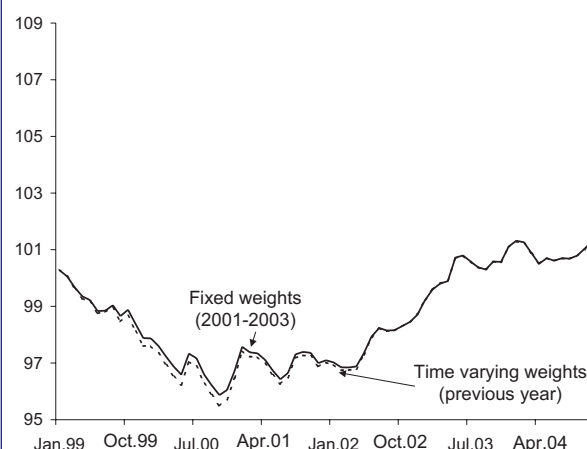
3.1 NEERIP update

The structure of the Portuguese external trade has undergone profound changes since 1990, warranting the need to update the NEERIP. As a consequence, the group of trading partners considered as well as the reference period for the weights were revised. The weights previously used by Banco de Portugal were made available by the BIS, standardised for the basket of the 13 currencies considered. In this update, the calculation was exclusively made by Banco de Portugal. The series of the new index starts in 1999, when the Third Stage of Economic and Monetary Union also started, with the adoption of the euro (see in Annex 1 the table with the results).

As referred to above, the group of countries relevant for the Portuguese external trade has changed over the past few years and therefore the previous basket was outdated. For the new group of trading partners, a wider group of 22 countries was chosen (Austria, Belgium, Brazil, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Japan, Luxembourg, The Netherlands, Norway, Poland, Spain, Sweden, Switzerland, United Kingdom and United States), taking into account their representativeness and availability of information. This group of countries represents around 92 per cent of the Portuguese manufacturing external trade, and therefore it has a wider coverage than the previous one, which represented approximately 82 per cent.

The reference period for the weights was updated, corresponding to the average of the 2001-2003 triennium. The option to maintain fixed weights to the detriment of time varying weights makes the calculation of NEERIP less complex and more stable. This option does not seem to imply considerable differences as regards the alternative option. Chart 1 presents NEERIP⁽¹⁷⁾ calculated with fixed weights and with time varying weights⁽¹⁸⁾. As can be seen, differences are not sig-

Chart 1
COMPARISON BETWEEN NEERIP CALCULATED
WITH FIXED WEIGHTS
AND WITH TIME VARYING WEIGHTS



nificant and therefore the gain in terms of simplification of the regular publication process of the series justifies the choice. Moreover, as referred to above, the utilisation of time varying weights, even if corresponding to the previous year, would imply that in the first months of each year the structure of the index could not be updated.

The weights were calculated applying the double weighting method, using the formula described in Section 2. It was assumed that Portugal competes in 23 markets: the 22 of the reference countries and a third market aggregating the rest of the world. It was assumed that the production of the rest of the world do not compete in any market considered⁽¹⁹⁾. The values of the trade flows between the several countries were obtained on the "World Trade Atlas" (WTA) database. As the classification of goods used by WTA is the Harmonised Commodity Description and Coding System (HS), it is not possible to extract directly the value of external trade in manufacturing goods. Thus, it was necessary to convert this nomenclature into

(17) All indices presented take value 100 in the first quarter of 1999, as the ECB does for the euro effective exchange rates, making comparisons easier.

(18) The time varying weights were calculated using the same methodology as the fixed weights, but considering for each year the trade flows of the previous year.

(19) This simplification is used by other institutions. See Turner, Philip and Van't dack, Jozef (1993), p. 22 for the BIS and Buldorini, Luca, Makrydakis, Stelios and Thimann, Christian (2002), p. 12 for the ECB.

the Standard International Trade Classification (SITC)⁽²⁰⁾, using afterwards sections 5 to 8. Data on Norway and Switzerland were extracted from the “Commodity Trade Statistics Database” of UNO.

The domestic production that competes with imports had to be estimated⁽²¹⁾. The procedure followed consisted in using the adjusted value added of manufacturing (VAM), in order to be comparable with gross trade flows. Data on VAM were obtained through OECD (*National Accounts of OECD Countries – Detailed Tables*). As a measure of the inputs used by the domestic manufacturing industry other than the inputs produced by the industry itself, we added the value of manufacturing imports. Although this is not the ideal calculation process, it avoids negative results. The calculation of the domestic production sold internally was obtained by subtracting manufacturing exports. However, as for some countries this information was not yet available for all years, we assumed in these cases that VAM varied in line with GDP⁽²²⁾.

Updated weights show considerable differences compared with the previous ones. Table II shows the previous weights (base period: 1990) and the updated weights (base period: 2001-2003). Considering that the reference trading partners changed, it is necessary to standardise⁽²³⁾ the weights of 2001–2003 for the previous basket so as to establish comparisons. As illustrated in Chart 2, the countries that increased their weight were Belgium and Luxembourg (+0.2 p.p.), United States (+1.7 p.p.) and chiefly Spain, with a 10.7 p.p. increase. The countries with the highest absolute declines were Italy, United Kingdom and France, recording reductions of 1.9 p.p., 2.1 p.p. and 2.2 p.p. respectively.

In 1990 the three main trading partners were by this order, Germany, France and Spain. In the period 2001–2003 Spain was the most important trad-

Table 2

PREVIOUS WEIGHTS AND UPDATED WEIGHTS

Per cent

	Previous weights (1990)	Updated weights (2001-2003)	Standardised updated weights (2001-2003) ^(a)
Austria		1.46	
Belgium	4.85 ^(b)	4.45	5.06 ^(b)
Brazil		0.65	
Czech Republic		0.63	
Denmark	1.35	0.81	0.87
Finland		0.80	
France	15.22	12.12	12.99
Germany	20.98 ^(c)	17.88	19.16
Greece		0.23	
Hungary		0.76	
Ireland		1.07	
Italy	11.11	8.60	9.22
Japan	4.13	2.82	3.02
Luxembourg		0.28	
The Netherlands	6.10	5.39	5.77
Norway	1.06	0.64	0.68
Poland		1.07	
Spain	14.44	23.45	25.12
Sweden	2.94	1.35	1.45
Switzerland	2.86	1.87	2.01
United Kingdom	10.03	7.41	7.94
USA	4.95	6.25	6.70

Notes:

(a) Standardised updated weights for the previous basket of trading partners.

(b) The weight refers to Belgium and Luxembourg.

(c) The weight refers only to West Germany.

ing partner (23.4 per cent of the total for the 22 countries), followed by Germany and France. The weight of these three countries as a whole exceeds always 50 per cent.

Despite the change observed in the structure of international trade, the performance of the new index is similar to that of the previous index in qualitative terms, as illustrated in Chart 3. In part, this performance can be explained by the partial compensation of the increase in the relative weight of Spain by the reduction in the relative weight of other euro area countries.

3.2 Real effective exchange rate index for Portugal

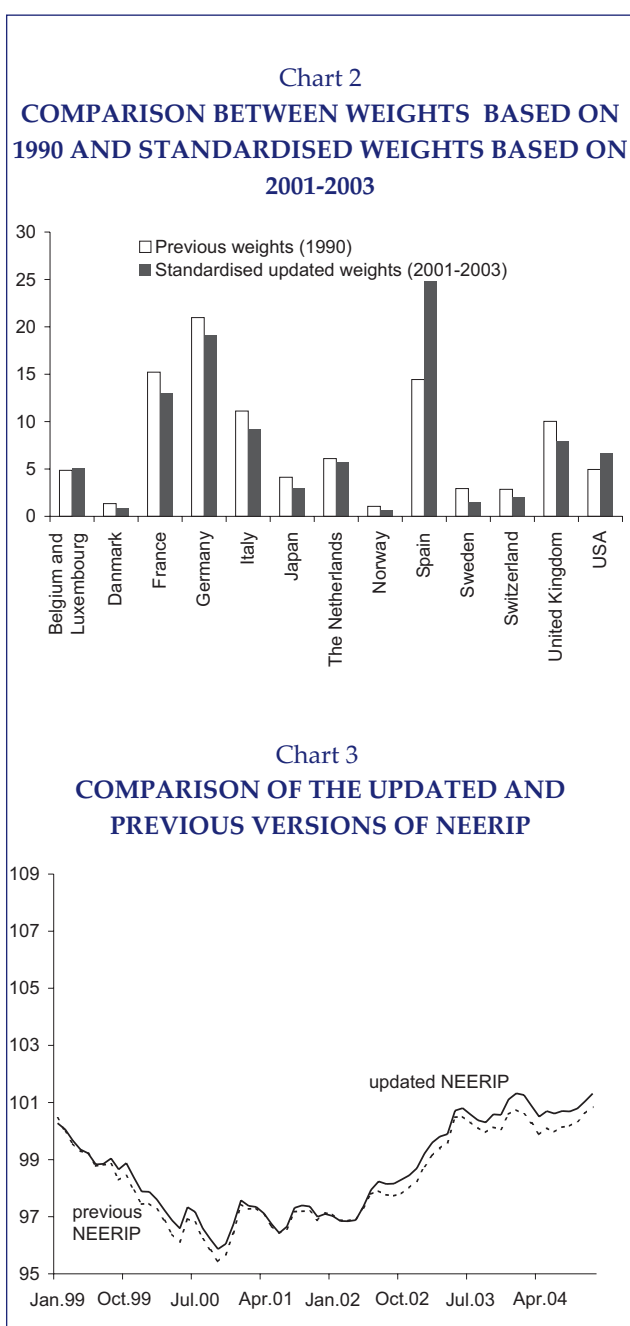
As discussed above, there are several possible deflators for the calculation of REERIP. With this update we decided to apply the CPI and GDP deflators, taking into account the availability and reliability of the data. In the future, admitting that it will be possible to have data on wages with statistically satisfactory quality, namely for Portugal, we

(20) The conversion table used was the one made available by the United Nations Organisation (UNO), with the 6-digit HS. The conversion is somewhat complex and some SITC codes do not have correspondence in HS.

(21) For a more detailed discussion, see Turner, Philip and Van't dack, Jozef (1993), pp.116-118.

(22) In the same circumstances, the method applied by the ECB was similar. See Buldorini, Luca, Makrydakis, Stelios and Thimann, Christian (2002), p. 15.

(23) As referred to in footnote 12, this standardisation is not theoretically correct. In practice, results are however quite similar to those that would be obtained by recalculating the weights.



are going to construct also an (infra-annual) index using unit labour costs.

3.2.1 REERIP (adjusted for the consumer price indices)

With the aim of obtaining a competitiveness indicator that makes it possible within a short time and with a monthly frequency, to understand recent developments in competitiveness and taking into account the relatively generalised use of consumer price indices, we constructed a NEERIP series adjusted for this type of indicator (see Annex 2).

For EU countries and Norway we applied the monthly Harmonised Index of Consumer Prices (HICP) compiled by Eurostat and for the remaining countries we used the monthly CPI of the Reuters database.

Chart 4 presents this index, as well as the one resulting from the application of the weightings structure of the previous index. In real terms, differences in the evolution of the updated index adjusted for the CPI vis-à-vis the previous one are, in general, more significant than in nominal terms. This result reflects the fact that this index is more affected by the change in the structure of external trade, since even the change in the relative weight of the euro area trading partners is relevant, in so far as these changes imply a different weighting of the national CPI. In this case, the updated REERIP reflects a more favourable external competitiveness position than indicated by the previous REERIP, in particular in the most recent years. In part, this results from the increase in the relative weight of Spain, which has recorded relatively higher inflation levels than the ones of other important trading partners. Even though, the trend of the chain rates of change and of the year-on-year rates of change in the new REERIP are relatively similar to those of the former REERIP.

3.2.2 REERIP (adjusted for GDP deflators)

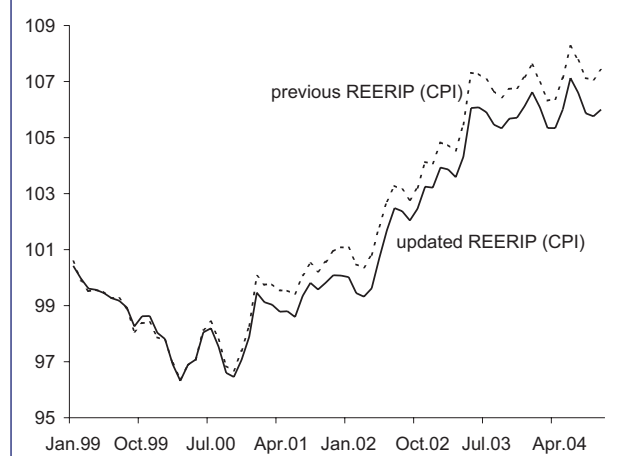
To supplement the NEERIP adjusted for the CPI, a quarterly index was constructed, adjusted for GDP deflators (see Annex 3).

For this, we compiled (seasonally adjusted⁽²⁴⁾) GDP deflators, which are regularly made available by Eurostat, but it was not possible to include all the countries considered in the calculation of the former index. The countries excluded were Brazil, Hungary, Luxembourg, Poland and Sweden⁽²⁵⁾. It should be noted, however, that on the whole these countries have a weight of approximately 4 per cent in the original structure of the weights.

(24) The choice of seasonally adjusted indices was due to the fact that the GDP deflator in Portugal, in principle, is only made available already disseasonalised, according to the methodology of the Quarterly National Accounts.

(25) To obtain weights only for this narrower group, the original weights were standardised.

Chart 4
COMPARISON OF THE UPDATED AND
PREVIOUS VERSIONS OF REERIP (ADJUSTED
FOR THE CPI)



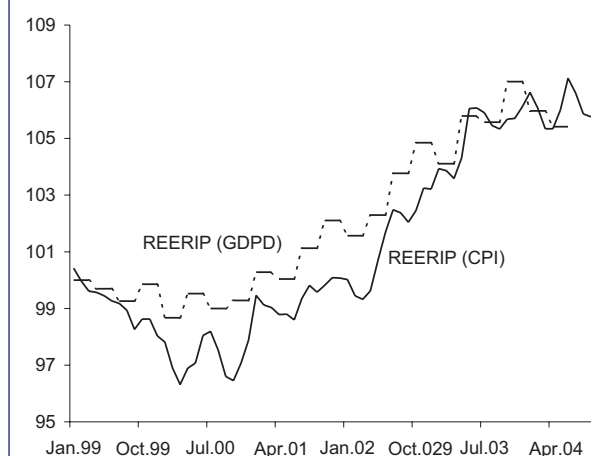
Comparatively with the previous case, these indices have the disadvantage of being subject to regular revisions. Although typically these revisions are not quite significant, they occur whenever data for a new quarter are released and therefore the corresponding REERIP must also be changed.

The REERIP results adjusted for the GDP deflators and for the CPI are not fully similar (Chart 5) but point, in general, to the same type of competitive developments. In 1999 and 2000 the competitiveness of the Portuguese economy seems to have remained relatively stable, pointing even to a slight improvement. From 2001 onwards, REERIP recorded an upward trend, with some losses in competitiveness, in particular in 2002 and in the first half of 2003. Thenceforth, the deterioration of competitiveness was interrupted, giving rise to a stabilisation of the index.

4. CONCLUSION

The performance of the updated NEERIP, despite the sizable change in the structure of Portugal's international trade, is similar to that of the previous index. However, in real terms, differences are more significant. In this case, the new REERIP has, in general, a lower level than the previous index, denoting a relatively more favourable competitive situation.

Chart 5
REAL EFFECTIVE EXCHANGE RATES INDICES
FOR PORTUGAL



Both this index and the real index which is obtained with the utilisation of GDP deflators, indicate that from 2001 onwards the Portuguese economy has lost some competitiveness. Notwithstanding, from the second half of 2003 onwards, the situation seems to have stabilised. However, it should be noted that these considerations must be taken with caution since as referred to above, these indices are not a global measure of competitiveness, given that they ignore some qualitative aspects that may influence it.

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Annex 1

COMPARISON OF THE UPDATED AND PREVIOUS VERSIONS OF NEERIP - cont.

(In percentage)

1999Q1=100	NEERIP		Chain rate of change		Year-on-year rate of change		Annual average rate of change	
	Updated version	Previous version	Updated version	Previous version	Updated version	Previous version	Updated version	Previous version
Jan-99	100.28	100.46						
Feb-99	100.06	99.99	-0.22	-0.47				
Mar-99	99.67	99.56	-0.39	-0.43				
Apr-99	99.35	99.30	-0.31	-0.26				
May-99	99.22	99.22	-0.13	-0.08				
Jun-99	98.83	98.78	-0.39	-0.45				
Jul-99	98.85	98.82	0.02	0.04				
Aug-99	99.04	98.85	0.19	0.04				
Sep-99	98.66	98.29	-0.39	-0.57				
Oct-99	98.88	98.44	0.23	0.15				
Nov-99	98.37	97.92	-0.51	-0.53				
Dec-99	97.88	97.44	-0.50	-0.48				
Jan-00	97.87	97.46	-0.01	0.01	-2.40	-2.99		
Feb-00	97.60	97.26	-0.28	-0.20	-2.45	-2.73		
Mar-00	97.22	96.87	-0.39	-0.40	-2.45	-2.70		
Apr-00	96.87	96.38	-0.36	-0.50	-2.50	-2.93		
May-00	96.59	96.12	-0.29	-0.27	-2.65	-3.12		
Jun-00	97.33	96.93	0.77	0.84	-1.52	-1.87		
Jul-00	97.17	96.81	-0.17	-0.12	-1.70	-2.03		
Aug-00	96.59	96.22	-0.60	-0.61	-2.48	-2.66		
Sep-00	96.21	95.83	-0.39	-0.40	-2.48	-2.50		
Oct-00	95.87	95.43	-0.35	-0.42	-3.05	-3.06		
Nov-00	96.05	95.69	0.19	0.27	-2.36	-2.28		
Dec-00	96.73	96.42	0.71	0.77	-1.18	-1.05	-2.27	-2.50
Jan-01	97.57	97.43	0.87	1.04	-0.30	-0.02	-2.10	-2.25
Feb-01	97.38	97.27	-0.20	-0.16	-0.23	0.01	-1.91	-2.02
Mar-01	97.34	97.30	-0.04	0.02	0.12	0.44	-1.70	-1.76
Apr-01	97.11	97.07	-0.24	-0.24	0.25	0.71	-1.47	-1.46
May-01	96.74	96.67	-0.38	-0.41	0.15	0.57	-1.24	-1.16
Jun-01	96.43	96.42	-0.32	-0.26	-0.93	-0.52	-1.19	-1.04
Jul-01	96.65	96.57	0.23	0.15	-0.53	-0.25	-1.09	-0.89
Aug-01	97.31	97.18	0.68	0.63	0.75	0.99	-0.82	-0.59
Sep-01	97.39	97.19	0.09	0.01	1.23	1.42	-0.51	-0.26
Oct-01	97.36	97.19	-0.04	0.00	1.55	1.84	-0.13	0.15
Nov-01	97.00	96.88	-0.37	-0.31	0.98	1.25	0.15	0.44
Dec-01	97.10	97.13	0.11	0.26	0.38	0.73	0.28	0.59

COMPARISON OF THE UPDATED AND PREVIOUS VERSIONS OF NEERIP

(In percentage)

1999Q1=100	NEERIP		Chain rate of change		Year-on-year rate of change		Annual average rate of change	
	Updated version	Previous version	Updated version	Previous version	Updated version	Previous version	Updated version	Previous version
Jan-02	97.02	97.08	-0.08	-0.05	-0.56	-0.36	0.26	0.57
Feb-02	96.85	96.88	-0.18	-0.21	-0.54	-0.41	0.23	0.53
Mar-02	96.84	96.86	-0.01	-0.02	-0.51	-0.45	0.18	0.46
Apr-02	96.88	96.93	0.04	0.07	-0.24	-0.14	0.14	0.38
May-02	97.35	97.31	0.49	0.40	0.63	0.66	0.18	0.39
Jun-02	97.94	97.80	0.60	0.50	1.57	1.42	0.39	0.55
Jul-02	98.24	97.90	0.30	0.11	1.64	1.38	0.57	0.69
Aug-02	98.15	97.77	-0.09	-0.14	0.86	0.61	0.58	0.66
Sep-02	98.16	97.73	0.01	-0.03	0.79	0.56	0.54	0.59
Oct-02	98.30	97.81	0.15	0.08	0.97	0.64	0.49	0.49
Nov-02	98.45	98.01	0.15	0.21	1.50	1.17	0.54	0.48
Dec-02	98.70	98.26	0.25	0.25	1.65	1.16	0.64	0.52
Jan-03	99.21	98.77	0.52	0.52	2.25	1.74	0.88	0.69
Feb-03	99.59	99.14	0.39	0.37	2.83	2.33	1.16	0.92
Mar-03	99.81	99.40	0.21	0.26	3.06	2.62	1.46	1.18
Apr-03	99.89	99.60	0.09	0.20	3.11	2.75	1.74	1.42
May-03	100.72	100.48	0.83	0.89	3.45	3.26	1.97	1.64
Jun-03	100.80	100.51	0.08	0.02	2.92	2.77	2.09	1.75
Jul-03	100.59	100.31	-0.21	-0.19	2.39	2.46	2.15	1.84
Aug-03	100.38	100.11	-0.21	-0.20	2.27	2.40	2.27	1.99
Sep-03	100.30	99.96	-0.07	-0.15	2.18	2.28	2.38	2.13
Oct-03	100.58	100.13	0.28	0.17	2.32	2.37	2.49	2.28
Nov-03	100.57	100.07	-0.02	-0.06	2.15	2.10	2.55	2.35
Dec-03	101.11	100.59	0.54	0.53	2.44	2.38	2.61	2.46
Jan-04	101.32	100.74	0.21	0.14	2.12	1.99	2.60	2.48
Feb-04	101.26	100.60	-0.06	-0.14	1.68	1.47	2.51	2.40
Mar-04	100.88	100.29	-0.38	-0.31	1.07	0.89	2.34	2.26
Apr-04	100.50	99.88	-0.37	-0.40	0.61	0.28	2.13	2.05
May-04	100.70	100.10	0.20	0.22	-0.02	-0.38	1.84	1.74
Jun-04	100.61	99.97	-0.09	-0.13	-0.19	-0.53	1.58	1.47
Jul-04	100.70	100.14	0.09	0.17	0.11	-0.17	1.39	1.25
Aug-04	100.68	100.18	-0.02	0.04	0.31	0.07	1.23	1.05
Sep-04	100.79	100.35	0.10	0.17	0.48	0.39	1.08	0.90
Oct-04	101.04	100.62	0.25	0.27	0.45	0.49	0.93	0.74
Nov-04	101.31	100.85	0.27	0.23	0.74	0.78	0.81	0.63

Annex 2

COMPARISON OF THE UPDATED AND PREVIOUS VERSIONS OF REERIP (CPI) - cont.

(In percentage)

1999Q1=100	REERIP (CPI)		Chain rate of change		Year-on-year rate of change		Annual average rate of change	
	Updated version	Previous version	Updated version	Previous version	Updated version	Previous version	Updated version	Previous version
Jan-99	100.42	100.58						
Feb-99	99.97	99.90	-0.45	-0.68				
Mar-99	99.61	99.52	-0.36	-0.38				
Apr-99	99.57	99.56	-0.04	0.04				
May-99	99.45	99.50	-0.12	-0.06				
Jun-99	99.27	99.27	-0.18	-0.23				
Jul-99	99.18	99.27	-0.09	0.00				
Aug-99	98.94	98.92	-0.24	-0.35				
Sep-99	98.26	98.08	-0.68	-0.85				
Oct-99	98.62	98.38	0.37	0.31				
Nov-99	98.63	98.41	0.01	0.03				
Dec-99	98.03	97.87	-0.61	-0.55				
Jan-00	97.81	97.78	-0.22	-0.09	-2.60	-2.79		
Feb-00	96.90	96.95	-0.93	-0.84	-3.07	-2.95		
Mar-00	96.32	96.38	-0.60	-0.59	-3.30	-3.15		
Apr-00	96.89	96.87	0.60	0.50	-2.69	-2.70		
May-00	97.07	97.08	0.19	0.21	-2.39	-2.44		
Jun-00	98.05	98.14	1.00	1.09	-1.23	-1.14		
Jul-00	98.19	98.43	0.15	0.30	-0.99	-0.85		
Aug-00	97.53	97.80	-0.67	-0.64	-1.42	-1.13		
Sep-00	96.60	96.85	-0.96	-0.97	-1.69	-1.25		
Oct-00	96.45	96.68	-0.15	-0.17	-2.20	-1.72		
Nov-00	97.07	97.39	0.64	0.73	-1.58	-1.03		
Dec-00	97.89	98.28	0.84	0.92	-0.15	0.42	-1.95	-1.73
Jan-01	99.46	100.06	1.61	1.81	1.69	2.34	-1.59	-1.31
Feb-01	99.12	99.76	-0.34	-0.31	2.29	2.89	-1.15	-0.83
Mar-01	99.03	99.76	-0.09	0.01	2.82	3.51	-0.64	-0.28
Apr-01	98.78	99.54	-0.25	-0.22	1.95	2.76	-0.26	0.18
May-01	98.80	99.53	0.02	-0.01	1.78	2.53	0.09	0.59
Jun-01	98.60	99.43	-0.21	-0.11	0.56	1.32	0.24	0.80
Jul-01	99.35	100.09	0.77	0.67	1.18	1.69	0.42	1.02
Aug-01	99.81	100.51	0.47	0.42	2.34	2.78	0.74	1.34
Sep-01	99.58	100.23	-0.24	-0.28	3.08	3.49	1.14	1.74
Oct-01	99.82	100.57	0.24	0.34	3.49	4.02	1.61	2.22
Nov-01	100.09	100.95	0.27	0.38	3.11	3.65	2.01	2.61
Dec-01	100.08	101.08	-0.01	0.14	2.24	2.85	2.21	2.81

COMPARISON OF THE UPDATED AND PREVIOUS VERSIONS OF REERIP (CPI)

(In percentage)

1999Q1=100	REERIP (CPI)		Chain rate of change		Year-on-year rate of change		Annual average rate of change	
	Updated version	Previous version	Updated version	Previous version	Updated version	Previous version	Updated version	Previous version
Jan-02.....	100.02	101.07	-0.06	-0.01	0.56	1.01	2.11	2.70
Feb-02.....	99.45	100.47	-0.57	-0.60	0.32	0.72	1.94	2.52
Mar-02.....	99.32	100.37	-0.13	-0.10	0.29	0.61	1.73	2.27
Apr-02.....	99.62	100.82	0.30	0.44	0.84	1.28	1.64	2.15
May-02.....	100.69	101.83	1.08	1.00	1.92	2.30	1.65	2.13
Jun-02.....	101.69	102.73	0.99	0.89	3.14	3.32	1.87	2.30
Jul-02.....	102.48	103.28	0.78	0.53	3.15	3.19	2.03	2.42
Aug-02.....	102.37	103.15	-0.11	-0.13	2.56	2.63	2.05	2.41
Sep-02.....	102.04	102.78	-0.32	-0.36	2.48	2.55	2.00	2.34
Oct-02.....	102.46	103.21	0.41	0.42	2.65	2.63	1.94	2.23
Nov-02.....	103.25	104.13	0.77	0.89	3.16	3.15	1.94	2.19
Dec-02.....	103.21	104.08	-0.04	-0.04	3.13	2.96	2.02	2.20
Jan-03.....	103.93	104.82	0.70	0.71	3.91	3.71	2.30	2.42
Feb-03.....	103.86	104.73	-0.07	-0.08	4.44	4.24	2.64	2.72
Mar-03.....	103.59	104.54	-0.27	-0.19	4.29	4.15	2.97	3.01
Apr-03.....	104.31	105.47	0.70	0.90	4.71	4.62	3.30	3.29
May-03.....	106.05	107.31	1.67	1.74	5.32	5.39	3.58	3.55
Jun-03.....	106.08	107.27	0.02	-0.03	4.31	4.42	3.68	3.64
Jul-03.....	105.91	107.07	-0.16	-0.19	3.34	3.67	3.69	3.68
Aug-03.....	105.46	106.66	-0.42	-0.38	3.01	3.40	3.73	3.74
Sep-03.....	105.33	106.44	-0.12	-0.21	3.22	3.56	3.79	3.83
Oct-03.....	105.68	106.74	0.33	0.28	3.14	3.41	3.83	3.89
Nov-03.....	105.71	106.77	0.03	0.03	2.38	2.54	3.76	3.84
Dec-03.....	106.12	107.17	0.39	0.37	2.82	2.97	3.73	3.83
Jan-04.....	106.62	107.61	0.47	0.40	2.59	2.66	3.62	3.74
Feb-04.....	106.08	106.98	-0.51	-0.59	2.13	2.14	3.43	3.57
Mar-04.....	105.34	106.32	-0.69	-0.61	1.69	1.71	3.21	3.36
Apr-04.....	105.34	106.37	0.00	0.05	0.99	0.85	2.90	3.05
May-04.....	106.01	107.13	0.64	0.71	-0.04	-0.16	2.45	2.58
Jun-04.....	107.12	108.26	1.05	1.05	0.99	0.92	2.18	2.29
Jul-04.....	106.60	107.77	-0.49	-0.46	0.65	0.65	1.95	2.04
Aug-04.....	105.87	107.12	-0.69	-0.60	0.39	0.43	1.73	1.79
Sep-04.....	105.76	107.08	-0.10	-0.04	0.41	0.60	1.50	1.55
Oct-04.....	106.00	107.42	0.23	0.32	0.30	0.64	1.27	1.32

Annex 3

**COMPARISON OF THE REAL EFFECTIVE EXCHANGE RATES INDICES FOR PORTUGAL,
ADJUSTED FOR THE CPI AND GDP DEFLATORS**

(In percentage)

1999Q1=100	REERIP (CPI)	REERIP (GDPD)	Chain rate of change		Year-on-year rate of change		Annual average rate of change	
			REERIP (CPI)	REERIP (GDPD)	REERIP (CPI)	REERIP (GDPD)	REERIP (CPI)	REERIP (GDPD)
1999Q1.....	100.00	100.00						
1999Q2.....	99.43	99.70	-0.57	-0.30				
1999Q3.....	98.79	99.26	-0.64	-0.44				
1999Q4.....	98.43	99.85	-0.37	0.60				
2000Q1.....	97.01	98.67	-1.44	-1.19	-2.99	-1.33		
2000Q2.....	97.34	99.53	0.34	0.87	-2.10	-0.17		
2000Q3.....	97.44	99.00	0.11	-0.53	-1.37	-0.26		
2000Q4.....	97.14	99.28	-0.31	0.28	-1.31	-0.57	-1.95	-0.59
2001Q1.....	99.21	100.28	2.13	1.01	2.26	1.63	-0.64	0.15
2001Q2.....	98.73	100.04	-0.48	-0.24	1.43	0.51	0.24	0.32
2001Q3.....	99.58	101.13	0.86	1.09	2.19	2.15	1.14	0.93
2001Q4.....	99.99	102.11	0.41	0.97	2.94	2.84	2.21	1.78
2002Q1.....	99.60	101.57	-0.40	-0.53	0.39	1.28	1.73	1.70
2002Q2.....	100.67	102.29	1.08	0.72	1.97	2.26	1.87	2.13
2002Q3.....	102.30	103.77	1.62	1.44	2.73	2.61	2.00	2.25
2002Q4.....	102.97	104.85	0.66	1.04	2.98	2.69	2.02	2.21
2003Q1.....	103.79	104.11	0.80	-0.70	4.21	2.50	2.97	2.52
2003Q2.....	105.48	105.79	1.63	1.62	4.78	3.42	3.68	2.81
2003Q3.....	105.57	105.57	0.08	-0.21	3.19	1.74	3.79	2.58
2003Q4.....	105.84	107.00	0.26	1.36	2.78	2.06	3.73	2.42
2004Q1.....	106.01	105.97	0.17	-0.97	2.14	1.79	3.21	2.24
2004Q2.....	106.16	105.41	0.14	-0.53	0.64	-0.36	2.18	1.30
2004Q3.....	106.07		-0.08		0.48		1.50	